ORAL ABSTRACTS

O-1 PATHOMECHANISMS OF PD MEMBRANE TRANSFORMATION WITH LOW AND HIGH GDP PD

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Objectives
PD fluid toxicity causes peritoneal damage, data on distinct pathomechanisms induced with low and high GDP PD fluids and the resulting histomorphometric differences are scant.

Methods
Omental and parietal peritoneal biopsies were obtained from 90 children with CKD5 and 101 children on PD (0.1–20 yrs; 82 on low, 19 on high GDP PD). Whole exome analyses of omental arterioles were performed and parietal peritoneal tissues analysed histomorphometrically and immunohistochemically, applying digital imaging.

Results
Compared to CKD5 low GDP PD upregulated 145 and downregulated 38 arteriolar genes, high GDP 684 and 1560 genes, respectively (all p<0.01, multiplicity corrected). Compared with high GDP, low GDP PD differentially regulated 582 genes (p<0.01), with markedly lower expression of cell death/apoptosis pathways, cellular/leucocyte infiltration and of epithelial cell differentiation. Higher expressed were genes involved in cell viability/survival pathways, immune response, (actin-) cytoskeleton organisation and angiogenesis.

Compared to CKD5, low and high GDP PD were associated with progressive parietal peritoneal mesothelial cell loss, submesothelial fibrosis, inflammation, EMT, hypervascularization, vasculopathy and VEGF and pSMAD induction, with vasculopathy being more pronounced in the high GDP PD group. In cohorts matched for age, PD vintage and dialytic glucose exposure, submesothelial thickness was 60% higher with high GDP PD (p=0.040), and vessel lumen/wall (L/V) ratio, a measure of vasculopathy, was lower (p=0.025). Diffuse podoplanin staining was more prevalent with high GDP PD and in low GDP patients associated with higher dialytic glucose exposure, more peritoneal inflammation and EMT, and a 50% lower L/V ratio (all p<0.05).

Conclusions
Low and high GDP fluids induce major peritoneal membrane transformation but differ substantially in the activation pattern of molecular pathways of cell survival, inflammation, immune response, cytoskeleton organisation and angiogenesis. Accordingly, low GDP PD is associated with less submesothelial fibrosis, less peritoneal vasculopathy, and less diffuse extravascular podoplanin expression, which has previously been reported with EPS.
YAP/CAVEOLIN1 FINE TUNING OF MECHANICAL STRETCH-INDUCED MMT IN MESOTHELIAL CELLS: IMPLICATIONS FOR THE GENESIS OF PERITONEAL FIBROTIC PATHOLOGIES

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Objectives
Aim of this study is to evaluate the role of biomechanics in the induction of peritoneal fibrosis. We first analyzed whether cell stretch is sufficient to induce a mesenchymal phenotype in human peritoneal mesothelial cells (MCs), and molecular mechanisms involved, focusing on the role of caveolin-1 (cav1), a component of plasma membrane microdomains acting as a mechanotransducer and of YAP mechanotransduction pathway. Moreover, we analyzed the fibrosis onset in an in vivo model of mechanical damage.

Methods
MCs were plated on a flexible membrane using a Flexcell device and subjected to a cyclic linear stretch for up-two days. In some experiments, cav1 and YAP/TAZ expression was silenced by siRNA. TGFβ1 activity was inhibited using a TGFβRI pharmacological inhibitor, or an antibody against TGFβ1. RNA-seq, proteomics, RT-PCR, western blot and immunofluorescence were performed to analyze the expression of MMT-related parameters. Moreover, an ischaemic button-based peritoneal adhesion (PA) mouse model was established in cav1⁻/⁻ mice.

Results
Exposure of MCs to stretch promoted cellular changes compatible with bona fide MMT, being this process largely dependent on endogenous TGFβ-1 signaling. The effect of YAP/TAZ pathway was partly independent on endogenous TGFβ-1. In cav1-silenced MCs or in MCs derived from cav1⁻/⁻ mice, exposure to stretch led to an increased mesenchymal phenotype, which was limited upon TGFβ-1 inhibition. Interestingly, cav1 expression was controlled by YAP and cav1 silencing enhanced both TGFβ-1 and TGFβRI expression. Accordingly, the ischaemic button experiment revealed increased PA severity and enhanced peritoneal MMT in cav⁻/⁻ mice.

Conclusion
These results demonstrated that exposure to mechanical stretch per se is sufficient to induce MMT. Both YAP/TAZ and cav1 exerted a fine tuning of the fibrotic response through a mechanism partly depending on a cell-autonomous TGFβ-1 activation pathway. Our findings reveal a cooperation between biomechanical and biochemical signals during the fibrotic response in peritoneum.
SYSTEMS BIOLOGY ANALYSIS OF LITHIUM-MEDIATED CYTOPROTECTION IN IN VITRO AND IN VIVO PD

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Objectives
PD-fluids harm peritoneal cells, leading to transdifferentiation and cell death. Lithium chloride (LiCl) could be a promising molecule to be used as cytoprotective additive to PD-fluid. Here, we analyzed the protective potential of LiCl added to icodextrin-based PD-fluid in a systems biology approach.

Methods
Gene expression microarrays and gel-based proteomics combined with in-vitro exposure of mesothelial cells were followed by a chronic mouse model of PD for analyzing in-vivo effects on the peritoneal membrane.

Results
PD-fluid with added LiCl caused significantly lower injury of omentum-derived HPMC. PD-fluid induced cell injury was associated with differential expression of 478 genes and 92 proteins compared to control cells exposed only to culture medium and LiCl addition to PD-fluid altered 749 genes and 102 proteins. Pathway over-representation and molecular process enrichment tests showed a strong regulation of angiogenesis related pathways including VEGF-signaling, PDGF-signaling, oxidative stress response and cell transdifferentiation in response to PD-fluid.

Analysis of transcripts and proteins that were counter-regulated in LiCl supplemented PD-fluid compared to PD-fluid alone, yielded candidates associated with the LiCl effect, with the small heat shock protein αB-crystallin as most strongly regulated candidate. αB-crystallin was significantly upregulated by PD-fluid but close to control level with LiCl in the omics and targeted analyses. Knock-down and over-expression experiments of αB-crystallin, which has been described as a main regulator of VEGF-mediated angiogenesis, confirmed its regulatory involvement in important PD-induced pathomechanisms.

Uremic as well as non-uremic mice showed significantly reduced peritoneal membrane thickening and mesothelial-to-mesenchymal transdifferentiation with LiCl added to PD-fluid. VEGF and αB-crystallin were significantly increased in peritoneal membrane tissue after treatment with PD-fluid and were reduced with LiCl addition.

Conclusions
The cytoprotective effects of LiCl when added to PD-fluid may be explained by counter-regulation of the PD-induced angiogenesis via the novel target αB-crystallin. Reduction of peritoneal fibrosis suggests therapeutic potential of this intervention.
OXIDATIVE DNA DAMAGE ASSOCIATES WITH ALL-CAUSE MORTALITY INDEPENDENT OF INFLAMMATION AND VASCULAR CALCIFICATION IN PREVALENT PD PATIENTS

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Objectives
Oxidative stress-induced DNA damage plays an important role in the pathogenesis of inflammatory and early vascular ageing processes in patients with end-stage renal disease (ESRD). We investigated the association of serum 8-hydroxy-2'-deoxyguanosine (8-OHdG), a surrogate marker of oxidative DNA damage, with all-cause mortality in ESRD patients undergoing peritoneal dialysis (PD).

Methods
In a post hoc analysis of 88 prevalent PD patients (median age 60 years, 66% male, median dialysis vintage time 11.6 months), serum 8-OHdG, coronary artery calcium (CAC) score (by cardiac CT), Framingham's risk score (FRS; determined by sex, age, systolic blood pressure, diabetes, antihypertensive medication, total cholesterol, HDL cholesterol and smoking status), cardiovascular disease (CVD), protein-energy wasting, % handgrip strength (%HGS, corrected with sex-matched controls), serum albumin, high-sensitivity C-reactive protein (hsCRP), and interleukin 6 (IL-6) were determined at baseline. The majority (77%) of the patients were treated with continuous ambulatory PD and 23% with automated PD. During follow-up for median 43 months, 24 patients died, and 13 patients underwent renal transplantation. Spearman rank correlations was applied to analyze factors associated with serum 8-OHdG. All-cause mortality was analyzed by competing-risk regression model with transplantation as a competing risk.

Results
Serum 8-OHdG was correlated with FRS score (rho=0.44, p<0.001), HGS % (rho= -0.34, p=0.001), serum albumin (rho= -0.23, p=0.03), hsCRP (rho=0.40, p<0.001) and IL-6 (rho=0.55, p<0.001) and extent of vascular calcification as assessed by CAC score (rho=0.45, p<0.001). In competing risk analysis, after adjustment of potential confounders CVD, FRS score, %HGS, hsCRP and CAC score, 1-SD increase of serum 8-OHdG was independently associated with increased mortality, sub-hazard ratio 2.08, 95%CI 1.29-3.35.

Conclusions
Serum 8-OHdG, a biomarker of oxidative DNA damage, is associated with increased all-cause mortality risk in prevalent PD patients with complex uremic phenotypes and this association is independent of inflammation and vascular calcification.
COMPARISON OF THREE PET METHODS TO ASSESS PERITONEAL MEMBRANE TRANSPORT

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Objectives
The peritoneal equilibrium test (PET) is the most widespread method for assessing water and solute transport across the peritoneal membrane. This study compared three methods: traditional PET (t-PET), mini-PET, and modified PET (mod-PET).

Methods
D Non-diabetic adult patients (n=21) who had been on peritoneal dialysis (PD) for at least three months underwent t-PET (glucose 2.5% - 4 h), mini-PET (glucose 3.86% - 1 h), and mod-PET (glucose 3.86% - 4 h) to determine dialysate-to-plasma concentration ratio for creatinine (D/Pcreatinine) and dialysate-to-baseline dialysate concentration ratio for glucose (D/D0glucose). Agreement between methods as regards D/Pcreatinine and D/D0glucose was assessed using analysis of variance (ANOVA), Pearson’s coefficient of correlation, and Bland-Altman analysis.

Results
D/Pcreatinine differed between t-PET and mini-PET (p<0.001) and between mod-PET and mini-PET (p<0.01) but not between t-PET and mod-PET (p=0.746). The correlation of D/Pcreatinine with t-PET vs mod-PET was significant (r=0.387, p=0.009) but not that of t-PET vs mini-PET (r=0.088, p=0.241). Estimated bias was -0.029 (p=0.201) between t-PET and mod-PET, and 0.206 (p<0.001) between t-PET and mini-PET. D/D0glucose differed between t-PET and mod-PET (p=0.003) and between mod-PET and mini-PET (p=0.002) but not between t-PET and mini-PET (p=0.885). The correlations of D/D0glucose in t-PET vs mod-PET (r=-0.161, p=0.682) or t-PET vs mini-PET (r=0.002, p=0.586) were not significant. Estimated bias was 0.124 (p=0.005) between t-PET and mod-PET, and 0.013 (p=0.738) between t-PET and mini-PET.

Conclusions
The significant correlation of D/Pcreatinine between t-PET and mod-PET suggests that the latter is a good alternative to t-PET. In contrast, there was no such correlation between t-PET and mini-PET.
RISK FACTORS FOR UNPLANNED DIALYSIS INITIATION. FINAL RESULTS OF THE PERIDIALYSIS PROJECT

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Objectives
Unplanned dialysis initiation (UDI) is common, even though most patients are referred early to the nephrology department. It is associated with increased morbidity and mortality, and possibly reduced modality choice. We hypothesized that UDI is related to the predialysis care and the timing of DI.

Methods
The Peridialysis study is an ongoing multinational, multicenter prospective study assessing the causes and timing of DI and consequences of unplanned dialysis. Clinical and biochemical patient data, physician education data and physician reasons for prescribing dialysis were registered during the predialytic period for all patients starting dialysis during the study period.

Results
In 1,599 patients (mean age 63 years; 35% females; diabetic nephropathy 26%), DI was unplanned in 42%. Causes of UDI were “external” (acute uremia 9%, late referral 5%) in 14%, or “internal” in 28%. The commonest internal causes were acute uremia progression (14%) and delayed planning (5%). Risk factors for internal UDI were high age, diabetes, cachexia, high comorbidity, hypoalbuminemia and rapid uremia progression (eGFR decline >1 ml/min/1.73m²/month), the last three being independent predictors. Accelerated uremia progression for UDI was already present six to three months before DI. Polycystic renal disease had a lower incidence. Raised urea, C-reactive protein, acidosis and other electrolyte disorders were markers of increased UDI requirement, independently of estimated glomerular filtration rate (eGFR) at DI. eGFR in UDI patients was higher during the predialysis course, but lower at DI. It was of no value in predicting UDI. Patients with comorbidities had a higher eGFR at DI.

Conclusions
20% of patients had potentially preventable UDI. eGFR was of no value in identifying these patients, who were characterized by rapid uremia progression, hypoalbuminemia and high comorbidity. Identification of these patients, with subsequent close clinical control and accelerated dialysis preparation, may reduce UDI incidence.
Objectives
Peritonitis is more common in peritoneal dialysis (PD) patients non-adherent with the PD exchange protocol procedures than in adherent patients. We therefore evaluated if systematic testing and retraining of PD patients could reduce the incidence of peritonitis and peritonitis-related PD-technique failure.

Methods
New PD patients (n=671), able to perform PD without assistance, were randomized to an intervention (INT; n=340) or a control group (CTR; n=331) at 57 centres in Scandinavia, Latvia, Estonia, Netherlands, and the UK during 2010-2014. INT patients underwent targeted testing of theoretical (questionnaire) and practical PD knowledge (PD exchange) at 1, 3, 6, 12, 18, 24, 30, and 36 months after PD start. If goals were not reached, retraining was given. The CTR were treated according to local routines. Study closed on Dec 31, 2015. ClinicalTrials.gov: NCT01293799.

Results
The 12-month participation rate was 67% in CTR and 57% in INT. A peritonitis episode was experienced by 121 (37%) in CTR and 102 (30%) in INT. Time to first peritonitis was 16% longer in CTR than in INT (HR 0.84; 95% CI: 0.65-1.09; p=0.20), when competing risks were taken into account (Fine and Gray analysis). The total number of peritonitis episodes was 175 in CRT and 145 in INT. The mean peritonitis rates/patient-year of 0.357 (95% CI: 0.306-0.413) and 0.333 (95% CI: 0.281-0.392), respectively, did not differ significantly (p=0.63). The peritonitis-related transfer to haemodialysis was 7% (n=23) and 5% (n=18) in CTR and INT, respectively. The respective transfer rate/patient-year (0.047 and 0.041) did not differ significantly between the groups (HR 0.87; p=0.62).

Conclusions
In this randomized controlled trial we were unable to demonstrate that regular testing and retraining of incident PD patients reduced the risk of peritonitis or peritonitis-related PD-technique failure. It is possible that the study was inadequately powered to provide a definite answer.
DOUBLE PURSE-STRING TECHNIQUE: A NEW WAY TO START CAPD IMMEDIATELY MINIMISING MECHANICAL COMPLICATIONS

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Objectives
International guidelines recommended that catheter insertion should be performed at least 2 weeks before PD start in order to minimise the risk of peri-catheter leakage and dislocation. Anyway, neither the optimal duration of the break-in period nor the preferred catheter placement method are defined. We aimed to investigate the effect of double purse-string technique without a break-in procedure on the development of mechanical catheter-related complications in patients on continuous ambulatory peritoneal dialysis (CAPD) and to compare the outcomes after percutaneous or surgical insertion.

Methods
From January 2011 to December 2018, 135 PD catheter insertions in 125 patients (90 men and 35 women, mean age 62.02 ± 16.7) were performed in our centre with double-purse technique. Seventy-seven straight double-cuffed Tenckhoff catheter were implanted on midline under umbilicus by a trocar and 58 were surgically implanted through rectus muscle. In all patients CAPD was started immediately after catheter placement without a break-in procedure (within 24 hours). Mechanical catheter-related complications during the 3 first months after initiation of CAPD and the catheter survival were recorded.

Results
Although a discrepancy in gender distribution, the patients in both technique arms had similar age, mean BMI and follow-up duration. During the first 3 months the overall incidence of peri-catheter leakages and catheter dislocations was 2.96% (4/135) and 1.48% (2/135) respectively. No bleeding events, bowel perforations or hernia formations were reported. The catheter survival censored for deaths, kidney transplant, loss of ultrafiltration and inability was 74.7% at 48 months. There was no difference in the incidence of leakage (3.89% vs 1.72%, p=NS), catheter dislocations (2.59% vs 0%, p=NS) and catheter survival (p=NS) between the two groups.

Conclusions
Double purse-string technique allows an immediate start of CAPD both with percutaneous and surgical catheter implantation. This technique is a safe and feasible approach in all patients who refer to peritoneal dialysis.
BLOCKAGE OF SUBSTANCE P SIGNALING DURING 5 WEEKS OF PD FLUID EXPOSURE IN THE RAT IMPROVES ULTRAFILTRATION AND ALTERS PERITONEAL TISSUE MORPHOLOGY

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**Objectives**

Earlier studies in an acute rat model of PD have shown that substance P signaling is involved in the PD-induced release of IL-6, a mediator associated with peritoneal fibrosis and ultrafiltration (UF) failure. The present study evaluates the long-term effects of substance P blockage in a rat model of PD fluid exposure.

**Methods**

Two groups of rats, implanted with PD catheters and subcutaneous access ports, were exposed to 20 mL of standard 2.3% glucose PD solution with additives 5 days weekly for 5 weeks. Additives (300 µL) were the substance P receptor (NK1) blocker fosaprepitant in one group and saline in the other group. After 5 weeks UF volumes after a 2h dwell were measured using volume marker (51Cr erythrocytes). Peritoneal biopsies were taken the next day. This first evaluation is based on UF data and morphometric evaluation of the intestinal region of the peritoneal membrane.

**Results**

A pilot study showed that fosaprepitant administered with PD fluid day 1 significantly reduced IL-6 transcription (from 100±34% to 7.0±4.0%) during a PD dwell day 2. Five weeks of fosaprepitant treatment significantly increased UF volumes from 29.06±0.30 to 30.68±0.54 mL. The thickness of the submesothelial outer tissue layer (longitudinal muscle+connective tissue) decreased from 13.8±1.01 to 10.7±0.84 µm and the ratio outer tissue layer thickness over inner (circular) muscular layer thickness was reduced from 0.82±0.03 to 0.52±0.02 by fosaprepitant treatment. This ratio showed a significant negative correlation to UF volume. The morphology of the outer tissue layer also differed between the groups.

**Conclusions**

Blocking the substance P signaling during long-term PD exposure significantly affected peritoneal morphology and increased UF volumes in a correlated way. Further analyses in progress intend to enable a deeper understanding of the processes involved.
OBJECTIVES
Peritoneal fibrosis is an important clinical problem affecting peritoneal dialysis patients. To investigate mechanisms and possible therapeutic strategies for peritoneal fibrosis various animal models have been developed. One of frequently used animal model of peritoneal fibrosis is chlorhexidine gluconate (CHX)-induced mouse model due to its simplicity and reproducibility. Although the CHX-induced mouse model is well-established, we have found that irritation and inflammation of the parietal peritoneum is not the only pathology in this model. Our aim was to present the effects of CHX on visceral peritoneum and abdominal organs.

METHODS
16 weeks old C57BL/6J male mice were injected intraperitonealy 0.2ml of CHX solution (0.1% CHX gluconate dissolved in 15% ethanol, Wako Pure Chemical Industries) every other day for 7 and 21 days. At autopsy, abdominal wall and all internal organs were macroscopically examined, weighted and harvested for histological and molecular analyses.

RESULTS
A thorough systematic investigation of the model revealed that not only intra-abdominal visceral peritoneum but also organs of abdominal cavity are significantly changed. Alterations were observed already 7 days after treatment as mild diffuse acute inflammation on peritoneal surface of abdominal wall consistent with peritonitis. First changes were detected also in livers. However, after 21 days of treatment mice developed evident diffuse chronic inflammation with mixed cell infiltrate with fibrosis on the peritoneal surface of abdominal wall, subserosal part of cecum, jejunum, duodenum and mesentery and even on the diaphragm and liver capsule. Necrotic striated muscle cells on the peritoneal surface of abdominal wall and diaphragm and apoptotic hepatocytes in liver parenchyma were also observed.

CONCLUSIONS
The discovery that parietal peritoneum is only a part of CHX induced pathologic changes in the abdominal cavity importantly leads to reconsideration of the response differences to studied intervention and a potential masked real effect of studied substance in this mouse model.
PERITONEAL DIALYSIS IN PATIENTS WITH ADVANCED BIVENTRICULAR HEART FAILURE: A CASE SERIES

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Objectives
We report the experience of our center in the use of PD to treat patients with advanced HF and severe right-side symptoms.

Methods
We included patients with advanced biventricular HF according to the definition of ESC, who started PD between 2012 and 2018 due to severe right-sided HF and hypervolemia, refractory to high-dose diuretics. Data regarding demographics, symptoms, lab parameters, PD features, hospitalizations, complications and mortality were retrospectively recorded.

Results
Five patients were included (4 males) with a median age of 61 years (51 – 69). The etiology of HF was: chronic allograft dysfunction after heart transplant (2 patients), ischemic cardiomyopathy (2 patients) and non-surgical severe valvular disease (1 patient). Three were dependent on frequent paracentesis to control hypervolemia. All had CKD with a median stage 4 (KDIGO). Four patients were treated with automatic PD and one patient with continuous ambulatory PD. Glucose and icodextrin-based solutions were used in all patients. After beginning PD, a prompt decrease in congestive symptoms was observed with an improvement in NYHA class from III-IV to II. Weight decreased over the first 6 months (63.3±6.8 to 60.5±5.7 kg) associated with a reduction in edema and in serum brain natriuretic peptide (BNP) (1420±1052.1 to 1061±907.9 pg/ml). Hospitalization episodes for HF decompensation reduced from a median of 4 to 0 admissions over one year. The median time on treatment was 12 months (9 – 26). The only major complication was one episode of peritonitis. One patient died by ischemic colitis, one patient died by sudden cardiac death and 2 patients were transferred to hemodialysis because of loss of compliance or peritonitis. One patient is still on PD.

Conclusions
In our case series, we observed that the use of PD in patients with advanced biventricular HF was safe and associated with an improvement in functional capacity, clinical condition and quality of life.
OBESITY IN PERITONEAL DIALYSIS

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Some studies reveal that the increase in body mass index (BMI) is associated with a decrease in mortality in hemodialysis patients. However, few studies have addressed the association between BMI and its variations with peritoneal dialysis (DP).

A longitudinal and retrospective study was performed to evaluate the impact of obesity on patients in DP using data from the Register of renal patients in Catalonia. The beginning of the technique was in the period 2002-2015 (n = 1573). 41 patients were excluded for not having BMI.

Obesity was defined as BMI > 30; low weight as BMI < 18.5; Normal range like IMC 18.5-24.99; and pre-obesity like BMI 25-29.99. BMI variations were calculated during follow-up in all groups. The main variables evaluated were the rate of peritonitis and the survival of the technique and the patient.

Results

Obesity was observed in 307 of 1532 patients (20%) at the time of DP initiation. There were no differences in gender or DP mode, the obesity group being older (65.9% obese > 55 years compared to 59.1% non-obese p = 0.003) and with a higher percentage of DM and cardiovascular disease (47.9% obese compared to 25.1% and 41.7% in obese compared to 31.5% respectively).

At a 5-year follow-up, we observed CVD in the underweight group during the second and third year and in the obesity group during the second year, which was not maintained in the long term and that it showed a tendency for lower CVD than the rest of the groups at fifth year of follow-up. The obesity group specified a lower night volume in the first year (7.19 vs. 8.09L), with no differences later.

There was a tendency for increased survival for the obese patients, but at the expense of a lower percentage of transplant (37.1 vs. 46.3% p = 0.058) and higher transfer to HD (32.2% obese and 26.5% non-obese (p = 0.058)).

Obesity was not related to the patient's minor survival and the BMI variations did not represent mortality alterations in any group.

Although we did not observe a clear relationship between obesity and risk of peritonitis or survival of the patient, there is a tendency to decrease the renal transplant rate in obese patients. On the other hand, obese patients had more DM and more cardiovascular diseases, which could indicate an increased risk during a later period (transplant) and could suggest that a longer follow-up period could be related to higher morbidity and mortality.
Clinical Epidemiology of Systolic and Diastolic Orthostatic Hypotension in Patients on Peritoneal Dialysis

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Objectives
Blood pressure (BP) changes upon standing reflect a hemodynamic response dependent on the integrity of the baroreflex system/euvolemia. Pre and post dialysis orthostatic hypotension (OH) has been associated with mortality in hemodialysis (HD) patients but the issue has never been tested in peritoneal dialysis (PD) patients.

Methods
We investigated the relationship between OH and survival in 137 PD patients (age:65±13 years, M:64%). The response to orthostasis was assessed according to a standardized protocol (systolic and diastolic BP measured after 10 minutes while supine and 1-2 min in upright position). Orthostatic hypotension was defined as ≥20 mmHg drop in systolic and or ≥10 mmHg in diastolic BP.

Results
Average supine BP was 144±(SD)21/81±12 mmHg and upright BP 136±23/80±13 mmHg. The postural change was -8±13 (systolic)/-1±8 mmHg (diastolic). Twenty-five pts (18%) had systolic orthostatic hypotension and 17 pts (12%) had diastolic hypotension. The magnitude of systolic (r=-0.16, P=0.056) and diastolic (r=-0.25, P=0.003) changes were inversely related to the corresponding supine BP component indicating a higher BP drop in patients with higher supine BP values. During the follow-up (median 37 months), 69 patients died, 23% for CV causes. Orthostatic changes in diastolic BP (adjusted for supine diastolic BP) were related to the death risk [HR:1.05, 95% CI 1.03-1.08, P=0.006] and this was also true for CV death (HR:1.06, 95% CI 1.03-1.09, P=0.001). Further data adjustment for age, gender, diabetes and background CV comorbidities did not affect the strength of these associations (all-cause death, HR: 1.03, 95% CI:1.00-1.07, P=0.05; CV death, HR: 1.08, 95% CI:1.03-1.14, P=0.002). Systolic orthostatic hypotension was unrelated to mortality.

Conclusions
About 1 in 5 PD patients has orthostatic hypotension. The diastolic BP decline upon standing is related with the risk of mortality. These findings suggest that even minor orthostatic reductions in diastolic BP bear an excess death risk in this population.
RELATION BETWEEN BCM AND ECOCARDIOGRAPHIC PARAMETERS TO REFLECT VOLUME STATUS IN PERITONEAL DIALYSIS

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Objectives
Fluid imbalance is a frequent condition in peritoneal dialysis (PD) patients. Fluid overloading is one of causes to lead to cardiovascular instability. Even though there are no accurate methods to determine volume status in PD, body composition monitor (BCM) is used as an objective measurement. The aim of this study was to find echocardiographic parameters associated with volume status compared to BCM parameters in PD patients.

Methods
This study was conducted on 74 PD patients in Busan Paik Hospital during 2014 – 2015. We used BCM to assess volume status, echocardiography to evaluate heart function and structure, and collected epidemiologic data. To account for the relation between BCM and echocardiographic parameters, we conducted regression analysis.

Results
Patients were 46±12 years old, 55% female, and 39% diabetic. A total of 6 (8%) all-deaths were reported. 10 (13%) among 74 patients received kidney transplantation, 10 patients transferred from PD to hemodialysis. Median dialysis vintage was 25.3 months (IQR 1.6, 127.2 months). Relative overhydration had positive correlation with systolic blood pressure (r²=0.12, p=0.003), diastolic blood pressure (r²=0.07, p=0.03), and extracellular water (ECW) (r²=0.27, p<0.001). Conversely relative OH had negative correlation with intracellular water (r²=0.08, p=0.02) and lean tissue index (r²=0.17, p=0.003). ECW had positive correlation with left ventricular end diastolic dimension (LVEDD) (r²=0.27, p<0.001) (Figure 1) and left ventricular diastolic posterior wall thickness (LVPWT) (r²=0.14, p=0.003).

Conclusions
Fluid overload in PD patients was associated with rise in ECW, which increased according as LVEDD enlargement. Echocardiographic parameters of Left ventricle were good markers of volume status in PD patients. Further studies to understand the change in volume status over time are needed.
EFFECT OF DIALYSIS MODALITY IN EARLY REPOLARIZATION ELECTROCARDIOGRAPHIC PATTERN

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Objectives
Electrocardiographic early repolarization (ER) involves <5% of general/atherosclerotic population and is associated with sudden cardiac death. ER prevalence in end stage renal disease (ESRD) patients is not clearly defined. In this study we recorded the presence of ER in ESRD patients on haemodialysis (HD) and peritoneal dialysis (PD) and evaluated its association to laboratory parameters.

Methods
Eighty seven stable ESRD patients, 45 on HD and 42 on PD, who had no statistically significant differences in age, sex and co-morbidities were subjected to electrocardiogram and blood tests. ER was defined as presence of notch or slur in the end of QRS and J point elevation > 0.1 mV in ≥2 contiguous leads. Laboratory tests included total serum protein, serum albumin, serum electrolytes and haemoglobin. The data were analyzed with stata software.

Results
Sixteen of 87 patients (18.4%) presented ER, 8 of them were on HD and 8 of them on PD. Dialysis modality was not associated with the presence of ER. Low level of serum albumin <3.5 g/dl (odds ratio 3.6, p=0.047), and smoking habit (odds ratio=8.5, p=0.02) were significantly correlated with ER. Furthermore, patients with low levels of serum calcium had significantly higher probability of ER (odds ratio per unit in calcium increase 0.53, p=0.05).

Conclusions
In this study, dialysis modality was not associated with ER prevalence in comparable PD and HD populations. Although more studies need to confirm our findings ER seems to correlate with hypoalbuminemia, hypocalcemia and smoking habit in ESRD patients.
ALANYL-GLUTAMINE DECREASES CELLULAR INJURY AND ENHANCES CYTOPROTECTIVE RESPONSES IN ENDOTHELIAL CELLS DURING PD-FLUID EXPOSURE

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Objectives
Vasculopathy, hypervascularization, and diabetes-like damage of vessels are important factors limiting PD-therapy. The composition of all currently available PD-fluids leads to morphological and functional changes in the peritoneal membrane in adults and infants. During PD-fluid exposure, relevant cellular pathomechanisms might be similar to those in hyperglycaemic diabetic conditions. This study focuses on omics-based characterization of endothelial cell injury and stress responses with or without addition of alanyl-glutamine (AlaGln).

Methods
Protein profiles of primary human umbilical vein endothelial cells (HUVEC) exposed to medium-diluted conventional PD-fluid with or without 8mM AlaGln were analysed by gel-based proteomics. Cell damage was assessed by quantification of lactate-dehydrogenase (LDH) release. Microdissected omental arterioles of children treated with conventional PD-fluids and healthy controls were analysed with quantitative multiplex mass spectrometry. In-vitro findings were related to PD-induced arteriolar changes based on abundance profiles of proteins identified in both proteomic analyses.

Results
Marked cellular injury of HUVEC after PD-fluid exposure was associated with a molecular landscape of the enriched biological process clusters ‘glucose catabolic process’, ‘cell redox homeostasis’, ‘RNA metabolic process’, ‘protein folding’, ‘regulation of cell death’, and ‘actin cytoskeleton reorganization’ that characterize PD-fluid cytotoxicity and counteracting cellular repair process respectively. Addition of AlaGln to PD-fluid preserved endothelial cell integrity shown by significantly decreased LDH-release and by restored control levels of proteins in PD-fluid perturbed processes, especially enhancing protein folding capacity and response to stress. Comparison to human arterioles confirmed overlapping protein regulation between endothelial cells in-vitro and in-vivo, proving harmful effects of PD-fluids on endothelial cells leading to drastic changes of the cellular process landscape. Cellular damage and proteome changes in HUVEC were counteracted by AlaGln in-vitro.

Conclusions
In summary, this study elucidates potential mechanisms by which AlaGln exerts cytoprotective effects in PD-induced endothelial cell damage, offering therapeutic targets to reduce side effects of PD.
ENDOTHELIAL GLYCOCALYX DAMAGE IN CKD: DOES THE URAEMIC TOXIN INDOXYL SULFATE INDUCE ENZYMATIC SHEDDING?

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Objectives
Endothelial glycocalyx (eGC) damage is a key process in the development of cardiovascular disease. By using a rat model, we linked the protein-bound uraemic toxin indoxyl sulfate (IxS) to eGC disruption as indicated by shedding of heparan sulfate into the circulation. The mechanisms by which IxS exerts this effect have not been explored. The objective of this study was to assess whether IxS could induce expression of heparanase (HPSE) by leukocytes and/or platelets.

Methods
Sodium Citrate blood from healthy donors was incubated with IxS (44.5 mg/L), a control for the salt in our assay (KCl, 15.6 mg/mL) and a stimulus for HPSE ( [1] PMA, 1.35 μM; [2] PMA, 50 ng/mL + 1 μg/mL calcium ionophore) for 4h. In a first set of experiments [1], HPSE concentration in the blood plasma was analysed with an ELISA. In a second set of experiments [2], intracellular heparanase expression was measured with Flow Cytometry.

Results
Incubation with IxS (n=8) induced:
- [1] a moderate increase of plasma HPSE concentrations (43.6 ± 22.6 vs 36.0 ± 22.6 pg/mL; p=0.075), compared to control.
- [2] no intracellular increase of HPSE in leukocytes and platelets.
No significant effect on the aggregation of platelets with monocytes, granulocytes or lymphocytes compared to control was observed in both sets of experiments.

Conclusions
These results indicate that 4h incubation of whole blood in the presence of IxS at uraemic concentrations did not induce a significant rise in HPSE concentration in the plasma, nor did it have an effect on intracellular HPSE concentrations in leukocytes and platelets.

This ex vivo observation was unable to link increased heparanase expression to eGC degradation observed in CKD by the uraemic toxin IxS. The effect of IxS on the expression of other eGC degrading enzymes and oxidative stress will be examined in the near future.
THE ASSOCIATION BETWEEN DIALYSATE MAGNESIUM CONCENTRATION AND ALL CAUSE MORTALITY IN PERITONEAL DIALYSIS PATIENTS

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Objectives
To investigate how dialysate magnesium (dMg) impacts on all-cause mortality in peritoneal dialysis (PD) patients

Methods
We studied 95 stable PD patients, 51 men 44 women, with a mean age of 63 ±14 years. 33 and 62 patients were treated with a dMg of 0.25 mmol/l (dMg0.25) and 0.50 mmol/l (dMg0.50), respectively. After completion of baseline assessment, patients were followed up for all-cause mortality.

Results
During a median follow-up period of 23 months, 16 (17%) deaths occurred. 10 (30.3%) patients died in the dMg0.25 group and 6 (9.7%) patients in the dMg0.50 group (p=0.011). Serum magnesium (sMg) was 0.85± 0.19 and 0.96±0.18 mmol/L in the dMg0.25 and dMg0.50 groups (p=0.006), respectively. Treatment with dMg0.50 was associated with lower risk of all-cause mortality (crude hazard ratio: 0.25 [95% confidence interval (CI), 0.09-0.68]). The association of dMg with mortality persisted even after adjustment for univariate significant predictors of all-cause mortality: age, cardiovascular disease, PD mode (APD vs. CAPD) and malnutrition-inflammation score (adjusted HR: 0.27 (95% CI, 0.09-0.84).

Conclusion
Our results show that the use of dMg0.50, as compared to dMg0.25, was associated with 73% lower risk of death from any cause. Given that dMg is a major determinant of sMg, sustaining higher sMg levels, even within the normal range, by manipulating dialysate Mg concentration, may improve outcomes in PD patients.
ABDOMINAL AORTIC CALCIFICATION SCORE PREDICTS OUTCOMES IN PERITONEAL DIALYSIS PATIENTS

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Objectives
To explore the associations of abdominal aortic calcification score (AAC) with all-cause mortality in peritoneal dialysis patients (PD).

Methods
We studied 95 stable PD patients, 51 men 44 women, with a mean age of 63 ±14 years. The degree of AAC was evaluated with Leena Kauppila (LK) score (range 0-24) on plain lateral abdominal radiographs. Given that a LK score of 0-4 was associated with the best event free survival of patients in the CORD study (CJASN 2011), patients were divided according to the degree of calcification in a Low calcification score (LCS) group: (LK score 0-4,) and a High CS group: (LK score 5-24,) each comprising 38 (40%) and 57 (60%) patients, respectively. After completion of baseline assessment, patients were followed up for all-cause mortality.

Results
The median CS in the whole group was 11 and the median CS was 0 and 9 in the Low and High CS groups, respectively. During a median follow-up period of 23 months, 16 (17%) deaths occurred. One (2.6%) patient died in the LCS group and 15 (26.3%) patients in the HCS group (p=0.003). Patients in the HCS group had increased all-cause mortality (crude hazard ratio: 10.72 [95% confidence interval (CI), 1.41-81.2]. The association CS -mortality persisted even after adjustment for univariate significant predictors of all-cause mortality: age, cardiovascular disease, PD vintage and malnutrition-inflammation score (MIS) (adjusted HR: 9.58 (95% CI, 1.14-80.16).

Conclusion
AAC detected by lumbar radiograph impacts strongly and adversely on all-cause mortality in PD patients. This simple and less expensive method than the current procedures for studying calcification can be used to identify patients at high risk of death.
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CARDIOVASCULAR DISEASE AND END-STAGE CHRONIC KIDNEY DISEASE. A COMPARATIVE BETWEEN PERITONEAL DIALYSIS AND HEMODIALYSIS IN A SPANISH POPULATION. TRANSVERSAL STUDY IN AVILA HOSPITAL.

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Objectives
Cardiovascular disease is one of the main causes of end-stage chronic kidney disease in western countries. It aggravates the clinical course in patients undergoing dialysis regardless of the cause. We would like to describe the different kinds of cardiovascular pathology that patients undergoing peritoneal dialysis (PD) in our hospital, comparing them with the population included in the hemodialysis program (HD), in order to find the possible differences related to the technique.

Methods
We have carried out an observational, descriptive and transversal study, based upon the data of the patients’ clinical records belonging to patients included in PD and HD programs in the last trimester of 2018 year. Quantitative variables are expressed as media, and qualitative ones are expressed as percentage. Data are been analyzed by the SPSS statistical program.

Results
During the study period, 112 patients suffered from end-stage chronic kidney disease undergoing renal replacement therapy, PD 22 patients and HD 90 patients. The median age of PD patients was 72 years and HD patients 82 years. The distribution of the analyzed variables are shown in Table 1.

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>TOTAL</th>
<th>PD</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrial fibrillation</td>
<td>33 (29.5%)</td>
<td>7 (32%)</td>
<td>26 (29%)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>37 (33%)</td>
<td>10 (45%)</td>
<td>27 (30%)</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>29 (26%)</td>
<td>1 (4%)</td>
<td>28 (31%)</td>
</tr>
<tr>
<td>Peripheral arterial disease</td>
<td>30 (27%)</td>
<td>4 (18%)</td>
<td>26 (29%)</td>
</tr>
<tr>
<td>Venous thromboembolic disease</td>
<td>8 (7%)</td>
<td>0</td>
<td>8 (8%)</td>
</tr>
<tr>
<td>TIA or stroke</td>
<td>18 (16%)</td>
<td>1 (4%)</td>
<td>17 (19%)</td>
</tr>
<tr>
<td>Mayor or clinically relevant hemorrhage</td>
<td>19 (17%)</td>
<td>2 (9%)</td>
<td>17 (19%)</td>
</tr>
</tbody>
</table>

Conclusions
Cardiovascular disease is particularly prevalent in end-stage chronic kidney disease undergoing renal replacement therapy, both hemodialysis and peritoneal dialysis. Atrial fibrillation and heart failure are more prevalent in the PD group, whereas myocardial infarction, peripheral arterial disease and cerebrovascular disease are more frequent in HD patients. This can be due to the differences in the dialysis technique.
RESULTS OF KIDNEY TRANSPLANTATION IN PATIENTS RECEIVING DIFFERENT DIALYSIS MODALITY

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Objectives
The study was conducted to assess the impact of different methods of renal replacement therapy on the results of kidney transplantation.

Methods
The analysis of the results of kidney transplantation in recipients treated with hemodialysis (106) and peritoneal dialysis (51).

Results
HD: transplantation was performed on average 2.11 years after the start of HD treatment. The average period of hospitalization is 4.37 weeks. Delayed function 66.98%, primary 22.63%, primary non-functioning 3.87%, acute tubular necrosis 2.83%, dysfunction and crisis 1.89% dysfunction and CTN 2 1.89%. Complications of early postoperative period of 22.64%: removal of the graft 29.17%, defective graft function 4.17%, death 16.7%, stenosis of ureterocystoanastomosis 32.4%, failure of ureterocystoanastomosis 32.4%. Complications of the late period after transplantation 8.49%: chronic nephropathy of the graft 22%, diabetes 33%, heart attack, death 11.11%, stenosis of the urethra, the violation of urodynamics with dysfunction of the graft 0.94%, lymphocele 11.11%, basal cell carcinoma 11.11%.

PD: transplantation performed in 1 year was 2.76 months after the start of PD. Duration of hospitalization of 4.91 week. PD: the primary function of 86.28%, acute tubular necrosis 7.84%, thrombotic, microangiopathy and transplantectomy in the immediate postoperative period was 3.92%, primary non-functioning graft of 1.96%. Complications of early postoperative period of 9.80%: death as a result of thrombotic microangiopathy 3.92%, stenosis of ureterocystoanastomosis 3.92%, deletion in connection with rupture of the graft of 1.96%. Complications of delayed postoperative period in 15.68% of patients: removal after 1 year and 9 months. as a result of violations of functions due to the violation of urodynamics of 1.96%, diabetes is 5.88%, the removal of the transplant after 9 months. after ATP (primary function) due to tuberculosis 1.96%, death by other causes 1.96%, pneumocystis of 1.96%, a stroke of 1.96%.

Conclusions
The positive effect of PD treatment on the results of subsequent kidney transplantation was noted. Recipients of donor kidneys treated before surgery treated with peritoneal dialysis, have had the best results, namely, the smaller the duration of the recovery period and hospitalization, fewer complications. In addition, transplantation was performed with higher frequency in patients of this group.
SIMULTANEOUS MINIMALLY INVASIVE SURGERY IS A PREDICTOR OF EFFECTIVE IMPROVEMENT OF THE QUALITY OF TREATMENT WITH PERITONEAL DIALYSIS

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Objectives
The effectiveness of treatment with peritoneal dialysis largely depends on the condition of the abdominal wall, since the presence of hernial defects of the latter causes a violation of the drainage of the dialysis solution, the presence of residual cavities in the abdominal cavity increases the risk of dialysis peritonitis. However, the presence of dialysis fluid in the abdominal cavity causes an increase in the size of hernial defects.

Methods
131 patients with formed inguinal hernias (45%), incipient inguinal hernia defects (26%), umbilical (13%) and paraumbilical hernias (12%) were treated. Ventral postoperative hernias were less common (4%).

Results
Initiation of treatment with peritoneal dialysis or clarification of the functional state of the peritoneal catheter was performed on average for 3.25 ± 2.8 days, which was accompanied by the absence of signs of extraperitonization of the dialysis solution, the bed day was 8.13 ± 3.65 days.

Conclusions
The use of simultaneous surgical interventions in preparation for treatment with peritoneal dialysis and the correction of complications led to the minimization of intraoperative damage to the abdominal wall tissues, reducing the risk of complications of surgery, reducing the postoperative period and improving the quality of life, and thus the survival of the patient and the method of renal replacement therapy.
PERITONEAL DIALYSIS IN ACUTE TUBULAR NECROSIS IN TRANSPLANT RECIPIENTS

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Objectives
Peritoneal dialysis (PD) has been used successfully to treat acute kidney injury due to various causes. The aim of this study was to evaluate the effectiveness of PD with acute tubular necrosis (ATN) in renal transplant recipients in the early postoperative period.

Methods
There were 19 patients with chronic renal failure after cadaveric kidney transplantation, which in the early postoperative period in connection with ATN continued PD. The comparison group consisted of 37 recipients of ATN that continue to hemodialysis (HD). The groups were matched by sex, age, duration of dialysis, kidney preservation duration, pattern of immunosuppressive therapy, blood biochemical parameters. In all patients were studied the frequency of complications (%), duration of oliguria (median, 25, 75% days), hypercreatininemia (median, 25, 75% days), hospital treatment (days).

Results
Duration oligoanuria was 9 (5; 12) days, normalization of plasma creatinine occurred 15 (12; 24) days after kidney transplantation in PD-patients versus respectively 14 (8; 20) days and 24 (19; 33) days in HD-patients (p=0.03). PD-patients had no hemodynamic and hemorrhagic complications; respectively 43.2% (p=0.01) and 13.5% (ns) HD-patients had these complications. The duration of hospital treatment was 59±14 days in PD-patients and 61±17 days in HD-patients (ns).

Conclusions
PD in recipients with renal transplant and ATN in the early postoperative period reduces the relative risk of hemodynamic and hemorrhagic complications in 0.7 times and reduces the duration of oliguria and hypercreatininemia 1.6 times. PD is an effective and safe modality for the treatment of ATN in renal transplant recipients.
PERITONEAL DIALYSIS AND METABOLIC DISORDERS IN DIABETES PATIENTS

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Objectives
Many patients with diabetes mellitus (DM) are treated in dialysis centers. To assess the effect of peritoneal dialysis (PD) on the metabolic parameters in patients with DM.

Methods
The study included 52 patients with DM: 37 patients were treated with PD («Baxter», USA) and 25 – receiving hemodialysis (HD). The metabolic parameters are determined: (a) retrospectively before the start the dialysis treatment; (b) in the process of treatment with HD and PD (median duration respectively 25 and 35 months); (c) during one session of HD and one exchange of peritoneal solution.

Results
Before the dialysis therapy most of the patients in both groups were hyperhydrated, had decompensated DM (Hb1c 9.1±1.4%), disorder protein (alb. 32.0±3.1 g/l) and mineral metabolism (potassium 5.7±0.3, phosphorus 2.1±0.3 mmol/l). In the process of PD and HD, both groups of patients had the same indicators of nitrogen and compensation of carbohydrate metabolism (Hb1c 7.4±1.3%). PD-patients recorded elevated levels of total water in the body (111% vs. 103%, p = 0.009) decrease in blood protein and albumin (67.5±2.3 and 35.2±1.6 vs. 70.4±2.8 and 39.8±1.5 g/l, p=0.01), elevated cholesterol (6.1±1.2 vs. 4.8±0.3 mmol/l, p=0.02) and normal electrolytes. HD-patients had an increased serum level of potassium, phosphorus, and magnesium (median 6.0, 2.2, 1.3 mmol/l). The short-term effect of a single exchange of peritoneal solution was accompanied by an increase in the blood glucose concentration by 1.8-2 times with a simultaneous decrease in its content in the dialysate and the absence of hormones dynamics. The HD session had a multidirectional effect on blood glucose, the level of cortisol increased in all patients (475±79, vs. 382±75 nmol/l, p=0.01).

Conclusions
Metabolic disorders in patients with DM are due to dialysis modality.
PATTERNS OF PERITONEAL DIALYSIS CATHETER PRACTICES AND TECHNIQUE FAILURE IN PERITONEAL DIALYSIS

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Objectives
To assess whether clusters of centers with similar peritoneal dialysis (PD) catheter related practices were associated with differences in the risk of technique failure.

Methods
Patients on incident PD in French centers contributing to the French Language PD Registry from 2012 to 2016 were included. Centers with similar catheter cares practices were gathered in clusters in a hierarchical analysis. Clusters of centers associated with technique failure were evaluated using Cox and Fine and Gray models. A mixed effect Cox model was used to assess the influence of a center effect, as explained by the clusters. Peritonitis and technique failure due to peritonitis were analyzed as secondary outcomes.

Results
Data from 2727 catheters placed in 64 centers in France were analyzed. Five clusters of centers were identified. After adjustment for patient-level characteristics, the fourth cluster was associated with a lower risk of technique failure (cause specific-hazard ratio 0.70, 95% confidence interval (CI) 0.54-0.90. The variance of the center effect decreased by 5% after adjusting for patient characteristics and by 26% after adjusting for patient characteristics and clusters of centers in the mixed effect Cox model. No difference was observed between the five clusters for the peritonitis risk. Being treated in the second cluster of centers was associated with a greater risk of technique failure due to peritonitis (subdistribution-hazard ratio 2.48, 95%CI 1.29-4.78). Favorable outcomes were observed in clusters with a greater proportion of community hospitals, where catheters were placed via open surgery, first dressing done 6 to 15 days after catheter placement, and local prophylactic antibiotics was applied on exit-site.

Conclusions
Several patterns of PD catheter related practices have been identified in France, associated with differences in the risk of technique failure. Combinations of favorable practices are suggested in this study.
PHYSICAL FITNESS TESTS ARE ASSOCIATED WITH IMPEDANCE RATIO AND PHASE ANGLE (FROM BIOELECTRICAL IMPEDANCE ANALYSIS) IN PERITONEAL DIALYSIS (DP)

Ms Domenico Russo, Ph D Silvia Migliaccio, Md Vincenzo Bellizzi, Ms Carmela Legorano, Professor Luca Scalfi, Professor Domenico Russo

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Objectives
Body composition and physical fitness (PF) are essential components of nutritional status closely related to each other. In clinical practice they may be assessed using bioelectrical impedance analysis (BIA) and various PF tests, respectively. The main objective of the study was to evaluate in patients in peritoneal dialysis (PD), the relationships of PF tests with those BIA variable that can be considered as markers of muscle quality.

Methods
Patients in DP were studied in clinically stable conditions, 20-70 years: 43 men (age 60.6 ± 15.5 years; BMI (27.8 ± 4.1 kg/m²) and 31 women (age 51. 8 ± 13.1 years, BMI 28.5 ± 5.8 kg / m²). The following PF tests were carried out: GS = gait speed, STS test = sit to stand and TUG = timed up and go. BIA (HUMAN IM-TOUCH, DS Medica-Milan) was performed in standardized conditions. Multifrequency ratio (ratio between impedance (Z) at 250 kHz and Z at 5 kHz; IR), and phase angle (PhA, measured at 50 kHz) were considered as markers of body cell mass and expansion of extracellular water.

Results
PF tests did not differ significantly between gender as well as IR and PhA. After adjusting for gender, GS and TUG were weakly correlated with BMI (but not with weight and stature) and much more closely with IR and PhA. STS was not associated with BMI and was only weakly related to IR and PhA. Multiple linear regression model indicated that BMI + IR or BMI + PhA were together predictors of STS and TUG, whereas IR (or PhA) was the only significant predictor of STS.

Conclusions
The preliminary results of the present study show that in PD patients IR and PhA are predictors of some of the most widely used PF tests.
IN VITRO CLOSURE TIMES (PFA-100) ARE DIFFERENT BETWEEN PERITONEAL DIALYSIS AND HEMODIALYSIS

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Objectives
Platelet dysfunction is not uncommon in patients with end-stage renal disease (ESRD). Type of renal replacement (i.e., dialysis) may have impacts on platelet dysfunctions, which has not been well investigated. We evaluated differences of primary hemostasis between peritoneal dialysis (PD) and hemodialysis (HD) patients using platelet function analyzer (PFA-100) that measures in vitro closure time (CT) for severe platelet dysfunction.

Methods
Patients with ESRD undergoing PD (n = 24) or HD (n = 23) for more than six months were included. Blood samples for collagen/epinephrine (Col/EPI) and collagen/Adenosine (Col/ADP) measurements were performed before hemodialysis at a mid-week session for HD patients and outpatient control time for PD patients.

Results
Three of 24 (12.5%) PD patients and 16 of 23 (69.5%) HD patients had prolonged PFA-100 Col/EPI, p<0.001. Likewise, 4.2% of PD patients and 87.0% of HD patients had prolonged PFA-100 Col/ADP, p<0.001. Moreover, the median times of PFA-Col/EPI and PFA-100 Col/ADP were significantly lower in PD patients compared with HD patients (P < 0.001). Multivariate analysis showed that the type of renal replacement was a risk factor for elevated both PFA-100 Col/ADP and PFA-100 Col/EPI after adjusted for platelets, hematocrit and urea (p < 0.001).

Conclusions
The type of renal replacement therapy had an effect on the primary hemostasis, therefore can be considered as a factor to decide HD or PD in patients with ESRD.
DEDICATE APPROACH TO PATIENTS- FUNDAMENTAL FOR THE SUCCESSFUL IMPROVEMENT OF PERITONEAL DIALYSIS PROGRAM

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Objectives
Approximately 10% of the total world population requiring dialysis are on PD modality and it's similar percentage in Serbia, also. However, in our hospital, more than 30% these patients are on PD. Our goal was not only to increasing number of patients on PD, moreover we wanted to improve quality of patient’s selection (and prevent discrimination of this method), despite all limitation circumstances, including distrust of patients and nephrologists, also, in this method.

Methods
First of all, we have improved selection and training our doctors and nurses who are engaged in PD program. Second, fundamental criteria for patient selection is absence of medical contraindications, and then a choice by the patient. In purpose of this, we have formed pre-dialysis infirmary where we perform selection and education of patients with unbiased presentation of advantages PD (including engagement of compliant PD patients) and complications of both dialysis modalities, also, encouraging them to perform PD as first option with all benefits which same provides as home dialysis method. Possibility of APD is next, very important factor in recruitment these patients especially in population of elderly patients whose needs this modality. Also, we start with providing 24-hour-a-day patient support from experienced PD staff and in the case of the discontinuation of PD, we provide transfer in our HD center. Finally, all patients without contraindications for kidney transplantation are regularly tested on PRA and renewed medical testing for this procedure.

Results
Majority of these patients wanted to make a choice and more than 60% chosen PD as first modality treatment.

Conclusions
It is necessary optimal selection of PD staff who will provide and conduct unbiased education program with individualized approach to our patients with maximally limitation of all nonmedical factors as important negative determinants for selection of PD.
PRAL VALUE AS ONE OF THE ACID-BASE PREDICTORS IN PREVENTION OF METABOLIC ACIDOSIS WITH PATIENTS ON PERITONEAL DIALYSIS

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Objectives
Metabolic acidosis is a possible complication in peritoneal dialysis (PD) patients and is connected with protein malnutrition. One of the goals of renal replacement therapy is preserving the acid-base balance. PRAL value allows an appropriate prediction of the effects of diet on the acid load. The aim of our study was to evaluate the relationship between PRAL value and acid-base status.

Methods
The study included 16 patients on peritoneal dialysis (12 men, 4 women, mean age 52.68 ± 13.72). With 24-hour dietary recall method we collected information about all consumed foods and beverages. PRAL value was calculated from protein, phosphorus, potassium, calcium and magnesium intake values (PRAL value= 0.49 * protein + 0.037 * phosphorus – 0.02 * potassium – 0.013 * calcium – 0.027 * magnesium; protein intake in g/day, phosphorus, potassium, calcium and magnesium intake in mg/day). Patients were divided into two subgroups according to PRAL values: group A (for women -5.6 mEq/day <PRAL< 0 mEq/day, for men mEq/day -5.6 <PRAL< 29.8 mEq/day) and group B (for women >5.6 mEq/day >PRAL> 0 mEq/day, for men mEq/day -5.6 >PRAL> 29.8 mEq/day). With routine biochemical blood analysis we collected values of serum bicarbonate levels.

Results
Serum bicarbonate levels were statistically significantly lower in the group B (25.44 ± 1.94) than in the group A (27.86 ± 2.11). Results of calculated PRAL values and measured serum bicarbonate levels are presented in the Table 1.

<table>
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<tr>
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<th>Group A (n=7)</th>
<th>Group B (n=9)</th>
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<tr>
<td>PRAL (mEq/day)</td>
<td>8.99 ± 8.66</td>
<td>12.84 ± 37.40</td>
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<tr>
<td>Serum bicarbonate levels (mEq/l)</td>
<td>27.86 ± 2.11</td>
<td>25.44 ± 1.94</td>
<td>0.0326</td>
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Conclusions
According to our results, we can conclude that PRAL value can be an important acid-base predictor and that diet is important factor in maintaining acid-base balance with PD patients.
P-22
PERCUTANEOUS INSERTION OF PERITONEAL DIALYSIS CATHETER IS A SAFE AND EFFECTIVE TECHNIQUE IRRESPECTIVE OF BMI

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Objectives
The world is getting fatter and fatter. A large body mass index has been considered as a relative contraindication for percutaneous catheter insertion, although this technique has many advantages. Up to now, there are few studies on peritoneal catheter placement and obesity. The aim of this study was to determine whether patients with large BMI can also choose the percutaneous technique for peritoneal dialysis catheter insertion.

Methods
187 consecutive patients underwent peritoneal catheter insertions in the Chinese PLA General Hospital between January 1, 2015 and December 31, 2016, with 178 eligible cases being included in the analysis. Two groups were created based on the catheter insertion techniques, the percutaneous group (group P) and the surgical group (group S). Subgroups were created according to BMI>28 or ≤28. The outcomes included catheter related complications and catheter survival.

Results
Total infectious complication rates were significantly lower in group P than in group S. The late peritonitis rates tended to be lower in group P than in group S, although the difference was not significant. There were no significant differences in all other measured complications between the two groups. Though the one-year infection-free catheter survival in group P was 7.5% higher than group S, the difference was not significant. The one-year dysfunction-free catheter survival, one-year dysfunction-and-infection-free catheter survival, and overall catheter survival were similar between the two groups. Subgroup analyses showed a superior one-year infection-free catheter survival of percutaneous technique in patients with BMI>28, which was confirmed by Kaplan-Meier analysis.

Conclusions
Despite the challenges that may be encountered with patients who have a large BMI, the percutaneous technique is a safe and effective approach to placing a peritoneal dialysis catheter.
THE EFFECT OF DIALYSIS MODALITY CHOICE ON COGNITIVE FUNCTIONS IN PATIENTS WITH END STAGE RENAL FAILURE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Objectives
Cognitive dysfunction is one of the major consequences of end stage renal disease and has detrimental effect on quality of life for these patients. The prevalence of cognitive impairment in ranges from 29% to 80% in the dialysis population. There is a knowledge gap about the effect of different modalities of renal replacement therapies on cognitive dysfunction. Peritoneal dialysis is potentially a gentler form of dialysis compared to hemodialysis, more continuous, more physiologic and thus can lead to less cognitive dysfunction. The aim of this meta-analysis is to assess the effects of peritoneal dialysis versus hemodialysis on cognitive dysfunction.

Methods
We performed a systematic review in different databases to identify studies and research work that assessed effect of different dialysis modalities on cognitive functions. Inclusion criteria for our meta-analysis were all studies that compared effect of peritoneal dialysis on cognitive functions compared to intermittent hemodialysis. Data collected were the name of the first author, journal title, year of publication, country where the study was conducted, number of patients in the peritoneal dialysis and hemodialysis arms, methods of assessment of cognitive functions. Random effects model was used for the meta-analysis. Funnel plot and Galbreith plot analysis were used to assess publication bias.

Results
Out of 200 abstracts reviewed in different databases, 11 papers were included in our meta-analysis. 1263 patients were included in the analysis. Forest plot analysis for the rate of cognitive impairment in different dialysis modalities showed less cognitive impairment in peritoneal dialysis population compared to hemodialysis patients. (relative risk =0.82, confidence interval ranging between 0.73 and 0.95). Average weight of the included studies ranged from 1.25% to 45.1%. There was no evidence of heterogeneity in the repeat forest plot analysis (I-squared =0.00%, P=0.49). There was no evidence of publication bias among the studies included in the forest plot analysis.

Conclusion
Patients on peritoneal dialysis show less cognitive dysfunction compared to those on hemodialysis. More randomised-controlled studies are needed to endorse these results.
NEPHRECTOMY PATIENTS WITH END-STAGE CHRONIC KIDNEY DISEASE

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Objectives
In the structure of causes of chronic renal disease, about 10-15% are secondary nephropathy on the background of urolithiasis, chronic pyelonephritis, and obstructive uropathy and polycystic kidney disease. These patients often potential kidney recipients, they required preparation for transplantation. In addition, enlarged polycystic-changed kidneys and reducing the volume of the abdominal cavity, negative impact on the peritoneal dialysis. According to numerous data, peritoneal dialysis is the method of choice by patients waiting kidney transplantation, and we should chose the techniques of nephrectomy that reduce the traumatic effects on the peritoneum and don’t reduces the effective area of the peritoneum.

Methods
Between 2005 and 2018 69 nephrectomies were performed in patients with end-stage CKD. 39 patients had polycystic kidney disease, 13 patients had kidney stones, and chronic pyelonephritis, 8 patients had hydronephrosis, other - 9 diseases.

27 patients have undergone open nephrectomy technique (mainly in the period 2006 -2009). The choice of the technique of the operation was due to the large size of the kidneys and adhesive process in perinephric fat. 27 patients have undergone endoscopic transperitoneal nephrectomy technique and 15 endoscopic retroperitoneal nephrectomy technique. We analyzed postoperative period and amount of complications, method of treatment end-stage Chronic Kidney Disease selected in future. In particular, we evaluated the effectiveness of peritoneal dialysis depending on the operating access.

Results
In six cases, an open access conversion was required. Complications: intraoperative bleeding was in 2 cases, damage of the spleen was in one case. The significantly lower blood loss was in the group of operations performed endoscopic access (150 ml +/-100 ml) vs open access (350 ml +/- 100 ml).

Subsequently, 29 patients were treated with hemodialysis, 40 patients peritoneal dialysis. The effectiveness of peritoneal dialysis was estimated by 3 months and 1 year after start treatment peritoneal dialysis by kt/v. In the group of patients with open techniques operation, the effectiveness on average was 1.62 in 3 months and 1.42 one year. Patients underwent endoscopic nephrectomy, the efficiency is in average of 1.68, and 1.54 after 1 year in the group of transperitoneal access and 1.83, 1.63 in group retroperitoneal approach, respectively.

Conclusions
Our experience of nephrectomies in patient with end-stage chronic kidney diseases, an indication of the safety of the technique and its applicability to patients, who will be the chosen method of peritoneal dialysis while awaiting transplantation. Retroperitoneoscopic access has less impact on the effective area of the peritoneum, which is reflected in the subsequent course of peritoneal dialysis.
RISK FACTORS OF PERITONEAL DIALYSIS PATIENTS WITH ABDOMINAL WALL HERNIA

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Objectives
To investigate the risk factors of the peritoneal dialysis patients with abdominal wall hernia.

Methods
We recruited 436 peritoneal dialysis patients. Baseline characteristics and follow-up date were recorded. All the participants were divided into group A (normal n-409) and group B (hernia n-27) based on whether abdominal wall hernia occurred. Logistic regression analysis was performed.

Results
The hernia rate was 6.2%. The incidence of hernia was 0.054 time/patient years and the average time of first hernia was 21.86+27.58 weeks. Among all patients, 22 were inguinal hernia (81.48%), 2 were incisional hernia (7.4%), 2 were umbilical hernia (7.4%) and 1 was multiple hernia (3.7%). There were similar diabetes (27.62% vs. 22.22%), polycystic kidney disease (1.5% vs. 0) and laparoscopic implantation of catheter (8.31% vs. 18.51%) in two groups. Patients in group A were younger (59.33+17.73 vs. 65.07+13.27), fewer males (54.27% vs. 85.16%), less abdominal surgery history (19.32% vs. 37.04%), and higher body mass index (BMI) (22.53 + 3.52 vs. 20.96 + 2.38) than group B (p<0.05). Two groups had similar baseline characteristics. Patients in group A had higher serum creatinine (697.00+370.50 vs. 545.50+338.75) and triglycerides ( 1.56+1.24 vs. 0.98+0.92) levels than group B. Serum creatinine (OR=0.993, p< 0.05) and triglyceride (OR=0.084,p<0.05) were negatively correlated with hernia.

Conclusions
Inguinal hernia is the most common type of abdominal wall hernia in peritoneal dialysis patients previous abdominal surgery, smaller body size, older men and poor nutritional status were the risk factors of peritoneal dialysis complicating with hernia.
CLINICAL TOOLS OF P11 AND VITAMIN D AS DEPRESSION MARKERS IN PERITONEAL DIALYSIS PATIENTS

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Objectives
Prevalence of depression is close to suicidal rate and medical cost increment. Especially, co-morbidity and mortality of dialysis patient is related to depression. The hypothesis of monoamine deficiency and cytokine are suggested biologic causes of depression. P11 expression has important role with serotonin neurotransmission. Also vitamin D deficiency was reported as risk factor of depression. Previous our study about P11 and depression was incomplete and needed further investigation.

Methods
As cross sectional study, peripheral blood P11, interleukin-6 (IL-6), tumor necrosis factor-α (TNF-α), 25-OH vitamin D3 (25(OH)vitD3) and other metabolic panel were analysed in normal healthy controls and peritoneal dialysis patients. P11 expression was measured by relative quantification (RQ) method. All participants did Beck depression inventory (BDI) and depression was defined if BDI score was over 16 point.

Results
Among 33 participants, normal control (NC, n=4), PD without depression (PDsD, n=5) and PD with depression (PDCD, n=8) were analysed finally. RQ of P11 were 1.29 ± 0.22 for NC, 1.08 ± 0.8 for PDsD and 0.59 ± 0.36 for PDCD. 25(OH)vitD3(ngL, ref 8-51.9) were 11.65 ± 4.67 for NC, 7.67 ± 4.61 for PDsD and 10.96 ± 13.17 for PDCD. IL-6(pg/mL) were 2.05 ± 1.66 for NC, 5.97 ± 2.94 for PDsD and 8.35 ± 4.79 for PDCD. TNF-α(pg/mL) were 1.45 ± 0.45 for NC, 4.48 ± 1.15 for PDsD and 4.98 ± 2.18 for PDCD. In peritoneal dialysis group, RQ of P11 (rho=-0.318, p=0.13), 25(OD)vitD3 (p=0.58), IL-6 (p=0.36), TNF-α (p=0.83) and Kt/V (p=0.07, 2.27 ± 0.62 vs. 1.81 ± 0.51). P11 expression had no relation with peritoneal equilibration test results.

Conclusions
P11 expression was decreased in PDCD group and showed reverse tendency with BDI score. Vitamin D supplement might have no beneficial effect with this group. P11 expression modulating could be a promising solution and monitoring tool with depression in the future.
UREMIA-ASSOCIATED PLEURAL EFFUSION IN TWO PERITONEAL DIALYSIS PATIENTS

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End stage renal disease patients may develop pleural effusions from a variety of causes. Rarely uremia can cause pleuritis and an associated pleural effusion unrelated to volume overload. Although uremic effusions may occur less frequently in peritoneal dialysis patients, we present two patients who developed this complication due to a peritoneal dialysis regimen that was inadequate by current Dialysis Outcomes Quality Initiative guidelines. In the patients reported, the hemorrhagic exudative nature of the effusion, as well as the normal glucose level, excluded the presence of a diaphragmatic rent as the cause of the associated hydrothorax. Common etiologies of effusions such as volume overload, congestive heart failure, infection, and malignancy have been excluded in both cases. the effusion was improved by an intensification of the peritoneal dialysis regimen in one case and by the switch in hemodialysis in the other case.
OBJECTIVES
The aim of this study was to evaluate the effect of PD modality and type of assistance on the risk of transfer to hemodialysis (HD) and on the peritonitis risk in assisted PD patients.

METHODS
This was a retrospective study based on data from the French Language Peritoneal Dialysis Registry. All adults starting assisted PD in France between 2006 and 2015 were included. Events of interest were transfer to HD, peritonitis and death. Cox regression models were used for statistical analysis.

RESULTS
Among the 12144 incident patients who started PD in France during the study period, 6167 were assisted. There were 5060 nurse-assisted and 1095 family-assisted PD patients. 5171 were treated by CAPD and 996 by APD. In multivariate analysis, CAPD, compared to APD, was not associated with the risk of transfer to HD [cs-HR: 0.96 (95% CI 0.84-1.09)]. Patients on nurse-assisted PD had a lower risk of transfer to HD than family-assisted PD patients [cs-HR: 0.85 (95% CI 0.75-0.97)]. Neither PD modality nor type of assistance were associated with peritonitis risk.

CONCLUSIONS
In assisted PD, technique survival was not associated with PD modality. Nurse-assisted patients had a lower risk of transfer to HD than family-assisted patients. Peritonitis risk was not influenced either by PD modality, or by type of assistance. Both APD and CAPD should be offered to assisted-PD patients.
A four year old girl was admitted for polycystic kidney disease with ascitis. The family history, includes a twin sister died at 15 days of life (great prematurity), an aunt who underwent a nephrectomy, a notion of death in the paternal grandmother and three Paternal grand-uncles following a renal cell carcinoma of grade II. At admission, she was a healthy girl, eutrophic for size and weight, with normal blood pressure but high abundance ascitis were noted. The urine dipstick was negative. Biological fundings were in the normal range.

Abdominal ultrasound revealed increased size kidneys with countless cystic formations in periphery as well as numerous cysts in crown in under capsular situation and ascitis. Cardiac echo-doppler was normal. Fluid ascitis was a transudat. Response to intradermous reaction to tuberculin was anergic. The Retro-Ureterocystography did not find any uropathy. The Uro-abdominal CT found the same aspect as that described by ultrasound without contrast enhancement of the cysts and pleural effusion.

At renal scintigraphy, the right kidney was small and hypofunctionnal with poor drainage. The biopsy of the cyst wall eliminated a malignant cause. Because of this typical clinical and radiological presentation, we retained the diagnostic of bilateral cystic kidney lymphangiomatosis.

Patient complained of increasingly intense because of abdominal distension that required multi-weekly drainage. Living away, we set up a peritoneal dialysis catheter to allow a regular discharge at home. She did not present any infectious episodes until now.

**Conclusion**
Bilateral cystic kidney lymphangiomatosis is rare and can confuse with polycystic kidney disease although its typical radiologic findings. For our patient, a néoplastic, infectious or a mechanical cause have been eliminated. Peritoneal dialysis catheter allowed a better quality of life by draining ascitis daily. The patient's family history incites to be vigilant about the risk of malignant degeneration of this disease.
IS OBESITY ASSOCIATED WITH LESS HEART FAILURE IN PERITONEAL DIALYSIS PATIENTS?

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¹Nelio Mendonça Hospital, Funchal, Portugal, ²Santa Cruz Hospital, Lisbon, Portugal, ³ISCTE-UL, Lisbon, Portugal

Objectives
Characterize a population of peritoneal dialysis (PD) patients and study the conditions associated with obesity.

Methods
A retrospective study was designed to analyse clinical, nutritional and analytical data of prevalent PD patients observed in our hospital, until 31st of December of 2018. Further statistical analysis was performed to investigate the association between obesity (defined by body mass - BMI and fat indexes - BFI) and several clinical outcomes.

Results
A total of 67 patients were on PD with a median time of follow-up of 1.6 ± 2.5 years. Mean age was 55 ± 15 years old (maximum 84 and a minimal 20). 61,2% of our patients were males (N=41) and 38,8% were females (N= 26). The most frequent cause of chronic kidney disease was diabetes mellitus (32,8%, N=22). 11 patients (6,6%) are defined as obese with a BMI ≥ 30 kg/m² but accordingly to BFI it rises to 51 patients (30,2%). Regarding the nutritional status, the mean body mass index was 25,9 ± 4,8 Kg/m², the mean BFI and lean body mass were respectively 10,6 ± 4,7 kg/m² and 14,33 ± 3,3 kg/m² and the mean serum albumin was 3.68 mg/dL. There was a negative correlation, statistically significant, between reactive protein C and weight (r = -0,311; p = 0,012). Comparing patients with high BFI to those without it, high BFI associated with lower prevalence of heart failure (p = 0,001) and mechanical complications of PD (p = 0,019).

Conclusions
The “obesity paradox” is present in our PD population. High BFI is associated with better outcomes, including lower rates of mechanical complications of PD and lower incidence of heart failure.
ATTITUDES AND PERCEPTIONS OF HEMODIALYSIS NURSES TOWARDS PERITONEAL DIALYSIS – A NATIONAL SURVEY STUDY

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Objectives
Peritoneal dialysis (PD) is a fully-fledged method of renal replacement therapy providing good outcomes and quality of life. However, the number of patients treated with PD in Poland and Europe is constantly low. One of the possible reasons may be insufficient knowledge of medical personnel and related deficiencies in the education of patients with end-stage renal disease.

Methods
Semi-structured questionnaire was sent to nursing staff of the public and non-public hemodialysis (HD) units in Poland. It contained questions on knowledge of PD therapy, opinions on possible barriers and reasons for not choosing PD as well as demographic data and work experience.

Results
439 questionnaires were analysed. They were provided by experienced nurses: 57% working 15 years and more in the nephrology field. There was a wide range of answers on the eligibility to PD of end-stage renal disease patients (10-80% of patients not having contraindications for PD). There was sufficient knowledge on principles of PD exchanges among HD nurses, however the misconceptions were present on basic home requirements for PD therapy, fluid and potassium intake as well as on complications and outcomes. About 70% of nurses believed that taking care of PD patient is not more difficult for staff than looking after HD patient. Only 37% of nurses viewed HD as better than PD and only 12% considered PD as more life-restrictive.

As the main reason for the small number of patients entering PD, the nurses found deficiencies in the proper education of patients in the pre-dialysis period and fear of self-dependent dialysis. Older age and frailty were thought to pose a serious limitation for the development of PD.

Conclusion
Polish HD nurses believe that better education of patients and staff can improve PD penetration rate and utilization of the method.
PERITONEAL DIALYSIS IN HEART FAILURE RESISTANT TO STANDARD TREATMENT: SINGLE CENTER EXPERIENCE

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Objectives
Because of chronic and progressive nature of disease congestive heart failure become standard therapies. Peritoneal dialysis (PD) has been reported as a long-term maintenance treatment of refractory congestive heart failure (RCHF). In this study, we aimed to evaluate the outcome of patients with RCHF, treated with CAPD in our center.

Methods
Twenty-four incident PD patients with RCHF and chronic kidney disease stage III-IV-V. The CAPD programme consisted of 2–3 exchanges daily and one exchange nightly. In follow-up period clinical and echocardiographic biochemical findings and requirement of hospitalization were recorded.

Results
Fifteen patients (66.7%) were male and mean age was 62.75 years. The etiology of congestive heart failure were hypertensive cardiomyopathy (8), ischemic coronary artery disease (9), heart valve disease (6), dilated cardiomyopathy (1).

Patients had history for prolonged > 60 days/year and frequent hospitalization 5-6 times in a year due to RCHF. Under the CAPD treatment the average daily urine volume and ultrafiltration of the patients were 800-1000 ml and 1000-15000 ml respectively. Begining of CAPD, GFRs of the patients was 18-50 ml / min. During CAPD period the values of GFR were stable (18), increased (4) and decreased (2). Three patients were died on 1., 1. and 7. months of CAPD due to cardiovascular disease. During the follow up period, there were regression in class of heart failure of NYHA, decrease in the body weights and an increase of serum sodium levels in all patients. Only 2 patients were hospitalised for cardiovascular disease in 2 years. During the follow-up period, 1 patient was transferred to hemodialysis due to peritonitis.

Conclusions
In conclusion; in patients with resistant congestive heart failure and non-dialysis chronic renal failure CAPD in addition to standard treatment, may be safe treatment choice.
DIETARY PHOSPHORUS ANALYSIS WITH PATIENTS ON PD

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Objectives
Evaluation of dietary intake in patients on peritoneal dialysis is necessary for understanding the elevated phosphate levels, as well as protein intake monitoring, which struggles to meet current dietary guidelines.

Methods
20 patients on peritoneal dialysis were randomly selected in the Dialysis Center of University Clinical Center of Ljubljana. A food propensity questionnaire has been carried out with three unannounced 24-hour dietary recalls per participant through a web-based application “Open platform for clinical nutrition” and picture book. Body composition was measured with bio impedance spectroscopy.

Results
The average caloric intake of 20 patients is 27.04 ± 6.4 kcal/kg body weight per day, average protein intake is 0.89 ± 0.31 g/kg body weight per day. They are inadequate, according to the dietary recommendations for dialysis patients on PD. Average intake of analyzing micro-nutrients (K, P, Na) corresponds to the recommendations for dialysis patients, which is surprisingly, according to high levels of serum phosphorus (1.56 ± 0.39). Median phosphorus intake was 996.88mg/d, median phosphorus density was 0,624 mg/kcal (IQR 0,48-0,7 mg/kcal). Phosphorus intake was moderating to strongly correlate with the dietary energy, protein and potassium intake. The correlation between dietary phosphorus intake and serum phosphorus was insignificant. The correlation between dietary phosphorus to dietary protein ratio and was 0,159. In dietary report was 59,84 % of animal protein intake and 40,15% of plant protein. Intake dietary phosphorus and protein intake ratio was 14,84 ± 2,9062. Inorganic phosphate from additives was not detected in all items because of lack of information in the database.

Conclusions
Because of the uncertainty about phosphorus values from additives in databases, phosphorus intake may be difficult to ascertain. Inorganic phosphates are more absorptive than others so there is need to find more efficient ways for detecting it.
PATIENTS’ PERCEPTION OF AUTOMATED PERITONEAL DIALYSIS REMOTE MONITORING

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Objectives
Recent advancement of telemedicine platform enables healthcare professionals to remotely monitoring of patients’ treatment outcomes on automated peritoneal dialysis. It facilitates early identification and intervention of dialysis-related issues, which have the potential to reduce healthcare associated resource and costs. However, there was limited understanding on patients’ perception of remote monitoring amongst the peritoneal dialysis (PD) population. Our objective was to see how well patients understood remote monitoring and obtain their views on the same.

Methods
We conducted a telephone questionnaire survey on all patients on automated peritoneal dialysis (APD) in our renal unit on remote monitoring (HomeChoice Claria with SHARESOURCE). The survey was conducted over the telephone. It aimed to explore patients’ perception of remote monitoring of APD.

Results
In total, 67 patients (40 males and 27 females) were surveyed. Their mean age was 63 (SD: 16) years-old. Of them, 46% have been on APD for <1 year, whilst 31% for 1-2 years and 23% for > 2 years. All participants agreed that it was important to monitor dialysis. When asked who they thought should be monitoring their dialysis on daily basis, 43% stated patients themselves, 37% stated kidney doctors and nurses, 9% stated patients and kidney doctors and nurses, 1% stated their general practitioners (GP), 6% stated family, 1% stated patients and family and 1% stated patients, family, GP and kidney doctors and nurses. With regard to methods of communication, 70% were willing to do so via internet or mobile application. Though all were on remote monitoring, 31% stated that they did not understand it. Despite that, 45% of this subgroup of patients did feel that their confidence improved with remote monitoring. Overall, 67% felt more confident with remote monitoring and majority of the patients (89%) stated that they would continue to monitor their PD treatment concurrently despite remote monitoring.

Conclusions
Significant proportions of patients on PD expected renal healthcare professionals’ involvement in monitoring their daily dialysis treatment. However, nearly a third of the patients felt that they did not understand remote monitoring. Interestingly, awareness of having PD treatment monitored remotely by the healthcare professionals helped to boost their confidence. Further studies on the effects of remote monitoring on patient report outcome measures are clearly warranted.
CAN CONTINUOUS QUALITY IMPROVEMENT MAINTAIN A PERITONEAL DIALYSIS PROGRAMME?

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Objectives
To minimise complications and challenges to the long-term success of the PD programme to ensure sustainable growth.

Methods
Utilising the monthly audit of all factors contributing to PD cessation (Euro PD 2017 P-33) to identify priorities for improvement. The home therapies team completed a cause and effect diagram; visualisation tool to review potential causes of peritonitis and identify root causes. Action plans were developed for each cause.

Results
From 2014 to 2016, the prevalent PD population at Heart of England NHS Foundation Trust grew by 162% from 8% to 19% (Euro PD 2017 P-34). By the end of 2018 the PD population had been maintained at 20% for 24 months.

As the patient number increased, the focus on continuous quality improvement resulted in peritonitis rates and other complications improving or remaining stable.

Conclusions
The quality improvement journey is never ending; improvement, change and learning are essential for a sustainable PD programme.
DIFFERENCES BETWEEN PERITONEAL DIALYSIS AND HEMODIALYSIS PATIENTS IN BODY COMPOSITION AND PHYSICAL PERFORMANCE

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Objectives
In dialysis patients, there is a loss of skeletal muscle mass and strength due to acidosis, deficiency of vitamin D and other nutrients. Dialysis patients have lower physical activity levels compared with age-matched sedentary controls. The purpose of this study was to access and examine the differences in physical performance and body composition among peritoneal dialysis (PD) and hemodialysis (HD) patients.

Methods
Thirteen PD and ten HD patients from one dialysis center voluntarily participated in the study. We measured their physical performance with a 6-minute walk test (6MWT), 10 repetitions sit-to-stand test (10-STS) and handgrip strength test (HG). Bioimpedance analysis was used to measure body composition.

Results
Results indicate that PD patients have a significantly better outcome in 10-STS (p=.009) and HG test (p=.019) compared with HD patients. In 6MWT PD patients achieved a higher but not significant result (547.5 m vs. 480.25 m; p=.135). There was also no significant difference between PD and HD patients in bioimpedance analysis: lean tissue index (14.58 vs. 12.62; p=.119), phase angle (5.2 vs. 4.9; p=.449) and fat tissue index (3.17 vs. 5.86; p=.122).

Conclusions
The results of this study show us that PD patients have higher physical capability than HD patients. This can be explained by the fact that PD patients are not bound to hospital beds during dialysis and their fluid and food allowance is usually more generous. Selected tests are easy to perform and may, therefore, be recommended for clinical use to evaluate physical ability in dialysis patients. Based on the results we can design a training program which should be tailored to the individual abilities and comorbidities.
KIDNEY FUNCTION AND COGNITIVE IMPAIRMENT AMONG OLDER HOSPITALIZED PATIENTS: A COMPARISON OF FOUR GLOMERULAR FILTRATION EQUATIONS

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Objectives
The relationship between estimated glomerular filtration rate (eGFR) and cognitive impairment may change as a function of the equation used. We aimed at investigating the association between four different eGFR equations and cognitive impairment among older hospitalized patients.

Methods
Our series consisted of 795 older patients consecutively admitted to seven geriatric and internal medicine acute care wards. The eGFR was calculated by Chronic Kidney Disease Epidemiologic Collaboration (CKD-EPI), Cockcroft-Gault (CG), Berlin Initiative Study (BIS) and Full Age Spectrum (FAS) equations. Study outcomes were total Mini Mental State examination (MMSE)<24 and sub-scores related to orientation to time, orientation to space, registration, calculation, 3 words recall, language and constructional praxis. Statistical analysis was carried out by logistic or linear regression analysis. The accuracy of eGFR equations in identifying cognitive outcomes was investigated by calculating the area (AUC) under the receiver operating characteristic (ROC) curve for each eGFR equation.

Results
After adjusting for potential confounders, eGFR<30 was not significantly associated with MMSE<24, while it was strongly associated with constructional apraxia (CKD-EPI: OR=3.16, 95%CI=1.55-6.46; BIS: OR=2.55, 95%CI=1.19-5.47; CG: OR=2.66, 95% CI=1.37-5.17; FAS: OR=2.68, 95% CI=1.39-5.15) independent of the equation used. The accuracy of eGFR<30 in identifying patients with defective constructional praxis was fair with all equations (BIS: AUC=0.57, 95%CI=0.54-0.61; CKD-EPI: AUC=0.58, 95%CI=0.55-0.62; CG: AUC=0.61, 95%CI=0.57-0.65; FAS: AUC=0.60, 95%CI=0.56-0.63).

Conclusions
Constructional apraxia may characterize the cognitive profile of older patients with severe CKD. The accuracy in identifying patients with constructional apraxia is only fair, and studies including other biomarkers of kidney function are needed.
LAPAROSCOPIC CHOLECYSTECTOMY AND INGUINAL HERNIA REPAIR IN A PATIENT ON AUTOMATED PERITONEAL DIALYSIS: A CASE REPORT

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Objectives
Laparoscopic cholecystectomy (LC) is the established procedure for treatment of cholelithiasis. There is no consensus on its use in patients receiving peritoneal dialysis (PD), and there is no clear recommendation in the literature of how to manage perioperative dialysis. We follow an 84 years old man on automated peritoneal dialysis (APD) who was underwent to LC and inguinal hernia repair concurrently. We demonstrate the possibility to continue peritoneal dialysis during two major surgical interventions, without significant complications also regarding very old pluricomorbid patients.

Methods
An 84 year old man receiving APD for chronic renal failure due to hypertension damage, was underwent LC and inguinal hernia repair concurrently. We did not shift patient on hemodialysis and he continued APD reducing fluid volume, starting from the second postoperative day.

Results
We didn’t experience any complication as infections, hemorrhage and/or leakage. We noticed only a reduction in ultrafiltration while he was maintaining a good urine output.

Conclusions
APD can be resumed in the immediate postoperative period even in very old multi-comorbid patients with less chance of major complications. This allow reducing treatment costs by decreasing the total duration of hospital stay and by avoiding the need for perioperative hemodialysis.
PERITONEAL DIALYSIS (PD) IN END-STAGE RENAL DISEASE PATIENTS (ESRD) WITH LIVER CIRRHOSIS

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Objectives
PD offers several advantages over haemodialysis in patients with ESRD and cirrhosis, like permanent ascites drainage, no anticoagulation requirements and less haemodynamic instability. Despite this, clinical data is scarce.

Methods
We analysed all patients started on PD in our Department from January 2002 until September 2018. Of 157 patients, 9 (5.7%) had cirrhosis. Data on demographics, epidemiology and outcome after PD start were collected.

Results
- 9 patients had ESRD and cirrhosis, 100% males.
- Mean age 51 years old (range 37-67).
- Mean duration of PD was 28 months (range 3.5-75.1).
- 100% on CAPD.
- Hepatitis C virus was the leading cause of cirrhosis.
- Main ESRD cause was glomerulopathy, most of them never biopsied:
  - 4 also had HIV (44%).
  - 3 had tumours (33%).
  - 1 was a vancomycin resistant enterococcus (VRE) carrier (11%).
- Most patients were high transporters and fluid management was not an issue even with ascites.
- Enterobacteriae had a higher prevalence as the etiologic organism causing peritonitis in this group, although there wasn't any statistically significant difference with the rest of patients in our unit.
- 3 patients required technique assistance at some point, 1 of them from the start.

Conclusions
PD is a valid renal replacement therapy option in patients with ESRD and liver cirrhosis. Patient survival depends on liver damage severity and comorbidities. We did not deemed any patient unsuitable for PD due to mechanical or infectious complications. Ascites drainage and management improved patient's symptoms and quality of life, even more in those with refractory ascites and severe liver damage.
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PERSISTENCE OF THE PERITONEAL-VAGINAL DUCT: 18 YEARS EXPERIENCE IN A SINGLE CENTER

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Objectives
Genital edema is a complication of peritoneal dialysis (PD), associated with extravasation of dialysate from the peritoneal cavity through a defect in the abdominal wall, an inguinal hernia or patent processus vaginalis. The persistence of the peritoneal-vaginal duct appears in 15-37% of males and can remain clinically silent or only manifest in special cases such as the start of PD.

Aim: Review of cases of genital edema secondary to persistence of the peritoneal-vaginal duct in patients in PD in our centre over 18 years.

Methods
Retrospective descriptive study of cases with persistence of the peritoneal-vaginal duct. Demographic and personal history, cause of end stage renal disease, PD modality and time, diagnostic method, localization, treatment and evolution were recorded.

Results
9 patients, mean age 52.3 years (34-76). All patients were on CAPD. In 3 cases, persistence of the left peritoneal-vaginal duct was appreciated, in 5 cases it was right + hernia and 1 case was bilateral. The possible association of permeable vaginal process with polycystic kidney disease has been described in the literature. In our series, only 33.3% (3) patients were diagnosed of polycystic kidney. For the diagnosis, ultrasounds, scintigraphy and TAC-peritoneography have been used. TAC-peritoneography offers an excellent tissue contrast and multiplanar image for the correct evaluation of this pathology (figure 1).

The treatment is surgical correction with resection of the canal, hernioplasty if there is an associated hernia, and mesh placement. Four patients were transferred to Hemodialysis until the surgical correction, one of them remaining definitively. Five were operated without needing a change of technique.

Conclusions
Genital edema in DP is a complication secondary to the increase of intra-abdominal pressure. The pathogenesis diverse un adequate diagnosis is fundamental for the maintenance of the patient in the technique.

Computed tomography is extremely useful in the evaluation of genital edema in patients on PD.
HOME VISITS IN PERITONEAL DIALYSIS: A SINGLE-CENTER EXPERIENCE

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Objectives
Since 1995, a program of periodic home visits is available for PD patients at the Nephrology and Dialysis Unit of the Macerata Hospital. Our aim was to evaluate the effects of this program in the outcomes of PD.

Methods
Home visits are performed every six months by a dedicated nurse and are carried out throughout the patient's stay on PD. Data obtained from the surveys of home visits over a period of 23 years were analyzed. We compared two groups of patients (age < 70 years, n. 51; age ≥ 70 years, n. 49) in terms of outcome of home visits and outcome of the DP, defined as peritonitis episode, cause of technique failure and time on therapy.

Results
We performed 553 home visits during the observation period. Home visits have led to the detection of a greater need for re-training in the group of older patients. The overall incidence of peritonitis was 1 episode/49.8 patient-months, with no statistically significant difference in peritonitis incidence between the two groups (age < 70 years 1/61.9; age ≥ 70 years 1/41.7; p > 0.05).

There was no statistically significant difference in mean time therapy of patients who transferred to HD between two groups (age < 70: 42.5 months; age ≥ 70: 50.8 months; p > 0.05).

The major cause for the transfer from PD to HD was linked to non-clinical reasons (40%), data more pronounced in the group of older patients (50%). The median time on therapy of patients switched to HD for non-clinical reasons was 59.5 months, demonstrating that this result was not influenced by errors in the selection of patients addressed to DP.

Conclusions
In our case series, older patients, presented similar outcomes in terms of incidence of peritonitis and time on therapy compared to younger patients. The main cause of drop-out to HD was linked to non-clinical reasons: in our opinion this result was largely influenced by home visits program, allowing to detect social problems that can influence the outcome of DP and to evaluate the real impact of the increased degree of comorbidity in the management of dialytic treatment.
SLEEP DISORDERS AMONG PERITONEAL DIALYSIS PATIENTS

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Objectives
Sleep disorders are common among chronic dialysis patients and may contribute to impaired quality of life and mortality in this population. The aim of our study is to evaluate the quality of sleep in patients undergoing peritoneal dialysis (PD) and establish its risk factors.

Methods
We had conducted a study in the unit of PD of the nephrology department in Sahloul Hospital where 50 patients were included. We used a questionnaire where sleep quality was assessed by the Pittsburgh Sleep Quality Index (PSQI). Depression and anxiety were assessed using Hospital anxiety and depression (HAD) scale.

Results
The mean age was 42.6 ± 12.9 years. Sex ratio was at 1. The underlying nephropathy was diabetic in the majority of cases. The majority of patients had been on continuous ambulatory PD for a median of 3 years. Mean peritoneal urea and creatinine clearance were 63.5 ±17.2 and 1.96 ±0.45 respectively. 18(36%) patients were overweight, 18% had a chronic pain and 42% complained of muscle cramps. Poor quality of sleep with disorders were reported in 19(38%) patients. The mean index of PSQ was 5.66 ±3.36. These patients reported having difficulty falling asleep. Few of them used sleeping pills. The fatigue during day time was reported high among these patients. Depression and anxiety were found in 24% and 12% of patients respectively. We had identified as risk factors anxiety (p=0.015), chronic pain (p= 0.025), dysthyroidism (p=0.007), automated PD (p=0.04), a low serum albumin level (p=0.04) and the loss of the residual renal function (p= 0.048). Depression was more frequent in these patients but without significant association.

Conclusions
The prevalence of sleep disorders is high among PD patients. Studies reported restless legs syndrome, depression, age and low serum Alb as risk factors for PD patients with sleep disorders.
ASSESSING DEPRESSION AND ANXIETY IN PERITONEAL DIALYSIS PATIENTS

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Objectives
Anxiety and depression are common among chronic dialysis patients. The aim of this study was to examine the prevalence of these psychological problems in our PD patients and to identify its risk factors and its subsequent clinical outcomes.

Methods
We had conducted a study in the unit of PD of the nephrology department in Sahloul Hospital. We used a questionnaire where depression and anxiety were assessed using Hospital anxiety and depression (HAD) scale.

Results
In our study, we had included 50 patients. The mean age was 42.6 ± 12.9 years. Sex ratio was at 1. The underlying nephropathy was diabetic in the majority of cases. The majority (90%) of patients had been on continuous ambulatory PD for a median of 3 years. Mean peritoneal urea and creatinine clearance were 63.5 ±17.2 and 1.96 ±0.45 respectively. 36% of patients had a chronic pain and 42% complained of muscle cramps. The majority of patient had a professional life before dialysis and 40% among them had lost their job after beginning dialysis. When choosing renal replacement method, 40% of patients were seen by a psychologist and the majority of them (94%) accepted the PD method. Based on the HAD scale, 24% of patients showed certain anxious symptoms with a mean score at 5.4 ±3.94 while 12% of them showed certain depressive symptoms with a mean score at 7.32 ±4.45. We had identified as risk factors for these psychological problems the presence of chronic pain (p=0.004) and cramps (p=0.009). Moreover, anxiety and depression affected adherence to diet (p=0.04) and dialysis. Anxiety was also associated with poor quality of sleep (p=0.015).

Conclusions
Anxiety and depression are important predictors of technique survival in PD. Early detection and treatment of these psychological problems may help to improve clinical outcomes of PD patients.
Objective
The effect of pre-transplant treatment modality (peritoneal dialysis [PD] versus hemodialysis [HD]) on kidney transplantation (KT) outcomes is still unclear. We evaluated the influence of pre-transplant dialysis modality on short and long-term outcomes of KT.

Methods
During a 12 year period (2006-2017), 921 KTs were performed in our unit. Forty-five recipients (4.9%) were on PD prior to KT and we retrospectively compared their outcomes to 45 randomly selected patients on HD with similar baseline characteristics. Delayed graft function (DGF), rejection rates, infections, graft and patient survival and renal function at 1, 3, 5 years and on the last visit were recorded. Data shown as mean ± standard deviation.

Results
The mean follow-up was 6.3 years (0.5-12). There were no differences between the two studied groups in immunosuppressive protocol. Living donation occurred in 55.5% of the cases, while the average age of the recipients was 42 years. DGF was observed in 15.5% of patients in the PD group vs. 26.6% in the HD group (p = ns). The incidence of infections and rejection rates were similar between groups. In the PD group, peritoneal catheter was removed on average 5 months following KT. One episode of encapsulating peritoneal sclerosis was observed. The renal function at 1, 3, 5 years and at the end of the follow-up was 1.35±0.44, 1.32±0.38, 1.47±0.42, 1.4±0.47 versus 1.36±0.38, 1.35±0.47, 1.45±0.55, 1.39±0.53 mg/dl in PD and HD groups respectively (p = ns). The 5-year graft and patient survival was 100% in both groups.

Conclusions
Pre-transplant dialysis modality in KT recipients does not impact short or long-term graft and patient outcomes.
PERITONEAL DIALYSIS FAILURE CAUSES

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Objectives
DP is a less restrictive dialysis technique than hemodialysis, provides autonomy for the patient, but duration is limited by several factors.

The objective of this work is to identify the main causes of the PD failure in order to act on its various factors.

Methods
We report a retrospective study of 50 cases of patients on peritoneal dialysis, the parameters of the study are: age - sex - duration of dialysis - etiology - number of peritonitis - responsible germs - UF loss - loss of residual renal function - undernutrition - mechanical complication - psychological disturbances.

We exclude in our study the voluntary departure of the patients and the transplant patients.

Results
Patients are aged between 15 and 45 years (50%), males (66%), the average duration of PD is 3 years. The main causes of PD failure were: peritonitis (48%), loss of UF (10%), loss of residual renal function (18%) and undernutrition (6%).

Conclusions
Every effort should be made to preserve the peritoneum and residual renal function and to avoid nutritional disorders by rigorous adherence to the rules and recommendations of good clinical practice for the adequacy of peritoneal dialysis.
AN IMPROVED CAPD SUBMODALITY USING A NEW ASSIST DEVICE: CAAPD (CONTINUOUS AMBULATORY/AUTOMATED PERITONEAL DIALYSIS)

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Objectives
Peritoneal dialysis (PD) provides CKD stage 5 patients the luxury of independence along with a satisfactory clinical outcome. Patients on PD, require careful daily recordings of weight, blood pressure and fluid removal numbers with close follow up of care giver team. Technologies collecting daily treatment information and transmitting it to healthcare providers is available with new automated PD(APD) systems. But there is no simple, semi-automated, assist systems with improved informative capabilities, designed for patients on continuous ambulatory PD(CAPD). Although CAPD has originally been designed as a fully manual therapy, there is no reason to disapprove the possibility of some “partial automatisation” of manual single CAPD exchanges by devices providing transmission of exchange data and a better, simplified, assisted exchange setup whenever/wherever it is possible. Here, we introduce a new continuous ambulatory/automated peritoneal dialysis (CAAPD) assist device that offers real time and retrospective tele-monitoring while simplifying single dialysis exchanges for patients on CAPD.

Methods
CAAPD assist device consists of (Picture 1): A) Upper hook/scale for new bag: Holds and weighs new bag, measures filling time. E) Lower hook/scale for drainage bag: Holds and weighs drainage bag, measures drainage time. C) New bag tubing holder/clamping device: Holds dialysis solution tubing. Clamps dialysis solution tubing D) Drainage bag tubing holder/clamping device: Holds dialysate tubing, Clamps dialysate tubing. B) Data processor, tablet PC, GSM card, Bluetooth (BT) sender: Data processor processes treatment data and sends it to android based tablet via BT and also dialysis center through GSM “cloud”, holds the android based tablet PC. F) Patient scale: A separate scale that measures patient weight and sends measurement numbers automatically to data processor via a BT sender. Tablet PC shows each stage of connection process to patient as screen commands consecutively. After the process of discharge and filling completed, patient takes the message of dialysate appearance control and in case of having a suspicious appearance such as presence of turbidity and fibrin, the discharge bag can be photographed and sent to care team instantly. Thereby, transactions can be monitored and treatment records can be followed by the care team instantly and daily, instead of monthly, through outpatient clinic visits.
Results
Two patients (62 y/o male, 25 y/o female) have been on CAAPD and used the assist device described above with no clinical problem and high patient satisfaction for three months currently.

Conclusions
CAAPD assist device can be used with good clinical success and patient satisfaction. CAAPD as a sub modality, may potentially ease PD exchanges through making manual therapy recordings unnecessary and decrease modality-related tiredness of patients on CAPD.
PERITONEAL DIALYSIS IN ELDERLY PATIENTS: CLINICAL OUTCOMES AND MORTALITY

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Objectives
To evaluate the clinical outcomes and identify the predictors of mortality in elderly patients (>65 years of age) undergoing peritoneal dialysis (PD).

Methods
This was a retrospective study including all incident peritoneal dialysis cases in patients >65 years of age treated from 2013 to 2018 from a Portuguese PD center. Demographic, clinical and laboratory data on the initiation of peritoneal dialysis, and infectious complications during the study period were collected and recorded. Overall and technique survival rates were analyzed.

Results
Nineteen patients who began PD during the study period were eligible for the analysis. 68.4% were males, mean age were 74.24±5.82 years, the PD modality was CAPD in 57.9% and 47.4% of the patients developed peritonitis or catheter exit site/tunnel infection. Mean follow-up time was 29.73±21.63 months and fourteen patients were withdrawn from peritoneal dialysis. Causes of death included peritonitis and/or sepsis (33%), cardiovascular events (33%) and cachexia (33%). The mean patient survival time was 58.1±9.7 months, and the survival rates were 83.6%, 83.6%, 73.1% and 47% at 1, 2, 3 and 4 years after peritoneal dialysis initiation, respectively. We identified that cardiovascular disease was predictor of mortality (HR 12.826; 95% CI: 1.396-117.86; p=0.024). The mean technique survival duration was 58.4±11.3 months. The technique survival rates were 94.4%, 79.3%, 79.3% and 63.5% at 1, 2, 3 and 4 years, respectively. None of the factors analyzed were predictors of technique survival.

Conclusions
Dialysis for older patients with End Stage Renal Disease is a challenge for any dialysis modality. The factor affecting mortality in elderly patients was cardiovascular disease which is the major cause of mortality in the patients with chronic kidney disease.
ASSOCIATIONS BETWEEN FLUID AND ELECTROLYTE DISORDERS AND MORTALITY IN PERITONEAL DIALYSIS PATIENTS WITH ANURIA

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Objectives
To identify independent risk factors for overall and cardiovascular mortality and the association of potassium disturbances with clinical outcomes in anuric patients in peritoneal dialysis (PD).

Methods
A prospective cohort study of 122 PD centers from Brazil. Were included adult patients, incidents in PD, with at least 90 days of therapy and anuric in the baseline. Anuria was defined was a daily urinary output < 100 ml. The outcomes of interest were all-cause and cardiovascular mortality. Patients alive at the end of the study were censored. The analysis was performed in three distinct models - Cox regression, competing risk and a Multilevel analysis.

Results
We analysed 2826 anuric patients. Mean age was 60.1±16.7 years, 33.6% were diabetic, 46.2% were men and 64.1% were Caucasian. The mortality rate of anuric patients was 6.2 (5.4 to 7.1) deaths per 1000 patient-months. The main causes of death were cardiovascular (35.7%) followed by sepsis unrelated to the therapy (34.5%). We found five independent predictors for all-cause mortality: older age, BMI<18, diabetes, peripheral arterial disease (PAD) and potassium disturbances; and 3 for cardiovascular mortality: older age, PAD and potassium disturbances.

Conclusions
Anuric patients were at higher risk of death but the risk factors were similar to those previously reported to general PD patients. Potassium disturbances were the only modifiable risk factor found and interventional studies are needed to evaluate the impact of the correction of these electrolytes disturbances on outcomes.
CLINICAL OUTCOMES IN PERITONEAL DIALYSIS PATIENTS: A 10-YEARS RETROSPECTIVE ANALYSIS

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Objectives
1. analysis of the causes of PD interruption
2. patients and technique survival
3. identification of any predictors of death and transfer to HD.

Methods
Single-center retrospective cohort study in incident PD patients from 1/1/2008 to 31/12/2017. All the patient started PD for the first time and had a period of follow up of three months at least.

Results
243 patients started PD (average age 65±16, men 56%, females 44%, median of follow-up 27 months), 81 (33%) died, 62 (26%) were transplanted, 42 (18%) transferred to HD. The first causes of death were cardiovascular diseases (31%). The median of patient survival was 60 months (5 years); coronary artery disease (p=0.028; RR=1,830), cerebrovascular disease (p=0.021; RR=1,745), diabetes mellitus (p=0.001; RR=2.291) and increasing age (p<0.001; RR=1,054 year) were statistically predictors of death. 41 patients received the single kidney transplantation (65%), 9 (14%) the double one and 13 (21%) the living-donor one. The median time on the transplant waiting list was 17 months (IQR: 8-30), and the median time from PD beginning and the enrolment in the waiting list was 9 months (IQR: 4-13). Peritonitis, inadequate dialysis or ultrafiltration failure and catheter-related problems were the major causes of transfer to HD (24%-24%-22% respectively). The risk of shift was 5% and 10% in the first and in the second year respectively. No predictor factors were significantly associated with shift to HD. Peritonitis rate was 0,25 episodes/patient-year.

Conclusions
In our experience the median time in waiting list for transplantation is very short but the reasons are unknown. The living-donor transplant rate is higher compared to other Italian data. The risk to shift to HD is lower but the catheter-related problems are more frequent (22% vs 8.5%).
CASE REPORT ON BRIDGING PERITONEAL DIALYSIS WITH HAEMODIALYSIS AFTER ABDOMINAL SURGERY BECAUSE OF RENAL CELL CARCINOMA IN POLYCYSTIC KIDNEY

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Objectives
Our aim is to present the case of a middle-aged man who has been treated with peritoneal dialysis since 2016.

Methods
His chronic kidney disease, hypertension and polycystic kidney disease were diagnosed in 2000. His nephrology care started after the necessity of hospital admission by the reason of ruptured kidney cysts in 2013. We started peritoneal dialysis treatment in September of 2016. He has got job and he lives active lifestyle so he adhered to nightly automated peritoneal dialysis treatment. Although he was slow transporter the efficacy of the dialysis was manageable besides his good residual renal function. A surgical approach solved an umbilical hernia after one year on peritoneal dialysis. Otherwise he had not got any health problem. In the spring of 2018 he complained about left-side low back pain with higher temperature. Computer tomography proved left subcapsular haematoma in the left kidney and also showed a suspicious area of the right kidney. The huge right kidney with the suspicious area was removed by urological operation and renal cell carcinoma was diagnosed without any sign of invasion. Before the operation we inserted a permanent intravenous dialysis catheter and converted the patient to haemodialysis in the perioperative period.

Results
After six weeks we checked the catheter function by manual exchanges than initiated again the automated peritoneal dialysis. We used the same regime which was already managed with lower filling volumes because of the larger kidneys. After one month we added icodextrin and raised the single dwell volume as well to optimize the efficacy.

Conclusions
We followed his physical state, his laboratory results, his transport state, his treatment's efficacy and we tried to help and solve his complains. We would like to present the hall spectrum of his medical journey and let the audience know how our PD team manage this situation.
"WHY DID YOU CHOSE HEMODIALYSIS OVER PERITONEAL DIALYSIS?" - SINGLE CENTER SURVEY AMONG HEMODIALYSIS PATIENTS

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Objectives
The number of peritoneal dialysis (PD) patients in Serbia, as well as in other Western countries is declining. According to our national registry on renal replacement therapy (RRT), patients on PD accounts for around 9% of overall RRT patients. The aim of this study is to recognize the reason for this phenomenon through an opinion survey among prevalent hemodialysis (HD) patients, focusing on the factors that impacted their choice of RRT modality.

Methods
A total of 256 HD patients were interviewed using the questionnaire regarding the factors that governed their choice of dialysis modality, and its perceived advantages and disadvantages over PD.

Results
A total of 153 patients (59.7%) had emergent HD initiation. Among them 80.4% weren't even aware of PD modality at the start of RRT. All of the 103 elective HD patients were aware of all available modalities of RRT. Most of the interviewed patients, 215 of them (84%), declared they were advised to choose HD over PD by other HD patients, and even 126 (49.2%) of them received similar advice from their treating doctor. Only 44 of them (17.4%) had met another PD patient before the decision about RRT modality. A total of 125 patients (48.8%) said that the main reason for choosing HD over PD was supervised care in dialysis center. Only 34 (13%) of them didn't have proper logistic to perform PD. For HD patients, the main advantage over PD is intermittent nature of dialysis according to 184 (72%). The main disadvantage is need for vascular-access surgery according to 212 (82.1%) patients.

Conclusions
Late referral is the major reason for urgent HD and inadequate education of patients with end-stage renal disease. Only half of doctors suggested PD as modality for various reason. Continuous supervised care during in-hospital hemodialysis is an important argument toward HD.
REMOTE MONITORING OF AUTOMATED PERITONEAL DIALYSIS. A YEAR AND A HALF OF EXPERIENCE.

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Objectives
A new telemonitoring system of automated peritoneal dialysis (Sharesource® BAXTER) allows early detection of non-compliance, insufficient drainage, or inadequacy. We can implement corrective measures. Remote prescriptions decreased outpatient consultations and save travel expenditures.

Methods
We have telemonitorized from May 2017 to November 2018, 4226 therapies of 18 patients (4 women).

Results
Only 31 treatments of 4226 therapies were lost (0.7%). 20 due to technical problems, 3 for kidney transplant, and 7 (4 patients) on a voluntary basis. Patients were contacted to establish the cause in 24-72 hours.

In 12 cases delayed drainages due to a dysfunctional catheter were detected (multiple alarms and daily drainage charts). 9 cases were spontaneously solved or laxatives were prescribed, in two cases urokinase was used, and in one case, patient catheter replacement was required.

In 11 cases lower ultrafiltration or drainage lengthening slow drainages were detected and solved by remote adjustment of therapy.

In 2 patients, a reduction of the therapy time was due to the delay in the heating of the bags, resolved by modifying the target temperature.

In 9 patients, ultrafiltration was less than expected and in 3 cases ultrafiltration was more than expected. High blood pressure was observed in 7 patients and weight gain in 3 patients. In all cases the concentrations of the dialysis solution, the number or duration of cycles, or diuretics dosage were modified.

Conclusions
No patient suffered from serious clinical complications. The problems were detected and solved early and proactively. A total of 59 face-to-face consultations were saved, and more than 30 trips were avoided.

A patient survey showed a high degree of satisfaction and that they felt very well supported from the hospital.

Sharesource® allows us:
Improve the safety and confidence of patients.
Proactively detect and solve incidences of therapy.
Avoid unnecessary trips for patients and save health costs.
APTITUDINAL SUITABILITY: THE STRONGEST BASELINE PREDICTOR OF PD OUTCOME

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Objectives
To investigate the relevance of aptitudinal suitability of ESRD patients for the outcome of home PD.

Methods
A survey was compiled independently by an experienced nurse and nephrologist, regularly involved in care of PD patients, for each new patient referred for PD to our clinic. It consists on a discrete qualitative evaluation of 5 different domains: a) manual dexterity b) education degree c) autonomy d) compliance e) attendance to care f) reliability of health expectations g) aptitude to self-care h) prospective clinical deterioration hazard. A score from 1 (poor), to 2 (mediocre), 3 (average), 4 (good), 5 (optimal) was used. The relevance of each score and their sum on subsequently observed peritonitis rate, patient and technique survival was then tested in a logistic regression model, adjusted for age, gender, BMI, comorbidity, RRF loss while on predialysis, GFR at PD start. Concordance correlation coefficient, intraclass correlation coefficient and inter-rater agreement (kappa) were used to test consistency between nurse and physician scoring.

Results
To date 53 patients were included (32 males, aging 54±16 years) and followed-up for 32 (C.I. 95% 20 to 43) months. During follow-up 13 patients received renal transplant, 10 patients died for reasons unrelated to PD, 14 patients switched to HD, 16 patients are still on PD. Peritonitis incidence has been 0,35 episodes/patients/years. Either physician and nurse scores were independently associated with technique success (AUC C.I. 95% 0,69 to 0,91, P=0,0001 and 0,67 to 0,9 p= 0,0002 respectively). Concordance between nurse and physician score was overall good (correlation coefficient 0.84, Pearson p 0.85, bias correction factor 0.99). Intraclass correlation coefficient (0.84 for single measure 0.9 for average measures). Weighted kappa 0.6 (95% C.I. 0.54 to 0.7).

Conclusions
Aptitudinal suitability appears to be strongly associated with PD success. Its baseline semiquantitative evaluation could represent a valuable tool to identify patients expected to experience favourable outcome with home PD.
MODIFIABLE AND UNMODIFIABLE BARRIERS TO HOME PERITONEAL DIALYSIS IN A HIGH-INCOME EUROPEAN COUNTRY

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Objectives
There exist general consensus that, despite similar clinical outcome and perhaps lower cost than in-center HD, PD is somewhat underused in most high-income countries. Clinical and non-clinical reasons have been implicated, whose relative contribution and modifiability have not been extensively highlighted.

Methods
We have retrospectively collected reasons of modality choice in incident ESRD patients starting chronic RRT in our tertiary-care Hospital from 2010 to 2018.

Results
Two-hundred forty two patients started RRT in our center in the considered time span, 192 (79.3%) with HD and 50 (20.7%) with PD. Choice was offered to all patients without obvious clinical contraindication to each modality. Of these, 11 patients (5%) had been already addressed to HD elsewhere; 2 (1%) started PD because of vascular access exhaustion; 8 (3%) were felt unsuitable to PD for previous major abdominal surgery, 9 (4%) for clinical reasons and 12 (5%) because of language or cultural barrier.

Of the remaining 200 eligible patients, 83 (41%) preferred HD (9 of them mainly because of body image), 16 (8%) were elected to HD for aptitudinal unsuitability, 21 (11%) unable to self-administer therapy and without caregiver started HD, 11 (6%) had more than one reason, not related to their own choice, to start HD and for 8 patients (4%) these reasons weren’t known.

Overall, 42 patients (17%) had an unplanned start, for 13 (31%) of them it was the only reason to remain in HD; 4 patients (10%) urgently started on HD subsequently transferred to PD by own informed choice. Two patients (5%) started directly PD. The remaining 29 patients (69%) presented more associated reasons to be addressed to HD.

Conclusions
In a high-income European country, PD-uptake increase would involve: active intervention on late-referral patients without obvious contraindication, language and cultural barrier overcome and home/residential assistance provided by healthcare professionals.
REMOTE MANAGEMENT OF PERITONEAL DIALYSIS PATIENTS – A SINGLE CENTRE EXPERIENCE

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Objectives
Peritoneal dialysis (PD) is a home-based dialysis therapy, where remote monitoring of PD patients can be beneficial. Clinical evidence for telemedicine usage in PD is limited. The aim of this study was to assess the impact of remote patient management (RPM) on improving the standard of care in our PD program.

Methods
We conducted a retrospective observational study on adoption of RPM in our clinic. Homechoice PD cyclers equipped with Sharesource platform (provided by Baxter) were implemented in September 2017. In total 28 patients aged 51±21 years were observed, 16 prevalent and 12 incident automated PD (APD) patients, 12 females and 16 males. Individualized adherence to PD prescription was monitored over 12 months, and data were analyzed at the end of the study period. The analysis covered 161 patient-months.

Results
The average therapeutic adherence, measured as the percentage of treatments performed per observation time, was 91%. Five patients had adherence below 90%. We observed positive influence of RPM on patients’ adherence to PD prescription. Furthermore, RPM allowed for timely proactive interventions in 4 (14.3%) cases, which prevented possible serious complications.

Conclusions
Our experience over 12 months’ period confirmed the beneficial value of RPM in improving adherence to PD prescription. Ongoing supervision over patients’ adherence allowed spotting cases of non-adherence and improved patient cooperation through appropriate discussion. Moreover, proactive care increased patients’ sense of safety of therapy and satisfaction with the challenge of self-care. In addition, this approach allowed fast proactive decisions in cases requiring intervention, which can significantly improve clinical outcomes. This has implications in avoiding or reducing the likelihood of an unplanned emergency room visits or hospitalization. Finally, these results may have positive impact on cost reductions and significant savings in healthcare resources.
HOW NURSES SELECT PATIENT FOR ASSISTED PERITONEAL DIALYSIS: A COHORT STUDY WITH THE DATA OF THE RDPLF

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Objectives
In France, PD nurses are in charge of the patient assessment for assisted PD. The aim of this study was to evaluate the criteria used by PD nurses to select patients for assisted PD.

Methods
This was a retrospective study based on the data of the nurse section of the French Language Peritoneal Dialysis Registry [RDPLF]. The nurse section contains information, recorded by nurses before PD start, about criteria that lead to the utilization of assisted PD. There were 4101 incident patients in the nurse section among patients starting PD between 2010 and 2015.

Results
Of these 4101 patients, 2098 were treated by assisted PD: 403 by family-assisted PD and 1695 by nurse-assisted PD. After adjustment on potential confounders, nurse global assessment of autonomy was associated with nurse-assisted PD (RR: 0.18 [CI95%: 0.16-0.22]) and family-assisted PD (RR: 0.09 [CI95%: 0.06-0.23]). There was an association between functional impairment and assistance either by a nurse (RR: 1.25 [95%CI: 1.16-1.36]) or a family member (RR: 2.02 [95%CI: 1.69-2.41]). Cognitive dysfunction was associated with nurse and family assisted PD (RR: 1.23 [95%CI: 1.15-1.32], RR: 1.73 [95%CI: 1.39-2.16] respectively). Deafness or visual impairment was associated with assisted PD (RR: 1.10 [95%CI: 1.04-1.16], RR: 1.05 [95%CI: 1.04-1.06] respectively).

Conclusions
Our results showed that patient disabilities, independently of patient age and comorbidities, are the main criteria used by PD nurses to select patients for assisted PD. Other studies are needed to determine which tools are used by nurses for the assessment.
DENTAL CARE DECREASED THE RISK NOT ONLY OF CARDIOVASCULAR EVENTS BUT ALSO PERITONITIS FOR THE PATIENTS ON PERITONEAL DIALYSIS

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Objectives
Oral disease may be increased in people with end stage renal disease and associated with inflammation, cardiovascular disease and mortality. Here, we evaluated the association of oral hygiene and clinical events of the patients with peritoneal dialysis (PD).

Methods
The admission rate of peritonitis due to Streptococcus peritonitis, congestive heart failure (HF), acute coronary syndrome (ACS), cerebrovascular disease (CVD), pneumonia, and mortality were evaluated in the oral hygiene and oral non-hygiene group. Non-hygiene group was treated with PD between 2000 and 2009 and no dental care. Oral hygiene was treated with PD between 2010 and 2018, and continued dental care, including prophylactic antibiotics treatment before dental scaling or extraction.

Results
The cumulative annual PD patients in non-hygiene and hygiene group were 342 and 573 (mean age; 61.8 vs 65.7 years; p < 0.01) respectively, and PD duration were 3404 vs 5716 month • person (p < 0.01). According to the cause of underlying disease, diabetes was same, but glomerulonephritis was decreased, nephrosclerosis was increased in group B. The incidence of peritonitis (0.275 vs 0.187 / person • year : p < 0.02), Streptococcal peritonitis (0.081 vs 0.044 / person • year : p < 0.05), HF (0.159 vs 0.092 / person • year : p < 0.01), CVD (0.060 vs 0.023 / person • year : p < 0.01), pneumonia (0.081 vs 0.040 / person • year : p < 0.05) were lower in hygiene group than in non-hygiene group. As for the cause of death, the data were the same fashion as above.

Conclusions
Dental care was associated not only for cardiovascular disease, but also for peritonitis. Considering that the peritonitis and the cardiovascular disease may provide poor QOL and mortality, dental care is indispensable for better QOL and treatment survival.
**Objectives**

To quantify the percentage of Baxter trained PD patients who were still on therapy 90 days post training.

**Methods**

A data collection tool was designed to allow Clinical Practice Educators (CPEs) working for Baxter to record patient training and included: age, gender, APD/CAPD training received and whether individuals were prescribed a last fill to identify incremental PD. Data was collected on patients new to therapy, including those who were being transferred from haemodialysis or transplant. Individuals converting from one PD therapy to another were not included. Patient status at 90 days post training identified if individuals remained on therapy or had dropped off. Data was explored using simple descriptive statistics.

**Results**

As of 18th November 2018, 311 patients new to therapy completed their Baxter training. Of those, 67% were trained onto APD, 25% onto CAPD, 4% onto Extraneal only and 3% were trained to connect/disconnect for use with the assisted service. 1% of entries were not complete. Patients ranged in age from 17-93 years. 64% of patients were male; 35% were diabetic and 41% did not have a last fill.

Of the 311 patients who completed training, 215 (69%) had reached the 90 day follow up date by 18th November 2018. At 90 days 80% of patients were still on therapy; 10% were not on therapy and 10% of entries were blank. For those patients no longer on PD the indications were: move to HD 47%, died 13%, catheter not working 13%, transplant 11%, catheter leaking 6%, drainage issues 5% and no indication 5%.

**Conclusions**

Eighty percent of patients trained by Baxter to perform PD were still on therapy at 90 days. The majority of those not on PD at 90 days had changed to HD. The descriptive data has provided interesting information regarding the PD population served by Baxter in the UK. Further evaluation to compare Baxter to the wider PD population, would highlight any discrepancy in the impact of training on patient drop off. However, for the data to be more meaningful, further attention needs to be given to the data collection tool to ensure greater accuracy and completion.
INITIAL RENAL REPLACEMENT THERAPY WITH PERITONEAL DIALYSIS (PD) HAS SPARING EFFECT ON BONE MINERAL DENSITY (BMD) COMPARED TO HEMODIALYSIS (HD)

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Objectives
Reduced BMD after initiation of dialysis is a common finding. The relationship between initial renal replacement therapy and bone loss after initiation of dialysis is not fully studied. Here we investigate the association between initial dialysis therapy and changes of BMD at various bone sites during 1-year dialysis therapy.

Methods
In 246 patients initiating hemodialysis (HD; n=105) or peritoneal dialysis (PD; n=141), dual-energy X-ray absorptiometry (DXA) was performed at initiation of dialysis and 1 year after dialysis start. Body composition, nutritional status, handgrip strength and various biochemical biomarkers were recorded. Age, gender, body mass index, diabetes and total BMD at baseline was used for propensity score matching based on which one-year BMD loss at each site was compared between PD and HD.

Results
Before dialysis initiation, BMD was higher in HD vs PD patients for arm (p<0.05), leg (p<0.05), trunk (p<0.05), rib (p<0.05), spine (p<0.05) and total BMD (p<0.05). Baseline calcium, phosphate and PTH did not differ. One-year of HD therapy, resulted in BMD reductions in leg (p<0.05), trunk (p<0.05), rib (p<0.05), pelvis (p<0.05), spine (p<0.05) and total BMD (p<0.05) while changes during PD were not significant. After propensity score matching rendering 152 matched individuals, 76 HD and 76 PD patients did not differ in baseline BMD, or in other parameters with exception of use of Ca-blocker and ACEi/ARB. During the first year on dialysis, 76 patients initiating HD had significantly greater losses of BMD at leg (p<0.05), trunk (p<0.05) and pelvis (p<0.05) sites than 76 matched PD patients.

Conclusions
As compared to dialysis initiation with PD, initial HD therapy was associated with larger decrease of BMD at several bone sites during the first year of dialysis suggesting that PD may have BMD sparing effects as compared to HD therapy.
PERITONEOSCOPE ASSISTED PERITONEAL DIALYSIS CATHETER PLACEMENT

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Objectives
Peritoneal dialysis (PD) treatment is an effective home-based treatment for patients with end-stage renal disease. Peritoneoscope-assisted PD catheter insertion by experienced nephrologists is a relatively simple, quick, and safe procedure. We describe 14 years of experience with this technique.

Methods
We have retrospectively analysed all patients who had percutaneous peritoneoscope-assisted PD catheter placement in 14 yrs. (between 2003 to 2017) Bradford Teaching Hospitals NHS Foundation Trust, a tertiary renal referral centre. Catheter was placed under local anaesthesia with provision of conscious sedation if needed as a day case procedure by a single nephrologist.

Results
Total catheters number of done using this technique was 155. Median age was 52yrs. Male to female ratio of 1.5. Average eGFR at the time catheter placement was 7.87 ml/min/1.73m². Incidence of failed procedure, severe bleeding needing blood transfusion and bowel perforation was 1.3% (n=2), 1.3% (n=2) and 0.6% (n=1); respectively. Loss of PD catheter for the reasons of successful renal transplantation, catheter dysfunction, patient death whilst on PD, infection and transition to haemodialysis due to membrane failure was 33% (n=51), 24% (n=37), 22% (n=34), 11% (n=17) and 10% (n=15); respectively. On average yearly catheter survival rate was 59%.

Conclusions
Peritoneoscope-assisted PD catheter insertion is an effective and safe technique under the hands of experienced nephrologists. More data is needed from other centres using this technique to allow identification of factors that may further enhance its success rate.
WHAT WE SHOULD KNOW WHEN PRESCRIBING TEICOPLANDIN IN PERITONEAL DIALYSIS PATIENTS

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Objectives
There is scant experience with teicoplanin in case of methicillin resistant PD peritonitis. We studied teicoplanin kinetics during IV and IP administration to optimise antibiotic therapy in a patient with MRSE peritonitis.

Methods
A PD patient (male, residual eGFR 10mL/min, 88kg) with MRSE peritonitis received teicoplanin because of documented vestibulotoxicity by previous vancomycin administration. After three days IV teicoplanin (800mg on day 1 and 600mg on days 2 & 3), 20mg teicoplanin was added to each of the 4x2L dwells/day (3 Bicavera 1.5%, 1 Extraneal). Blood and PD fluid were sampled after the longest dwell before the start of IP treatment (d0), and at the outflow of day 3 (d3) and 7 (d7). Total and free teicoplanin levels were determined with an in-house developed UHPLC-HRMS method, and %protein binding was calculated. A two-pool model was calibrated for the clearance among both pools, by fitting on the measured plasma and dialysate concentrations.

Results
Dialysate teicoplanin concentration at d0 was only 2.6mg/dL, illustrating the hampered teicoplanin transport from plasma into dialysate, induced by high protein binding (92±1%). The limited renal and dialysis removal also led to much higher plasma concentrations at d0 (28.8mg/L) than expected theoretically. From d0 on, the patient got into a kind of steady state dialysis regime with teicoplanin TAC concentrations in dialysate of 8.4mg/L (max 10mg/L at inflow □ min 6.6±1.2mg/L at outflow), while total plasma concentrations were 24.8±3.6mg/L as mainly uploaded by the previous IV administrations. After switching to teicoplanin IP (instead of IV), the patient’s clinical and biochemical condition improved dramatically.

Conclusions
Teicoplanin’s high protein binding hampers transperitoneal transport, and therefore, its IV administration is not a feasible option to treat peritoneal infections. To avoid nephrotoxic blood and sub-therapeutic dialysate levels, low dose IP teicoplanin administration in each dwell is recommended.
DIFFERENCES IN AUTONOMY PREFERENCE AND SOCIODEMOGRAPHICS BETWEEN HD AND PD PATIENTS IN GERMANY

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Objectives
The literature shows differences between the haemodialysis and peritoneal dialysis patient populations in terms of autonomy preference and sociodemographic factors. PD patients tend to be younger, female, higher educated and show a stronger autonomy preference. The aim of this study was to investigate these differences.

Methods
A nationwide postal survey of dialysis patients of two sickness funds in Germany was conducted in 2018. The Autonomy Preference Index (API) measured patients’ preferences for decision-making (PDM) and information-seeking (PIS) using a 0–100 answer scale, with high values representing a stronger preference. Furthermore, patients were asked to provide sociodemographic information.

The patient populations were divided by whether they started with home-based peritoneal dialysis (PD) or in-centre haemodialysis (HD). Population differences in terms of the API, as well as age, sex and school education, were examined.

Results
We included 651 dialysis patients in our analysis [HD=94%, PD=6%; 57% male, 43% female]. The median age was 71 [22–94].

The PD patients showed a significantly higher PDM than the HD group [PD=61, HD=52]. PIS was non-significant.

There were no differences in the modality populations in terms of sex and school education. The HD patients were older than the PD patients [median: 72 and 63 years]. A regression analysis showed younger patients to have a stronger PDM. A logistic regression with modality choice as the dependent and PDM and age as the independent variables showed only patients’ age as having a significant influence on modality choice.

Conclusions
The literature indicates that patients with a high autonomy preference often choose PD. Initially, our results seem to sustain these findings. But after controlling for sociodemographic factors, the differences between the HD and PD patient populations can only be ascribed to the patients’ age, because younger patients have a stronger autonomy preference and more often choose PD.
URGENT-START PERITONEAL DIALYSIS FOR PATIENTS WITH LESS RESIDUAL RENAL FUNCTION; PERCUTANEOUS VS. SURGICAL PERITONEAL CATHETER INSERTION

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Objectives
Urgent-start peritoneal dialysis (PD) is applied to patients who need PD in less than 2 weeks, but able to wait for more than 48 hours before starting the PD. To evaluate the usefulness of percutaneous PD catheter insertion in urgent-start PD, we reviewed the clinical outcomes of the percutaneous catheter insertion with immediate start PD and surgical insertion with longer break-in time.

Methods
This study included 177 patients underwent urgent-start PD. Based on the PD catheter insertion method, the patients with urgent-start PD were divided into Percutaneous (n=103) and Surgical group (n=74). For the percutaneous group, a modified Seldinger’s percutaneous catheter insertion with immediate initiation of PD was performed by nephrologists.

Results
There were no significant differences in age, gender, causes of chronic kidney disease, body mass index, and serum albumin concentration at baseline between the two groups. The percutaneous group showed higher BUN, creatinine, and lower albumin compared with the surgical group (p<0.05). 90-day infectious and mechanical complications showed no significant differences between the two groups. 90-day peritonitis in the percutaneous group was 9.7% compared to 5.4% in the surgical group (p=NS). Major leakage was 3.9% in the percutaneous group compared to 1.4% in the surgical group (p=NS). Overall infectious and mechanical complication-free survival was not significantly different between the two groups. The percutaneous group showed higher catheter survival compared with the surgical group (p<0.05).

Conclusions
This study suggests that even to the patients with less residual renal function, urgent-start PD could be applied safely with the percutaneous catheter insertion by nephrologists with no break-in period. Immediate start PD was not associated with increased infectious and mechanical complications.
OBJECTIVES

There is limited information available on the impact provision of an assisted peritoneal dialysis (PD) service has on the initiation of PD. The aim of this study was to assess this impact in a centre following initiation of assisted PD in 2011.

METHODS

This retrospective, single-centre study, analysed 1576 patients incident to renal replacement therapies (RRT) between January 2002 and 2017.

Adjusted Cox regression with a time-varying covariate, and a Fine and Gray model were used to measure the incidence of assisted PD use, accounting for the non-linear impact of RRT starting time, on overall PD initiation and the competing risks (transplant and death).

RESULTS

Patients starting PD with assistance were significantly older than those starting unassisted: 70.0 years old versus 58.7 years old respectively (p<0.001). In the adjusted analysis assisted PD service availability was associated with an increased probability of PD initiation (cause-specific Hazard Ratio (cs-HR) 1.78, 95% CI 1.21-2.61). During the study period, the probability of starting PD independently of the assisted PD service fell before flattening out. Transplantation and death increased over time but this did not affect the fall in PD initiation (for each year in the study cs-HR of starting PD 0.95 (0.93-0.98), sub-distribution-HR 0.95 (0.94-0.97)).

CONCLUSIONS

In a single centre study, introducing an assisted PD service significantly increased the probability of PD initiation, benefitting older patients most. This offset a fall in PD usage over time, which was not explained by changes in transplantation or death.
fluid status assessment in peritoneal dialysis patients

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Objectives
Adequate fluid management in peritoneal dialysis patients is essential, therefore we evaluated different well known methods for fluid status assessment in our peritoneal dialysis patients.

Methods
17 peritoneal dialysis patients (53 ± 18 years, 9 M) were clinically evaluated (peripheral edema, inspiratory crackles and blood pressure). Blood was checked for sodium, albumin and NT-proBNP concentrations. Lung ultrasound was performed for assessing B-lines (normal up to 4) in 28 lung zones. Central venous pressure was estimated from inferior vena cava ultrasound measurements (normal up to 8 mmHg). Overhydration was measured by bioimpedance method (BIS) on dry abdomen.

Results
Only 12% of patients had edema and 18% had inspiratory crackles. Hypervolemia was shown by BIS, NT-proBNP and central venous pressure measurement, the average values were 1.6 ± 1.9 liters, 12664 ± 13916 ng/l and 9.3 ± 3.7 mmHg, respectively. Lung ultrasound was not consistent with hypervolemia (3.2 ± 6 B lines). Sodium was normal (137 ± 4 mmol/l), albumin slightly decreased (37 ± 4 g/l), systolic (144 ± 18 mmHg) and diastolic blood pressure (92 ± 13 mmHg) were minimally elevated.

BIS correlated with central venous pressure (r = 0.6, p<0.05) and NT-proBNP (r = 0.7, p<0.05). Lung ultrasound correlated with NT-proBNP (r = 0.5, p<0.05) and blood albumin concentration (r = -0.8, p<0.001). NT-proBNP negatively correlated with blood sodium (r = -0.6, p<0.05) and albumin concentration (r = -0.6, p<0.05).

Conclusions
Although most patients seemed clinically euvoletic, mild hypervolemia was revealed according to BIS measurements, NT-proBNP concentration and central venous pressure estimation, but not according to lung ultrasound examination. BIS and NT-proBNP measurements correlated with most of the fluid status parameters, so in our opinion these two parameters could be useful for guiding fluid assessment in peritoneal dialysis patients. Other methods could additionally be helpful in inconclusive cases.
SMALL DETAIL, GREAT CHANGE: MODIFIED MINI-LAPAROTOMY VS ADVANCED LAPAROSCOPY

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Objectives
Advanced laparoscopy with rectus sheath tunnelling has been elevated to the gold standard of PD catheter insertion technique. International Society of Peritoneal Dialysis does not recommend any particular technique. Operator expertise is fundamental and should guide the choice of technique. Our PD Unit has a surgical team trained on advanced laparoscopy (for insertion or catheter complications) and nephrologists trained in mini-laparotomy and modified Seldinger technique. A modification to the open surgical dissection was implemented, regarding the creation of a tunnel through the muscle and aponeurosis, in order to maintain catheter direction. This study compares the outcome of modified mini-laparotomy vs advanced laparoscopy PD catheters insertion techniques in our Unit.

Methods
A longitudinal study was conducted, including all of these procedures performed in the last 3 years. Complications during the procedure, early (first 60 days) and late mechanical and infectious complications were considered.

Results
The cohort included 11 advanced laparoscopies and 18 modified mini-laparotomies; the population had 65.5% males, 41.4% diabetic, with a mean age of 54.2 years, mean body mass index of 25.8kg/m², and mean catheter duration of 13.1 months (52% are still on PD). The modified mini-laparotomy was associated with fewer early mechanical complications ($X^2=8.926, p=0.006$). There were no differences concerning other complications analysed. Dialysis indices were similar. These patients had lower BMI ($p=0.001$). There are no differences to the date concerning catheter survival, but conclusions are premature.

Conclusions
There was a great decline in early PD failure in the last 3 years, coincident with the modification of mini-laparotomy technique. Lower BMI allocated to open surgical dissection (policy of our unit) may bias the results. Nonetheless advantages of fewer early mechanical complications include less need for intervention or surgical referral, with less costs and probably higher patient compliance.
MODIFIED MINI-LAPAROTOMY: A SMALL TECHNIQUE DETAIL ENSUES LESS MECHANICAL FAILURE

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Objectives
Advanced laparoscopy with rectus sheath tunnelling has been elevated to the gold standard of PD catheter insertion technique, despite International Society of Peritoneal Dialysis does not recommend any particular technique. Operator expertise is fundamental and should guide the choice of technique. Our PD Unit has the support of a trained surgical team on advanced laparoscopy (for insertion or catheter complications) and has nephrologists trained in mini-laparotomy and modified Seldinger technique. A modification to the open surgical dissection was implemented, regarding the creation of a tunnel through the muscle and aponeurosis, in order to maintain catheter direction. This study compares the outcome of modified mini-laparotomy vs advanced laparoscopy PD catheters insertion techniques in our Unit.

Methods
A longitudinal study was conducted, including all procedures performed in the last 3 years. Complications during the procedure, early (first 60 days) and late mechanical and infectious complications were considered.

Results
The cohort included 52 catheter insertions; the population had 69.2% males, 40.4% diabetic, with a mean age of 58.1 years, and mean catheter duration was 13.7 months (49% are still on PD). Procedures included 15 laparoscopies, 13 modified Seldinger technique, 18 modified mini-laparotomies and 6 mini-laparotomies. The modified mini-laparotomy was associated with fewer early mechanical complications ($\chi^2=6.316, p=0.02$). There were no differences concerning other complications analysed. Dialysis indices were similar. These patients had lower body mass index (BMI) ($p=0.003$). Conclusions concerning catheter survival are premature, but until now there are no differences.

Conclusions
The allocation of lower BMI to open surgical dissection has been policy of our unit and may bias the results. Nonetheless we found a great decline in early PD failure in the last 3 years, coincident with the modification of mini-laparotomy technique. The main advantage of fewer early mechanical complications is less need for intervention or surgical referral, with less costs and probably higher patient compliance.
PERSISTENT EXIT-SITE INFECTION - A REAL RED FLAG

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Objectives
Exit-site infection is a common complication in peritoneal dialysis (PD). Pseudomonas spp. is particularly difficult to treat and catheter removal should be considered in persistent infections. This case prompts the challenging management of chronic infections and mainly the importance of “thinking outside the box” regarding the diagnosis.

Methods
The authors present a case of a 67-year-old caucasian female on PD, with chronic exit-site infection resistant to directed antibiotic therapy (due to Pseudomonas aeruginosa), afterwards with repeated negative cultures. Mild discomfort during dialysate infusion was present, without peritonitis criteria. Despite diagnostic and therapeutic efforts to find the underlying cause of therapy resistance, somewhat unexpected, catheter salvage was not possible.

Results
Insertion of a new catheter on the other flank was unremarkable, but removal was very difficult due to the presence of white sponge-like tissue with petrous consistency surrounding the catheter, all the way into the peritoneum. Histology revealed well-differentiated adenocarcinoma infiltrates. Abdominal computed tomography scan revealed a solid pancreatic (tail) lesion, nodular images on the greater epiploon, an adnexal lesion and a hepatic solid lesion, consistent with metastasis. After multidisciplinary evaluation, final diagnosis was pancreatic cancer with adnexal, hepatic, peritoneal and abdominal wall extension. The patient was referred for palliative care. Peritoneal dialysis was discontinued when untreatable pain and deterioration of general status aroused 4 months later and according to individual patient decision. She died 4 days later.

Conclusions
Somewhere along the course of this chronic exit-site infection, the peritoneal catheter (and inflammation) were the metastatic path of an unknown pancreatic cancer, with neoplastic tissue reaching the skin, evolving with sustained exudate, edema, redness and aggravating crust. Catheter removal was crucial for diagnosis. Treatment options for the primary neoplasia were limited, moreover in the presence of metastases. Good clinical status and quality of life allowed maintaining PD for a period of time.
USING UV-PAINT FOR EVALUATING TOUCH-CONTAMINATION OF A PATIENT-ASSISTANCE DEVICE FOR PERITONEAL DIALYSIS

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Objectives
Dealing with a new situation of a life-threatening disease like a renal failure is challenging alone. Combining this with an unfamiliar handling procedure in the therapy and a permanent fear of an infection by touch contamination may quickly become overwhelming for the person affected. This may result in early dropouts or be a reason for not being treated at home.

A novel patient assistance device aims to connect the peritoneal dialysis (PD) catheter and the PD tubing system touch free. The objective of this work is to evaluate, if untrained novices in PD are able to perform handling cycles with the patient assistance device without touching infection critical surfaces on the PD catheter or on the PD tubing system.

Methods
Ten volunteers (8 males and 2 females, average 26 years, range 23-37 years) were recruited and participated in one complete handling cycle, with no training in advance but aided by the device’s quick starting guide only. While interacting with the device, the volunteers had UV-paint on their hands, which is invisible in daylight but brightly colourful under UV-light. Subsequent to the handling cycle, the surfaces were analysed with a UV-light for contact with the volunteer’s hands.

Results
The volunteers touched all expected user interface features of the device such as the three buttons on the top, the lever on the right-hand side and the clamp of the PD catheter. The tip of the uncovered PD tubing system and the inside of the PD catheter were defined as critical surfaces for potential infections. The analysis of the touched surfaces showed no UV-paint on these surfaces.

Conclusions
The results indicate that the patient assistance device enables even untrained novices to connect a PD catheter to a PD tubing system and performing the therapy handling safely without touching critical surfaces when using the patient assistance device.
P-70
PERITONEAL DIALYSIS CAUSES A MODERATE AND TRANSIENT REDUCTION OF HEPATO-SPLANCHNIC PERFUSION

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Objectives
During Peritoneal dialysis (PD) intra-abdominal pressure (IAP) reaches values close to intra-abdominal hypertension (IAH, IPP<12 mmHg) known to cause local venous congestion. It was the aim to investigate whether a standard PET PD filling reduced hepato-splanchnic blood flow (Qh).

Methods
Measurements were done during a PET with 2L of 2.27% glucose dialysate. Subjects remained fasting and assumed a supine body position throughout the duration of the study. Data were obtained in the drained state at baseline (T0), after instillation of dialysate (T1), as well as halfway into the PET (T2). IAP was measured by Durand’s approach. Qh was determined from kinetics of indocyanine-green (ICG) dye intravenously injected and transcutaneously measured by pulse-dye-densitometry (DDG, Nihon-Koden, Japan). Mean arterial pressure (MAP) and total peripheral resistance (TPR) were derived from continuous arterial pulse analysis (Finometer, Finapres, The Netherlands). Plasma glucose (G) and insulin (I) concentrations were measured by standard techniques. Variables obtained at T0, T1, and T2 were compared by non-parametric Friedman-test.

Results
Twenty patients (age 56.6±14.3 years; body mass 77.5±21.7 kg; 5 female, 4 diabetics) were studied. After filling IAP increased from 5.8±3.5mmHg at T0 to 9.4±2.8mmHg at T1 and to 9.7±2.8mmHg at T2 (p<0.001). Qh fell from 1.12±0.44L/min at T0 to 1.00±0.30L/min at T1 (p<0.05) and again increased at T2 (1.11±0.41L/min, p<0.05). MAP increased from 104.6±16.2mmHg at T0 to 107.5±17.5mmHg at T1 (p<0.05) and remained stable (106.5±16.7mmHg at T2). The total peripheral resistance did not change significantly. Blood glucose increased from 6.0±1.5mmoL/L at T0 to 7.0±2.0mmoL/L at T2 (p<0.001) along with an increase of blood insulin from 10.3±12.6mU/L to 12.2±13.6mU/L (p<0.05).

Conclusions
The increase in IAP during PD causes a small and transient decrease in Qh. The subsequent rebound coincides with the absorption of glucose and is likely due to vasoactive effects of glucose and insulin.
PERITONEAL DIALYSIS TECHNICAL FAILURE AND RELATED FACTORS IN A SINGLE CENTER EXPERIENCE

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Objectives
In the United States, only about 7% of incident dialysis patients are reported to use peritoneal dialysis (PD). According to the studies, even if a proportion of the patients using PD is low, many of them are subsequently forced to switch to hemodialysis (HD) because of technique failure. Although technique failure rates have fallen over the past 10 years, switching from PD to HD still incurs risks, such as placement of a temporary vascular access and disruption of the patient's daily routine. However, in Asia, there are few data about peritoneal dialysis technical failure, so we investigated incidence of technical failure and associated factors at a university medical center in Korea.

Methods
We identified 312 patients who initiated PD at our center between 1 January 2000 and 31 September 2014. Technique failure is defined as any switch from PD to HD for 30 days or more. We used Cox regression to examine associations between technique failure and demographic, medical, and dialysis-related factors. We estimated hazard ratios (HRs) with 95% confidence intervals (CIs).

Results
An average age of the participants was 56 years. 187 of 312 (59.9%) were men and 294 patients (94.5%) were performing continuous ambulatory PD. 77 patients (24.7%) had experienced at least one 30-day switch to HD. Mean technique survival time was 3.8 years. In comparison between patients with and without technical failure, mean age was higher in technical failure group (60.6 ± 13.5 vs. 56.6 ± 13.5, p=0.028) and the group had more experiences of PD peritonitis than one without technical failure (74% vs. 33.2%, p<0.001). In multivariate analysis, diabetes mellitus (HR: 1.942; 95% CI: 1.177 to 3.202) and PD peritonitis (HR: 2.155; 95% CI: 1.250 to 3.715) were associated with a higher rate of technique failure. Age, sex, BMI and dialysis modality were not associated with the failure rate.

Conclusions
This study showed that a rate of technical failure in our center was lower than a rate in other contemporary cohorts. Diabetes mellitus and PD peritonitis were associating factors for PD technical failure. Several previous studies have reported various results about technical failure and relating factors. These results might contribute to maintenance of PD.
PD: REPLACEMENT TREATMENT IN HEMODIALYSIS PATIENT WITHOUT VASCULAR ACCESS

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Objectives
We show the case of a 80 year old patient suffering of hypertension, treated with hemodialysis from 15 years, now anuric and with several surgical procedures for packaging FAV and revision. In our clinical case it has been impossible to practice hemodialysis for 60 days, due to FAV thrombosis and recurrent infections due to CVC, including an episode of endocarditis. For this case, peritoneal dialysis has been done while we were waiting for a new vascular access to return to being treated by hemodialysis.

Methods
The treatment has been done by two daily manual exchanges with 1,36% glucose bags, 1,25 mmol / l calcium, 40 mmol / l lactate, an exchange using 2,27% glucose bag, 1,25 mmol calcium / l, 40 mmol lactate and with an evening exchange using icodextrin bag.

Results
We’ve taken into consideration these renal function indices: creatinine, urea, blood gas parameters, weight gain (by using bioimpedentimetry) and ultrafiltration to evaluate the effectiveness of peritoneal dialysis compared to hemodialysis. The clinic conditions had been good for all the treatment. There was no worsening in the blood chemistry tests.

Conclusions
After about 60 days of peritoneal treatment the patient having the possibility of using a new vascular access was restarted with hemodialysis.
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QUALITY INDICATORS COMPLIANCE IN A LARGE INTERNATIONAL PERITONEAL DIALYSIS INSTITUTION

Dr Belén Marrón1, Claudia Martín2, Delia Timofte3, Michael Roesch4, Janusz Ostrowski5, Marietta Török6, Daniel Pérez7, Daniel Munteanu8, Pawel Kochman9, Attila Orosz10, Andreas Dillman10, Phillip Kalk9, Jörgen Hegbrant11

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Objectives
Peritoneal dialysis (PD) practice is not universally homogeneous, reference values are often obtained from small sized populations, further, international PD guidelines and targets are frequently based on chronic kidney disease (CKD) and/or hemodialysis data. To evaluate first year PD-related quality indicators (QIs) compliance following definition of new targets in an international PD network.

Methods
All English and Spanish language CKD and PD guidelines were reviewed. Twelve QIs were considered being of significant relevance and targets for these QIs were defined (see table). Retrospective data analysis.

Results
858 patients (82% of the total population) from 8 countries submitted data in 2017. Demographics: mean age: 54y., males: 51.5%, diabetes: 18.4%, Charlson comorbidity index: 4.4, dry abdomen 26%, mean time on PD 41.7m. and 75% of CAPD use. Achievement of QI targets by countries is shown in table, except for Chilean data that were incomplete.

<table>
<thead>
<tr>
<th>2017</th>
<th>AR</th>
<th>RO</th>
<th>DE</th>
<th>HU</th>
<th>PL</th>
<th>UR</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total patients</td>
<td>228</td>
<td>189</td>
<td>127</td>
<td>111</td>
<td>106</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Diabetes mellitus (%)</td>
<td>17.4</td>
<td>10.8</td>
<td>21</td>
<td>25.3</td>
<td>26</td>
<td>14.2</td>
<td>25</td>
</tr>
<tr>
<td>1 Total weekly Kt/V ≥ 1.7 (including anurics)</td>
<td>71.6</td>
<td>75.5</td>
<td>91.1</td>
<td>91.3</td>
<td>76</td>
<td>81.4</td>
<td>66.7</td>
</tr>
<tr>
<td>2 24 h fluid removal [24 h residual diuresis +24 h ultrafiltration]: ≥750 ml/day (including anurics)</td>
<td>88.1</td>
<td>94.8</td>
<td>96.2</td>
<td>98.4</td>
<td>96.8</td>
<td>94.6</td>
<td>75.7</td>
</tr>
<tr>
<td>3 Albumin ≥3.5 g/L</td>
<td>73.3</td>
<td>73.3</td>
<td>80</td>
<td>81.5</td>
<td>72.3</td>
<td>82.2</td>
<td>18.2</td>
</tr>
<tr>
<td>4 nPNA ≥ 0.8 g/kg/day</td>
<td>77.7</td>
<td>54.3</td>
<td>71.7</td>
<td>66.6</td>
<td>67.5</td>
<td>80.1</td>
<td>83.3</td>
</tr>
<tr>
<td>5 Serum K: 3.5-5.5 mEq/L</td>
<td>77.7</td>
<td>77.7</td>
<td>84.5</td>
<td>89.7</td>
<td>85.7</td>
<td>81.7</td>
<td>87.5</td>
</tr>
<tr>
<td>6 Serum bicarbonate: 24-28 mEq/L</td>
<td>40.7</td>
<td>28.5</td>
<td>33.3</td>
<td>25.7</td>
<td>50.9</td>
<td>16.7</td>
<td>55.6</td>
</tr>
<tr>
<td>7 Serum phosphorus: 2.5-5.5 mg/dl</td>
<td>64.5</td>
<td>72.2</td>
<td>57.3</td>
<td>70.1</td>
<td>58.6</td>
<td>61.3</td>
<td>56.8</td>
</tr>
<tr>
<td>8 Serum calcium: 8.6-10 mg/dl</td>
<td>66.5</td>
<td>68.5</td>
<td>64.7</td>
<td>53.8</td>
<td>67.6</td>
<td>59.9</td>
<td>70.5</td>
</tr>
<tr>
<td>9 Intact parathyroid hormone: 100-600 pg/ml</td>
<td>67.2</td>
<td>63.4</td>
<td>80.3</td>
<td>65.9</td>
<td>57</td>
<td>53.2</td>
<td>68.4</td>
</tr>
<tr>
<td>10 Hb: 10-12 g/dl (all patients)</td>
<td>49.5</td>
<td>34.3</td>
<td>59.1</td>
<td>57.6</td>
<td>55.8</td>
<td>46.2</td>
<td>79.5</td>
</tr>
<tr>
<td>11 Serum ferritin: 100-500 ng/ml</td>
<td>48.8</td>
<td>50</td>
<td>63.8</td>
<td>56.6</td>
<td>57.6</td>
<td>65.9</td>
<td>68.4</td>
</tr>
<tr>
<td>12 Mean arterial blood pressure &lt; 105 mm Hg</td>
<td>80.4</td>
<td>86.7</td>
<td>71.3</td>
<td>72.9</td>
<td>70.1</td>
<td>79.5</td>
<td>90.9</td>
</tr>
<tr>
<td>TOTAL SCORE</td>
<td>806</td>
<td>779</td>
<td>853</td>
<td>830</td>
<td>816</td>
<td>784</td>
<td>846</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Hb: 10-12 g/dl (ESA treated)</td>
<td>53.2</td>
<td>71.2</td>
<td>65.3</td>
<td>68.7</td>
<td>58.3</td>
<td>44.1</td>
<td>81.4</td>
</tr>
<tr>
<td>14 Hb: &gt;12 g/dl (non-ESA treated)</td>
<td>57.2</td>
<td>51.6</td>
<td>42.1</td>
<td>74.4</td>
<td>42.8</td>
<td>37.8</td>
<td>100</td>
</tr>
</tbody>
</table>

Conclusions
There is a variability on QIs achievement among countries, which may reflect different healthcare models and reimbursements structure, access to medications, etc. In the global data set, ≥75% of patients met the target for the following variables: total weekly Kt/V, 24 h fluid removal, mean arterial blood pressure, serum albumin and serum K. This series may help to understand PD practice and outcomes in a global setting.
IMPACT OF DECISION MAKING TOOLS ON HIGHER PERITONEAL DIALYSIS CHOICE AND TAKE-ON IS RELATED TO CENTER EXPERIENCE IN AN INTERNATIONAL SETTING

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Objectives
Use of Decision Making Tools (DMTs) facilitates PD choice and incidence. However, other factors may contribute to PD take-on.

To analyse the impact of clinic PD experience on PD take-on in patients (pts) receiving a structured modality information program with the use of DMTs.

Methods
Observational, prospective, open and international registry. All predialysis CKD G4-G5 pts and/or pts after an unplanned dialysis start (if non-informed before) were recruited to undergo a DMTs process for RRT choice, including personal values evaluation, RRT information with different aids, staff deliberation support and patient modality election. Clinics with ≥ 15 continuous annual prevalent PD pts (more experienced) were compared with clinics with 0-14 prevalent PD pts (less experienced).

Results
1934 pts from in total 49 clinics (cl) in Poland (987 pts, 19 cl), Hungary (338 pts, 10 cl), Romania (311 pts, 12 cl), Germany (259 pts, 7 cl), and Argentina (39 pts, 1 cl) aimed modality information between 09/2014 - 06/2017. Large differences were observed between more PD-experienced clinics in staff perception of PD as contraindicated (18%), PD choice (55%), PD as planned start (34%) and final PD take-on (49%) and less PD-experienced clinics (37%, 14%, 9% and 12%, respectively), (all p<0.00) despite a similar use of DMT kits.

Conclusions
Use of DMTs facilitates patient empowerment but its impact on PD choice and take-on is reduced in clinics with less experience of the technique.
A CONTINUOUS MONITORIZATION AND EVALUATION OF “DROP OUT” INCREASES QUALITY AND PERITONEAL RESULTS IN A LATIN-AMERICAN DIALYSIS NETWORK

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Objectives
PD growth is limited by a high annual drop out (DO) (40-75%) which is often not routinely measured and seldom reported in the literature. To compare annual 2015-2017 PD DO and underlying causes in a Latin-American (LA) dialysis network.

Methods
Observational, prospective registry in 3 LA countries [Argentina (11 clinics), Chile (2 cl.), Uruguay (2 cl.)] during 3 years. CL did not submit results in 2016. All prevalent and incident PD patients were tracked on a monthly basis for DO due to: transplantation (TX), residual renal function (RRF) recovery, transfer to HD (due to peritonitis, exit site issues, catheter problems, ultrafiltration failure, low adequacy, burn out or others), transferred to other centers, death or other reasons. Total DO, controllable DO (transfer to HD and to other centers) and underlying causes are provided as percentage of patients at risk (PtR).

Results
Results improved in all countries, in terms of total and controllable DO, death (cardiovascular and infectious) and transfer to HD. Positively, DO due to TX increased.

Conclusions
Annual DO monitoring followed by situation diagnoses and implementation plans by processes (country and/or at clinic level) increased PD outcomes in our institution in LA, decreasing mortality and with better technique survival.
EVALUATION OF THE ROUTINE USE OF DECISION MAKING TOOLS IN CKD G4-G5 IN AN INTERNATIONAL SETTING DURING 35 MONTHS

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Objectives
Decision Making Tools (DMTs) use is nowadays considered as the most accurate method to facilitate an optimal information process.

To analyse the impact of a structured modality information program with the use of DMTs on type of renal replacement therapy (RRT) choice and start.

Methods
Observational, prospective, open and international registry. All patients (pts) with CKD G4-G5 and/or after an unplanned dialysis start (if non-informed before) were recruited to undergo a DMTs process for RRT choice. Process included: personal values evaluation, RRT information with different tools, deliberation support and patient’s modality election.

Results
1934 pts (mean age 61 y.) from 49 clinics (cl.) in (PL, 19 cl.), (RO, 12 cl.), (HU, 10 cl.), (DE, 7 cl.) and (AR, 1 cl.) aimed modality information through DMTs from 9/2014 - 6/2017. PD as contraindicated: 29%, hence optimal candidates HD/PD [1377 pts., mean age 60y. and 44% prone for a home therapy]. Early referral (≥3 m. in clinic before process started): 52%. Different aids were used: written (97%), DVD in 19-37% (except AR, 3%) and HD/PD utility visits in 40-76% (except DE, 16%). Relatives’ participation: 82% (45-90% by countries PD choice (33%) varied among countries: 12% (RO), 28% (PL), 37% (HU), 66% (DE) and 94% (AR). For pts who already started dialysis (n=781), PD as chronic RRT was 29% (8% after an unplanned HD); 9% (RO), 27% (PL), 35% (HU), 55% (GE) and 88% (AR).

Conclusions
Use of DMTs at the time of RRT modality choice complies with patient empowerment. Impact on PD take-on varied among countries. One third of the suitable patients for both dialysis modalities were ascribed to PD. Modality information should always be delivered through a structured information process based on decision sharing (patients-relatives-staff).
THE 6TH NATIONAL CENSUS OF THE PERITONEAL DIALYSIS STUDY GROUP – ITALIAN SOCIETY OF NEPHROLOGY (GSNP-SIN) ON THE STATE OF PERITONEAL DIALYSIS IN ITALY IN 2016

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Objectives
To report the results of the 6th National Census (Cs-16) of Peritoneal Dialysis in Italy - carried out in 2017 and relating to 2016 - by the Italian Society of Nephrology's Peritoneal Dialysis Study Group.

Methods
The Census was conducted by on-line questionnaire in the 237 non pediatric centers which DID PERFORM PD in 2016. The results have been compared with the previous Censuses carried out since 2005.

Results
INCIDENCE In 2016, 1,595 patients (CAPD=56.1%) started on PD (1st treatment for ESRD) and 4,607 pts on HD. PD was started on by 32.5% incrementally in 144 Centers (Cs-14: 27.5%; Cs-12: 28.8%; Cs-10: 22.8%; Cs-08: 18.3%; Cs-05: 11.9%). 15.6% were Late Referrals, and 5.1% began within 48 hours of insertion. The catheter was positioned only by the Nephrologist in 25.2%.
PREVALENCE The pts on PD at 31/12/2016 were 4,607 (CAPD=46.6%), with 22.2% of prevalent pts on assisted PD (family member caregiver: 80.5%).
OUT In 2016, PD drop out (ep/100 pt-yrs: 12.5 to HD; 11.8 death; 7.0 Tx) has not changed. The main cause of transfer to HD remains peritonitis (23.8%), although it is still diminishing (Cs-05: 37.9%).
PERITONITIS The incidence of peritonitis in 2016 (939 episodes) was 0.211 ep/pt-yr.
EPS The incidence of new cases of EPS in 2015-16 (16 cases=0.176 ep/100 pt-yrs) is diminishing too (2013-14: 39 cases=0.444; 2011-12: 43 cases=0.505; 2009-10: 44 cases=0.529; 2004-08: 146 cases= 0.701 ep/100 pt-yrs).
OTHER RESULTS In 2016 the number of Centers using 3.86% for PET (49.8%) increased, and the Centers making home visits diminished (51.5%).

Conclusions
Cs-16 confirms the good results for PD in Italy. Incremental PD is on the increase again. Incidence and drop out from peritonitis and EPS are dropping further. Increasing use is made of 3.86%-PET, and home visits are envisaged by half of the Centers.
OPTIMIZATION OF APD PRESCRIPTION USING THE HOMECHOICE CLARIA WITH SHARESOURCE SYSTEM

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Objectives
The Automated Peritoneal Dialysis (APD) prescription must take into account patient characteristics (GFR, BSA, catheter break point) to optimize the dialysis treatment, reduce night-time issues (alarms, abdominal discomfort) and meet patient needs (QoL). The HomeChoice Claria Sharesource® (Baxter) system enables real-time APD monitoring and prescription without transferring patients to the Center. Based on the analysis of the results obtained in one Center during the first 12 months with the Claria Sharesource® system, we have designed and started a Multicenter observational prospective study to evaluate its real effectiveness and the effects of remote monitoring/prescription in achieving these objectives.

Methods
Evaluation of all treatments recorded over the period 19/09/2016-24/09/2017 using HomeChoice Claria Sharesource®, assessing its correspondence with prescriptions, the number of prescriptions and therapy compliance over the last 30 days.

Design of a Multicenter observational prospective study of incident patients on HomeChoice Claria Sharesource®.

Results
CENTER DATA ANALYSIS
Patients: 4,672 treatments performed on 19 patients (age=65.3±15.2 years; distance=16.1±11.4 km; tidal=18 pts; follow-up 9.0±4.2 months)
Prescribed vs Real Average dwell (5.7% longer than in theory), fill volume (2107±394 ml; all <1500 ml/m²) night UF and prescribed UF difference (165±145 ml; <200 ml).
Compliance 100% in all patients.
Prescription-treatment ratio The prescriptive changes were all made online. In 21% the prescription was changed on a weekly basis due to UF or QoL requirements

DESIGN OF THE MULTICENTER PROSPECTIVE STUDY
Patients: incident on HomeChoice Claria Sharesource®
Timing: 6 months for recruitment and 6 months of observation
Data collection: treatments and prescriptions performed; PET, clearances and sleep assessment at set intervals
Outcomes: validity of prescriptive and organizational model, quality of overnight sleep, prescription/treatment ratio and transfers to Center, compliance.

Conclusions
HC Claria with Sharesource® facilitates APD prescription and customization.

The Multicenter study in course should substantiate the effects of the system on dialysis adequacy, quality of life and compliance.
USING AN EXPERT SYSTEM (ES) WITH VIDEODIALYSIS (VD) FOR PERITONEAL DIALYSIS TRAINING

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Objectives
The difficulty of traditional training can significantly increase the duration, cost and failure of learning dialysis procedures. Since 2016 we have trained patients from the Center using VD, which can enable optimization without increasing costs. Since 01/10/2017 training with VD (VD-Tr) has been integrated with an ES which allows for standardization of both the implementation and assessment of learning by breaking down the procedures into stages (CAPD:35 - APD: 34-44 preparation, 21 connection, 27 disconnection of cycler). We report the results of VD-Tr in training patients/caregivers in ADP from 1/10/2017 to 30/11/2018.

Methods
With the ES, each step is evaluated by the nurse; the degree of independence reached is assessed by error analysis.

Training is divided into stages:
- **Stage 1**: on day 1, the nurse demonstrates the dialysis procedure at the patient’s home.
- **Stage 2**: on day 2 and 3, the patient performs dialysis in VD-TR followed by a nurse in the Center; the nurse at home intervenes only if necessary.
- **Stage 3**: from day 4, only VD-Tr is used (Stage 3-A), and the training ends when no errors are made by the patient for 3 consecutive days (Stage 3-B).

Two VD-Tr checks are made after 1 and 2 weeks.

Results
VD-Tr has been used for 6 patients and 5 caregivers.

The Table shows the average number of procedures per patient (pr/pt) and errors per pr/pt (errors/pr/pt) per stage for the 11 VD-Tr.

<table>
<thead>
<tr>
<th>VD-Tr Stage</th>
<th>PREPARATION</th>
<th>CONNECTION</th>
<th>DISCONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pr/pt</td>
<td>errors/pr/pt</td>
<td>pr/pt</td>
</tr>
<tr>
<td>Stage 1</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Stage 2</td>
<td>1.9</td>
<td>5.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Stage 3-A</td>
<td>6.3</td>
<td>1.7</td>
<td>4.2</td>
</tr>
<tr>
<td>Stage 3-B</td>
<td>2.8</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>12.0</td>
<td>9.3</td>
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</tbody>
</table>

The checks confirmed the reaching of independence in all cases. No peritonitis were recorded.

Conclusions
VD-Tr adapts the procedure training duration to patients, reducing transfers.
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ASSISTED PERITONEAL DIALYSIS IN ITALY

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Objectives
As patient (pt) age increases, the use of peritoneal dialysis (PD) diminishes due to higher rates of comorbidity and less independence, making recourse necessary to a nurse or family member Caregiver (CG). The paper aims to examine assisted PD (ASS-PD) in Italy reported in the Censuses of the Italian Society of Nephrology's PD Study Group (GSDP-SIN).

Methods
Since 2008, the GSDP-SIN Censuses of non pediatric Centers using PD have also investigated ASS-PD.

Results
PREVALENCE Of the 4,607 prevalent pts on PD at 31/12/16 (237 Centers), 1024 (22.2%) were on ASS-PD, slightly fewer than the 24.3% in 2014 (p<0.05) and than in previous years.
CENTERS Considering only the Centers with data available for HD (228), those with pts on ASS-PD (182) are larger both overall (prev. pts/center: 121.6 vs 84.5) and in terms of their PD program (prev. PD pts/Center: 21.3 vs 11.2).
CAREGIVER The CGs most involved are family members (80.5%), followed by live-in carers (11.8%), while an institutional partner is involved in only 1.5% of cases, and 4.3% of ASS-PD is performed in residential care facilities. These percentages have not changed over the years.
REGIONAL VARIABILITY Recourse to assisted PD is subject to extreme regional variation, in terms of both the percentage of pts treated (Liguria 5.3% - Tuscany 36.6%) and the CG involved: PD in residential care facilities is at its highest in the North (7.8% - p<0.01), and with a family member CG on the islands (88.1%), while the involvement of institutional partner CGs remains insignificant.

Conclusions
In Italy, ASS-PD is focused on the family, unlike in France - the only available Registry data - and in Northern Europe, where the nurse is most involved: in France in 2016, ASS-PD concerned 48.3% of pts on PD, which was performed by a nurse at home in over 88% of these cases.
THE PERITONEAL DIALYSIS TEAMWORK TRAINING

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Objectives
Improvement of the peritoneal dialysis training of the patient to ensure that they are fully prepared to face their clinical condition and to know what to do and how to do it, even if he is alone.

Methods
1. Evaluation of the information regarding the patient as for:
   - Their clinical history
   - Their personality type and psychology (MBTI personality types)
   - Their cultural, educational and familiar environment and background

2. Capability and skills of the medical staff to work with the patients to establish a collaborative and bilateral relationship with them and their family.

Results
Decrease of drop out cases due to incapability of using and managing the peritoneal dialysis process.

Conclusions
In order to obtain these results, the peritoneal dialysis team uses fixed and predetermined steps to follow so to explain to the patient everything they have to know about dialysis. This way, even if the staff member changes, the learning process will not be affected and will remain simple and coherent.
LOWER ULTRAFILTRATION DURING FIRST EXCHANGE OF APD SESSION: INSIGHTS FROM DISTRIBUTED MODELLING

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Objectives
Whereas ultrafiltration (UF) volumes are assumed to be the same for each dwell of APD session, according to the standard 3-pore model (Oberg, Rippe 2017), clinical evidence suggests tendency for lower UF after the first APD exchange, and negative values for patients on dry day (Gomez et al. 2017). This was explored using distributed modelling.

Methods
The distributed model of peritoneal transport was applied with the interstitium and porous capillary wall taken into account as transport barriers. The vasodilation and variation of effective surface area (ESA) caused by the changes of intraperitoneal volume during dwell time were taken into account (Stachowska-Pietka et al. 2018). The infusion and drainage were described by infusion rate of 200 mL/min and biphasic drainage with rates of 350 and 36 mL/min (Oberg, Rippe 2017). Moreover, peritoneal absorption was modelled as depending on ESA assuming maximal rate of 1 mL/min. Computer simulations were performed for 24 hours for night APD (6 x 90 min with 2 L of glucose 1.36% fluid) followed by either dry or wet day session with glucose 1.36% fluid.

Results
Predicted total UF for whole APD session was 609 and 341 mL for wet and dry day, respectively. Predicted UF for the first APD exchange was 47 mL and -196 mL and for the remaining exchanges, 112±8 and 108±10 mL for wet and dry day, respectively. The lower UF for the first exchange was related to low peritoneal tissue hydration and interstitial pressure after the long day session, especially in the case of dry day, whereas the tissue is overhydrated during the other exchanges.

Conclusions
Ultrafiltration of the first APD dwell is lower due to the decrease in peritoneal tissue hydration during the day session. The effect is stronger and may lead to negative UF, if patients have a dry day.
PERITONEAL DIALYSIS: AN ALTERNATIVE RENAL REPLACEMENT THERAPY IN VASCULAR ACCESS EXHAUSTION

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Objectives
Very often, complications of hemodialysis vascular access, like infection, thrombosis, malfunction and even lack of vascular territory, make HD an impossible option and peritoneal dialysis (PD) an alternative renal replacement therapy (RRT). Descriptive and retrospective study of 12 patients on PD program because of vascular access exhaustion between 2011 and 2018.

Methods
It was collected demographic data, PD and RRT vintage, etiology of CKD, comorbidities, dialysis adequacy, parameters and peritoneal equilibrium test (PET). Data is presented as mean±standard deviation and statistical analysis performed using SPSS 24 software for Mac.

Results
Seven (58.3%) men, 57.6±10.0 years, 3 previously transplanted (RT), all hypertensive, 6 diabetics, 2 with history of vascular disease. Time in RRT before PD was 7.66 ± 7.73 years; 10 performed APD, 7 Icodextrin. Mean weekly Kt/v 1.85 ± 0.45, 2 high-average and 2 high transporters. Mean time in PD was 24.72 ± 23.59 mounts; 2 remain in PD, 2 were transplanted and 2 die. Six drop out and moved back to HD by tunneled catheter because of infection (n=3), personal incapacity, the main reason for an early drop out (n=2) and membrane failure (n=1). Patients transplanted stayed longer in PD. Log rank test evaluate the risk of drop out in 2 groups, those who initiated DP as 1st choice versus the patients that had PD as an alternative RRT (excluding cases of death and transplantation) and showed no statistically significant difference (X² (1) = 1.276, p=0.259). However, Cox regression demonstrate that patients who started PD as 1st option had lower risk (HR=0.588,p=0.264).

Conclusions
PD can be a successful RRT procedure in patients with vascular access failure, allowing a time bridge for renal transplantation or implantation of a “permanent” catheter. Nevertheless, DP with its own complications, associated with a high drop-out, demonstrated in this study; however, this difference was not statistically significant.
PHOSPHORUS CONTROL IN PERITONEAL DIALYSIS: WHAT REALLY MATTERS?

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Objectives
Hyperphosphatemia, highly prevalent on chronic kidney disease (CKD), become almost universal in end-stage CKD. Dietary phosphate (P) restriction, phosphate binders and extra-corporeal removal are crucial in phosphorus control. Assess the status of phosphate control, clinical and laboratory associations in a group of PD patients in a medium sized hospital.

Methods
27 patients, 19 (70.4%) male, mean age of 55.5±13.0 years in PD program during 18.5±15.9 months were investigated. Normophosphatemics (P<5.5mg/dL) and hyperphosphatemics (>5.5mg/dL) were compared in serum creatinine, urea, calcium, phosphate, intact parathyroid hormone, albumin and adequacy parameters such as Kt/V, weekly creatinine clearance (CrClw) and daily urine output (DUO). Peritoneal clearance of P (PiCl) was calculated, membrane transport evaluated by peritoneal equilibrium test (PET) and daily dosage of phosphate binders and calcimimetics collected. Data presented as mean±standard deviation and statistical analysis performed using SPSS 24 software.

Results
Ten patients (37.0%) hyperphosphatemic. Younger patients presented higher P levels (p=0.033), although there were no gender differences in phosphate control. Concerning relevant comorbidities, hyperphosphatemia was more prevalent in hypertensives (p=0.031), but not in diabetics. Hyperphosphatemic were more likely to be on sevelamer (p=0.031), but there were no differences in terms of other phosphate binders or calcimimetics. The 2 groups showed no statistically significant difference in residual renal function (RRF) evaluated with DUO. A positive correlation was demonstrated between P and albumin levels (r=0.408;p=0.035) and urea (r=0.043;p=0.021). Duration of PD and modality had no statistically significant impact in P value. PiCl, adequacy parameters and PET values were also similar among the 2 groups.

Conclusions
Our study shows a positive correlation between P levels and serum albumin/urea as well as between P and younger ages, which could correlate with a better nutritional status. Another interesting finding was the small impact of PD modality, dialysis adequacy and RRF on P control, probably explained by therapeutic approaches.
PERITONEAL DIALYSIS DOES NOT INCREASE A RISK OF ACUTE CHOLECYSTITIS THAN HEMODIALYSIS: A NATIONWIDE POPULATION BASED COHORT STUDY

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Objectives
Patients with peritoneal dialysis (PD) show higher incidence of gastrointestinal disease than general population. However, it is still not unveiled that acute cholecystitis and cholecystectomy incidences are higher or not in the patients with PD comparing with hemodialysis (HD). The aim of study is to know the incidence and risk of acute cholecystitis which needed cholecystectomy in the patients on PD, and to investigate clinical characteristics and difference between PD and HD.

Methods
We accessed the Korean National Health Insurance Database and included all patients who commenced dialysis between 2004 and 2013 from about 50,000,000 Korean population and selected the same number of control via propensity score matching. The incidences of cholecystectomy (CCT) due to acute cholecystitis in the dialysis and control were calculated, and multivariable Cox proportional hazards model was used for the risk of CCT, also compared risks between PD and HD.

Results
Among the 71,097 incident dialysis patients and matched control, there were 6,454 (9.1%) and 749 (1.1%) CCTs were noted in the dialysis and control. The independent risk factors were old age, diabetes, peripheral vascular disease, atrial fibrillation, heart failure, chronic pulmonary disease, neoplasm, and peptic ulcer disease (p < 0.05). Mesenteric ischemia induced mortality rate between PD and HD showed no significant difference. Patients on dialysis were associated with a significantly higher risk of cholecystectomy due to acute cholecystitis comparing with control (IRR, 11.85), and dialysis cohort had an independently increased risk of cholecystectomy (adjusted HR, 13.54 [12.54-14.62]). However, there were no significant difference of CCT incidence rate by dialysis modality.

Conclusions
Although a risk of cholecystitis in the dialysis was remarkably higher than general population, PD did not increase the risk of cholecystitis comparing with HD. We concluded that PD could be a reliable modality without further increment of cholecystitis risk than HD.
EMBOLIZATION OF POLYCYSTIC KIDNEYS AS AN ALTERNATIVE SAFE TO OPEN NEPHRECTOMY: EXPERIENCE OF OUR CENTER

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Objectives
Autosomal dominant polycystic kidney disease (ADPKD) refers to 15% of patients on the waiting list for kidney transplantation. An increase in time requires a nephrectomy to enter the waiting list, to associate complications (38% open, 9.5% laparoscopic) and the delay of entry in the list. This has led to therapeutic alternatives such as embolization.

Methods
Series of 11 patients undergoing percutaneous embolization of a polycystic kidney. All with Urology assessment without space for renal graft implantation (exploration and CT). The procedure was performed by Vascular Radiology using the premedication protocol: Cefazolin prophylaxis, analgesia with 1st and 2nd step of the WHO (Punctual rescues with morphine) and preembolization dose of 1mg / kg of urbaso with prednisone 0.5 mg / kg descending pattern. We perform CT scans with a mean renal volume (calculated with the ellipsoid formula) of 2270.29 ± 788.6 cc.

Results
11 patients (10 men, 90.9%) with a mean age of 54 ± 9 years and a prevalence of arterial hypertension 100% and diabetes mellitus 27.2%. All on dialysis (54.5% in PD) with a time in the technique of 13.4 ± 10.4 months. There were no post procedure complications (no bleeding, superinfection or mechanical complications), occasional rescues with older opioids withdrawn at discharge, with mean duration of admission 5.8 ± 2.5 days. In post-embolization control CT after 5 months, the renal volume was reduced to 1026.55 ± 531.07 cc, always being reassessed in Urology as it is included in the waiting list.

Conclusions
With our experience, embolization of polycystic kidneys is shown as a safe and less expensive alternative to open nephrectomy (fewer days of hospital admission without complications). In addition, open surgical intervention is not necessary, avoiding the penalty in the form of delay in the entry into the transplant waiting list that this could entail.
ARE OUR PATIENTS’ CONCERNS THE SAME AS Ours?

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Objectives
Surveys undertaken in the sanitary filed are mostly used to know the level of satisfaction of patients with their treatment, the way they are treated and in order to consider potential options to improve the processes. As far as Peritoneal Dialysis (PD) is concerned in numerous occasions the issues that concern doctors (effectiveness, overhydration, hyperparathyroidism) don’t match with those perceived by the patients themselves.

Goal: knowing the main concerns that a patient faces under a PD programme according to their point of view.

Methods
We used anonymous questionnaire. With questions related to the information received during the pre-dialysis stage, catheter-associated complications or complications related to the actual technique, interference with their daily activities, anxiety, safety as well as their relationship with the organization of the PD department. Each question had 5 answers, from score 1: “the most negative one” up to score 5: “the most positive one”. Between July and September 2017 all patients from our PD unit were participate.

Results
91 patients (64 ±18 years old, 80% men). The main complaints were (the lowest scores to the question): issues to travel (2.9±1.6), interference with their leisure time (3.4±1.5), sleeping disorders (3.4±1.5), sexuality (3.7±1.4), laxatives (3.7±1.5) and problems with their personal care (at the cicatrisation stage) (3.8±1.2). They did show problems neither with the material service nor the volume, neither with their travels to the hospital, quality and time of teaching, their diet nor abdominal discomfort. Over half of them show some level of anxiety the very firsts days soon after started their dialysis treatment at home.

Conclusions
The patients’ concerns are not those that matter to doctors. It is necessary to approach these difficulties, that could diminish patients’ quality of life or their level of satisfaction with the PD, in order to implement measures that can help solve these issues.
COMPARISON OF TWO METHODS FOR ESTIMATING VOLUME STATUS IN INCIDENT PERITONEAL DIALYSIS PATIENTS - DAVID VS. GOLIATH

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Objectives
Clinical assessment (CA) is the most commonly used method for the evaluation of volume status in peritoneal dialysis (PD) patients despite its subjectivity. Multiple-frequency bioelectrical impedance analysis (MF-BIA) is objective, accurate, and quick, proving to be a promising technique for measuring volume status. The aim of this study was to assess volume status in PD patients using CA and MF-BIA and to compare results.

Methods
Incident PD patients were prospectively analyzed between January 1, 2014 and January 1, 2016 at the Clinical Hospital Center of Rijeka, Croatia. Volume status measurements were performed once a month for 6 consecutive months. The presence of symptoms and signs associated with hyper- or hypovolemia were detected by CA. Euvolemia was defined as a symptom-free state or up to 2 symptoms maximum. Patients lacking up to 1.2 L of volume or with up to 1.2 L in excess were considered euvolemic, as measured by MF-BIA.

Results
A total of 45 PD patients were analyzed; 51 % were men, 27% were diabetic, the mean age was 52 ± 26 years, and PD duration was 11.5 ± 6.5 months. In comparison to MF-BIA, CA showed a significant difference in detected hypervolemia between baseline and follow-up (p=0.708 vs. p=0.01, respectively) and among all measurements (p<0.01). Contrary to CA, volume status measured by MF-BIA correlated significantly with systolic and dyastolic blood pressure (R=0.29; p≤0.01 and R=0.26; p≤0.01, respectively). CA showed low sensitivity (0.24) and high specificity (0.92) in detecting hypervolemia.

Conclusions
MF-BIA is an effective, objective, and safe method for assessing volume status in PD patients. Longitudinal monitoring of body composition changes - including hydration state - leading to adequate therapeutic intervention is a promising and potential application of MF-BIA along with CA.
CAN WE PROVIDE PD-FIRST TO ALL PATIENTS?

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Objectives
The aim of our study was to analyse the body composition in PD patients and correlate with infectious and mechanical complications PD-related, in order to support PD as the initial renal replacement modality for ESRD patients.

Methods
A retrospective cohort study was performed in a single PD centre. Demographic aspects, comorbidities, follow-up time, body composition data using the Body Composition monitor (BCM - Fresenius) and complications were evaluated.

Results
67 prevalent patients on PD with a median time of follow-up of 1.6±2.5 years. Mean age was 55±15 years-old (maximum 84; minimal 20) and 61.2% (N=41) were male. 34.3% (N=22) of patients had diabetes mellitus. About the nutritional status, the mean body mass index (BMI) was 25.9±4.8 kg/m², lean tissue index (LTI) and fat tissue index (FTI) were respectively 10.6±4.7 kg/m² and 14.3±3.3 kg/m² and the mean serum albumin was 3.6 g/dL. Regarding complications during follow-up, we had 31.3% (N=21) patients with technique-related infections (23.9% with peritonitis, 3.0% with tunnel infection, and 12.3% with exit site infection) and 7.5% (N=5) mechanical complications.

In our cohort, diabetic patients had no more PD-infections (p-value=0.24) or mechanical complications (p-value=0.22) than non-diabetics. There were also no differences between patients with elevated FTI and decreased LTI for infectious (p-value=0.63 and p-value=0.81, respectively). Obese patients had fewer mechanical complications (p-value=0.08) and no differences were observed in sarcopenic and non-sarcopenic patients (p-value=0.49). Overhydrated patients do not have any more infections either (Cox regression adjusted to diabetes and age: B=-0.17; Exp(B) 0.852; CI (95%) 0.736-0.985; p=0.032).

Conclusions
Infections and mechanical-complications are important causes of morbidity and mortality in the PD patients and contribute to technique failure and hospitalization. In our prevalent PD patients, diabetes, obesity, sarcopenia nor overhydration showed more infectious or mechanical PD-related complications, suggesting that this renal replacement modality can be safe for these patient’s groups.
SEAMLESS PERITONEAL DIALYSIS: IMPROVING COST-EFFECTIVENESS IN URGENT START PD

Dr. Vincent Carsillo¹, Dr. Michael Gallichio², PHD, MS Dixie-Ann Sawin³

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Objectives
A 2014 Cost analysis estimated cost for urgent-start PD as $16,398 (range: $10,326 to $20,446) per patient/90 days. Dialysis access represented 15% of total costs, dialysis services 48% and initial hospitalization 37% ($6,072). We propose a new approach through Seamless PD, allowing same day, full volume use following catheter placement with quicker discharge home, and a cost benefit.

Methods
Patients (N=31) were given the option of a Seamless approach, consisting of a new leak resistant catheter placement technique that allows the option for immediate use with full volume in the upright position. Number of hospitalizations and length of stay during hospitalization were documented. Total cost was assessed by dialysis services, dialysis access, and hospitalizations within 90 days following the procedure.

Results
There were 19 males and 12 females, with ages ranging from 30-80 years and BMIs from 18.2-45.7kg/m². Comorbidities included coagulopathy, DM, HTN, ASCD, HCV, COPD, lung transplant, emboli, pulmonary HTN, CVA, and renal transplantation. 31 PD catheters were placed in 31 patients between February 2017 and November 2018. There were no leaks or post operative infections at post op day 1-9 or at monthly follow ups. All 31 patients were discharged within 24 hours of catheter placement. Within the first 90 days, 8 patients had 10 admissions; none were due to the catheter itself. Three catheters were removed for pleural effusion from fenestrated diaphragm and discontinuation of PD. Average lengths of stay for these and all hospitalizations were 5 days and 7 days respectively. The average hospitalization cost for catheter issues was $15,000 per patient and $21,000* each for all hospitalized patients. Twenty-three patients were not hospitalized. Thus, for all patients, the average hospitalization cost was $4,700 each.

Conclusions
Seamless PD approach may reduce the number of hospitalizations over the first 90 days, which could produce a cost benefit.

*Assumes $3,000 per patient per day conservatively.
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SEAMLESS PD: A NEW APPROACH TO URGENT START PERITONEAL DIALYSIS

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Objectives
Urgent start peritoneal dialysis (PD) protocols apply low volumes with supine positioning and no immediate use the catheter. Selection biases against patients with large BMIs, complex illnesses and previous abdominal surgeries, ascites, older age, and who require dialysis within 48 hours exist. We propose a new approach through Seamless PD, allowing same day use following catheter placement in many patients. The Seamless approach uses a new leak-resistant catheter technique and allows for full volume same day upright exchanges.

Methods
Thirty-one patients were selected, followed by 2 hours of modality education. Patients requiring dialysis within 48 hours, with complex illnesses, or ascites were included. Patients with multiple abdominal surgeries were excluded. Patients were surgically evaluated, and the catheter placed (open technique). Post operative infections, catheter leaks, peritonitis, ability to start PD within 24 hours, and longevity on PD were collected prospectively. Patients included 19 males and 12 females; 30-80 years old, with BMIs from 18.2-45.7kg/m2. Comorbidities included Diabetes mellitis, ASCD, hypertension, coagulopathy, HCV, COPD, lung transplantation, renal transplantation, emboli, pulmonary hypertension, and CVA.

Results
Thirty one PD catheters were placed in 31 patients between 2/2017-11/2018. Patients were prescribed 2 litre exchanges and performed upright exchanges within 24 hours of implantation. There were no leaks or post operative infections during post op days 1-9 or at monthly follow ups. Twenty-two months after implantation, 24 of 31 patients remain on PD with the original catheter. Dropout reasons were death, catheter removal (pleural effusion, modality change). Home penetration at the dialysis unit increased from 15% to 41% in 2 years. This represents experience in one clinic and may not be generalizable. Caution and laparoscopic visualization should be exercised patients with previous abdominal surgeries and peritonitis episodes.

Conclusions
Seamless PD allows a wider range of patients to successfully perform PD with full volume upright on the same day as catheter placement and may increase PD use.
UNIQUE EXCHANGE WITH ICODEXTRIN AS AN INITIAL PRESCRIPTION OF PERITONEAL INCREMENTAL DIALYSIS: EXPERIENCE OF ONE CENTER

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Objectives
Incremental peritoneal dialysis is the start in dialysis with 3 or fewer daily peritoneal exchanges. The possibility of incorporating icodextrin in this scheme provides a better control of blood volume by achieving higher ultrafiltration rates in long exchanges, a reduction in glucose exposure, in addition to the maintenance of residual renal function. In our unit, we propose to start incremental peritoneal dialysis in 2015 with a unique exchange of icodextrin in incident patients without cardiorenal syndrome in those cases in which the glomerular filtration at the beginning allowed it.

Methods
Retrospective, descriptive study of the first 9 patients treated at our center (between 2015 and March 2018) with incremental peritoneal dialysis with a single nocturnal icodextrin exchange.

Results
The average length of stay in this modality is 12.7 ± 11.9 months. The initial glomerular filtration rate was 12.6 ± 2.8 ml / min and the residual renal function was 2395.71 ± 736.4 ml / 24h. During the follow-up time 2 (22.2%) patients increased the number of exchanges to increase the dose of dialysis and another 2 (22.2%) were transplanted from cadaver donor kidney. At the end of the study, 4 patients (44.4%) continued on DPI and one patient recovered the RRF. 88.9% of the patients did not present infectious episodes directly related to the technique and only 1 case presented an infection of the exit orifice due to staphylococcus aureus.

Conclusions
Incremental peritoneal dialysis with a single overnight exchange of icodextrin is a good option to start renal replacement therapy. It is an effective technique, safe because it reduces the handling of the catheter, interferes less in the daily life of the patient and decreases health costs.
PERITONEAL DIALYSIS WITH THE NEW PORTABLE CARRY LIFE® SYSTEM

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Objectives
Carry Life® System PD (CLS PD) is a new portable PD device for continuous removal of uremic toxins from the intraperitoneal fluid during PD. The dialysis fluid is recirculated through the device, containing an adsorbent unit (Purecart) for uremic toxin removal. A stable intraperitoneal glucose concentration is achieved by continuous glucose addition. The aim of this feasibility study was to evaluate; solute removal, intraperitoneal glucose concentrations, ultrafiltration efficacy, as well as safety and tolerability.

Methods
Four PD patients were treated with the device for eight hours. A temporary catheter was inserted into the peritoneal cavity. After an initial fill (2000 mL Physioneal, 1.36% glucose), the CLS PD was connected to the patient catheters. Biomarkers for uremic toxins, potassium and glucose were measured hourly in the dialysis fluid and in serum before and after the treatment. Results expressed as mean±SD.

Results
The concentration gradients for the biomarkers of uremic toxins were maintained after the eight-hour treatment session with CLS PD (urea 0.83±0.02, creatinine 0.28±0.03, phosphate 0.27±0.03). The serum concentrations of creatinine, phosphate and potassium were reduced by the treatment (creatinine: 733±184 to 680±168 µmol/L, p<0.05; phosphate: 2.0±0.2 to 1.7±0.05 mmol/L, p<0.05; potassium: 4.7±0.4 to 4.3±0.4 mmol/L, p<0.01). Serum levels of urea and β2-microglobulin was not significantly reduced (21.5±8.2 to 19.6±6.8 mmol/L, and 28.1±7.8 to 26.3±6.7 mg/L). The intraperitoneal glucose concentration was maintained (54.0±3.0 mmol/L), resulting in an average UF-volume of 366±51 ml. Albumin removal during session was 2.0±0.6 g. All patients tolerated the treatment well without discomfort.

Conclusions
The CLS PD device provides an efficient dialysis by maintaining the blood to dialysate concentration gradients of established biomarkers of uremic toxins. Furthermore, the intraperitoneal glucose concentration can be maintained to enable an efficient ultrafiltration during the whole treatment. The CLS PD treatment resulted in relatively low albumin loss and was well tolerated by the patients.
PERITONEAL ULTRAFILTRATION WITH A STABLE GLUCOSE CONCENTRATION USING THE CARRY LIFE® UF SYSTEM

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Objectives
Carry Life® System UF (CLS UF) is a new portable peritoneal ultrafiltration device for PD patients requiring additional fluid removal. The therapeutic concept is that continuous administration of glucose, to obtain a stable and adequate intraperitoneal glucose concentration, will enable a more efficient ultrafiltration (UF) compared to standard PD. The objective was to evaluate 1) the ability of the device to maintain glucose concentration 2) ultrafiltration and total fluid output and, 3) patient safety and tolerability.

Methods
Five ESRD patients were treated with the CLS UF device during two eight-hour sessions. After an initial pre-fill (2000ml Physioneal 2.27% glucose), the device was connected.

During treatment, approximately 180ml of the intraperitoneal fluid is transferred into the device every 15min and a small volume of 20% glucose is added before returning the fluid. Glucose dose was 9 g/h for medium transporters and 11 g/h for high transporters.

Results expressed as mean±SD.

Results
IP glucose concentration stabilized after about 2hrs of treatment.

<table>
<thead>
<tr>
<th>Patient</th>
<th>IP glucose concentration</th>
<th>UF-volume (ml/8h)</th>
<th>Urine (ml/8h)</th>
<th>Total fluid output (ml/8h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.14±0.01</td>
<td>760±232</td>
<td>25±35</td>
<td>785±4</td>
</tr>
<tr>
<td>2</td>
<td>1.04±0.01</td>
<td>168±193</td>
<td>1120±141</td>
<td>1288±48</td>
</tr>
<tr>
<td>3</td>
<td>1.47±0.16</td>
<td>293±202</td>
<td>590±651</td>
<td>883±852</td>
</tr>
<tr>
<td>4</td>
<td>1.42±0.04</td>
<td>1714±797</td>
<td>138±53</td>
<td>1852±850</td>
</tr>
<tr>
<td>5</td>
<td>1.26±0.20</td>
<td>129±35</td>
<td>1610±113</td>
<td>1739±78</td>
</tr>
</tbody>
</table>

#Average concentrations 2-8 hours of treatment

Patients did not experience any discomfort due to the treatment.

Conclusions
The treatment with CLS UF was well tolerated by the patients, without adverse events. The continuous glucose administration (9-11 g/h) maintained intraperitoneal glucose concentrations at between 1.1 and 1.5%. UF-volumes varied between individual patient sessions, as well as for the cohort, with a total fluid output between 750 and 1800 ml during the treatment. In summary, a stable and safe intraperitoneal glucose concentration can be maintained with the CLS UF device. Further studies are needed to clarify the relationship between the stable IP glucose concentration, ultrafiltration, and patient characteristics.
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NO IMPROVEMENT OF DRY-WEIGHT IN DIALYSIS PATIENTS USING BIOELECTRICAL IMPEDANCE ANALYSIS

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Objectives
Hydration and volume status are important predictors of outcome in patients with end-stage renal disease on renal replacement therapy. The objective of the study was to compare the usual care in determining dry-weight to determining dry-weight by bioelectrical impedance analysis (BIA).

Methods
Prospective randomised clinical trial in prevalent adult dialysis patients, with a follow-up of two years. Peritoneal dialysis (PD) and haemodialysis patients (HD) were randomized in two groups. In group I BIA was leading in the assessment of the dry-weight, while in group II dry-weight was assessed according to clinical parameters. In group I BIA was measured using the BCM (Fresenius) at least every three months, while in group II BIA was measured at 0, 12 and 24 months but kept blinded until the end of the study. Clinical parameters were measured every three months, laboratory controls every 6 months and residual renal volume once a year. Primary endpoint was blood pressure, secondary endpoints number of hospital admissions due to fluid overload, number of intradialytic hypotension episodes and/or the number, hypotension-associated dialysis symptoms, number of antihypertensive drugs, NT-proBNP, albumin and CRP, cardiovascular related morbidity and mortality, development of anuria (200 ml/day).

Results
74 patients entered the study (54 HD, 20 PD). Due to dropout (transplantation 21, death 8, others 8) only 37 patients completed the study. No differences were found between the two groups in the time course of blood pressure (mmHg): group I: T0: 144/77, T12: 142/76, T24: 133/75 group II T0: 145/78, T12: 141/76, T24: 141/79. Also no differences were found in all secondary outcome parameters. When PD and HD patients were analysed separately also no differences between the groups were found.

Conclusions
The use of bioelectrical impedance analysis in determining dry-weight did neither result in improvement of blood pressure, nor in any of the secondary outcome parameters.
Objectives
In a 3-year-project using a multidimensional approach (public funding), factors for the low PD-rate in Germany (2017: 7%) will be identified. Qualitative research with patients and providers as a project component allows for a deeper understanding of involved actors’ attitudes and needs. Interviews and focus groups were used to explore the field and to generate hypotheses for surveys. One of the project’s key questions was central to the interviews and discussion: Which factors in everyday practice inhibit or support the decision to implement PD?

Methods
On the providers’ side, 4 focus groups (mean duration 1:45 h) were conducted with resident nephrologists (n=14, mean age 51.5) and dialysis nurses (n=12, mean age 55). Nephrologists had been recruited during conferences, nurses by phone. Focus groups audios were transcribed and analysed. Structured content analysis followed established standards, was supported by MAXQDA software and as a result, core issues could be identified.

Results
Nephrologists claim a lack of content on PD during their specialists’ education. Although attitudes towards PD have changed and younger doctors in particular are more interested in PD, training opportunities are still rare in everyday practice. Initial costs for establishing a PD programme in the dialysis centre also have a discouraging effect. As a consequence, knowledge of PD remains on a low level. Caregivers stated, the local PD rate depends on nephrologists’ attitudes towards PD and thus the centre’s dialysis policy. PD nursing staff appreciate their work, especially the closer relationship with PD patients. Often, conflicts exist between HD and PD staff, due to a lack of knowledge about PD care needs. All providers, regardless of their attitudes towards PD, agreed that more patients are suitable for PD as first choice modality.

Conclusions
One aim is to establish a positive “PD culture” in dialysis centres. For this objective, efforts on many levels are needed.
DOES PERITONEAL DIALYSIS (PD) AFFECT BIOIMPEDANCE-BASED VOLUME ESTIMATION?

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Objectives
To examine the effect of increased intra-peritoneal pressure (IAP) caused by the instillation of dialysate on regional fluid distribution and volume estimation using bioimpedance analysis (BIA).

Methods
Fasted PD patients were studied during their regular peritoneal equilibration test (PET) using multi-frequency BIA to determine extra- and intra-cellular resistances in standard whole-body configuration (wrist-ankle) as well as in lower-limb segmental configuration (ankle-ankle). Measurements were taken at baseline after draining the peritoneal cavity (T0), at T1 after filling with 2 L of standard dialysate (T1), and at T2 before taking the 2-hour PET blood samples. IAP (in mmHg) was simultaneously determined by the Durand technique. Extracellular volume overload (VO, in L) was determined from whole-body BIA. Extracellular resistance in the lower extremities (RL=RS/2, in Ohm) was taken as half of the ankle-ankle resistance (RS). Extracellular resistance in the upper half of the body (RU=RB-RL) was calculated as the difference of whole body extracellular resistance (RB) and RL.

Results
18 patients (56±15 years, 76±21 kg, BMI 26.4±7 kg/m², 13 men) were studied. After a mean supine body position of (TL) of 11, 71 and 148 min corresponding to a peritoneal equilibration time (TPET) of 52 minutes before, and 8 and 86 minutes after instillation, VO continuously and paradoxically decreased from 1.57±1.32 (T0) to 1.19±1.46 (T1) and 0.99±1.40 L (T2) in spite of instillation of 2 L of dialysate. Large changes were measured in the lower extremities where RL significantly increased from 238±57 (T0) to 254±62 (T1) and 264±67 Ohm (T2) whereas RU only showed a marginal increase. The increase in RL was negatively correlated to body mass index (BMI) and IAP ($R^2=0.43$ and 0.56, respectively).

Conclusions
Equilibration of orthostatic fluid shifts takes much longer than anticipated. Fluid shifts are more pronounced at low IAP and BMI. Volume status derived from whole-body BIA must be based on measurements done in an equilibrated state.
LONG-TERM PATIENT SURVIVAL AND PERITONEAL DIALYSIS SURVIVAL OF INCREMENTAL PERITONEAL DIALYSIS: A PROPENSITY SCORE MATCHING STUDY

Professor Won Suk An¹, Professor Seong Eun Kim¹, Professor Su Mi Lee¹, Professor Young Ki Son¹

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Objectives
Incremental peritoneal dialysis (IPD) can be useful in selected patients with higher residual renal function, needing lower financial cost, wanting less time burden of peritoneal dialysis (PD) treatment. However, the long term effects of IPD on patient survival and PD survival are not clear compared to standard PD. This study evaluated whether patient survival and PD survival in IPD were not lower than standard PD.

Methods
Clinical data were retrospectively collected from a single center between January 2007 and December 2018. An analysis of incremental PD patients was performed using propensity score matching. We restricted matching by age, gender, and the presence of diabetes mellitus. Of 303 patients (standard PD vs. incremental PD, n = 232 vs. n = 71) surgically inserted PD catheter, we finally evaluated 107 standard PD patients and 55 incremental PD patients. We defined IPD as starting PD with 3 or fewer peritoneal exchanges per day.

Results
Mean PD duration of IPD patients was longer than standard PD patients (49.1 ± 27.0 months vs. 35.6 ± 25.3 months, p = 0.002). Initial blood urea nitrogen (80.4 ± 26.4 mg/dL vs. 93.1 ± 31.1 mg/dL, p = 0.011) and serum creatinine levels (7.4 ± 2.7 mg/dL vs. 9.4 ± 3.7 mg/dL, p < 0.001) were significantly lower in IPD patients than in standard PD patients. There was no significant difference in PD maintenance and patient survival between IPD group and standard PD group. Patient survival was significantly higher in IPD patients with diabetes than in standard PD patients with diabetes (p = 0.011).

Conclusions
IPD was safe PD modality to initiate and maintain PD in less uremic patients. IPD may be beneficial for patient survival in diabetic PD patients estimating less glucose exposure. Further prospective studies are necessary to confirm this survival benefit in diabetic PD patients.
PERITONEAL DIALYSIS IN REFRACTORY CONGESTIVE HEART FAILURE: A ONE CENTER EXPERIENCE

Dr Daniel Eduardo Villa Hurtado¹, Dr Marta Álvarez Nadal¹, Dr. Victor Burguera Vion¹, Dr Haridian Sosa Barrios¹, NP Antonio Viveros Molina¹, NP Cristina Campillo Trapero¹, Dr Milagros Fernández Lucas¹², Dr Maite Elizabeth Rivera Gorrín¹²

¹Hospital Universitario Ramon Y Cajal, Madrid, Spain, ²Universidad Alcalá de Henares, Alcalá Henares, Spain

Objectives
Optimal volume control is a major therapeutic endpoint in congestive heart failure (CHF), and ever since the inconsistent results of the ultrafiltration trials peritoneal dialysis (PD) has emerged as a valid and cost-effective adjunctive treatment strategy for patients with refractory CHF. We present our case series of successful use of PD in refractory CHF patients.

Methods
We reviewed clinical and laboratory data in 8 patients with refractory CHF that started continuous ambulatory peritoneal dialysis (CAPD). We gathered data previous to, and at least 8 weeks post PD initiation. Each patient was followed up frequently, almost every other month, either in our PD consult or with their cardiologist. When available, hemodynamic data (echocardiogram and cardiac catheterization) was collected.

Results
6 men and 2 females, with a mean age of 65.16 ± 12.01 years and 66.5 ± 2.12 years respectively, began on planned-start CAPD. Mean time in PD was 23.77 ± 19.97 months. All patients were New York Heart Association class IV before PD initiation. All but two patients had reduced left ventricular ejection fraction (LVEF) with a mean of 30.26% ± 10.97%. Half of the patients had an lcodextrin dwell and 2 transitioned to automated peritoneal dialysis. After CAPD was started the total number of CHF related hospitalization-days was reduced from 173 to 40 days (p:0.037), NYHA class improved to I or II (p:0.00002), and there was no major deterioration in eGFR and residual diuresis.

Conclusions
In our experience, and according to an increasing body of evidence, PD is viable and safe in the management of patients with CHF, and it should be more widely used in this condition. More studies are needed to assess which subgroup of patients with CHF benefit the most from PD.
Non-scheduled Onset of Peritoneal Dialysis Obtains Good Results: Low Technique Failure and Peritonitis Ratio.

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1Nephrology Service, Salamanca, Spain

Objectives
The unscheduled initiation of Dialysis is usually by hemodialysis because hospital organization facilitates central catheters implantation, as HD has high efficacy for urgent situations (hyperkalemia, acute pulmonary edema) and the mastery of this technique by all nephrologists. On the other hand, urgent peritoneal catheters insertion is limited since it requires the participation of Surgeons or Nephrologists trained specifically in PD. Furthermore, there is a group of patients that can be transferred from HD to PD and the results of this subgroup are controversial.

Objectives: To analyze the impact on the rate of peritonitis / failure of technique in PD patients transferred from HD after unscheduled onset (by jugular or femoral venous catheter)

Aims: To analyze the impact on the rate of peritonitis/failure of technique in PD patients transferred from HD after unscheduled onset (by jugular or femoral venous catheter)

Methods
43 prevalent patients were evaluated from 2015-18. 38 in APD (88%) Dialytic initiation strategy was assessed (15 with unplanned onset (NPG), mean age 70.1 / 28 with scheduled onset (PG), mean age 62.2), the rate of peritonitis, and the causes of PD withdrawal.

Results
The NPG Group had ratio peritonitis 1/80 versus 1/72 in PG (NS)
Causes of DP output:
  - Technical Failure:   NPG: 2 * (p<0,05) GP: 0
  - Kidney Transplant: NPG:6 GP: 8
  - Exitus: NPG: 2 (Cardiovascular: 85, 86 years old) GP: 1 (Sepsis: 90 years old)

Conclusions
1) The non-programmed dialytic start by HD/central catheter and its subsequent transfer to PD does not lead to increased peritonitis or higher infectious mortality, although it implies a greater failure of the PD technique.
2) PD is a good therapeutic alternative for non-programmed incident patients, transferred from HD, regardless of their age and an excellent bridge technique to transplantation., the first cause of technical withdrawal in our DP programme.
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THE IMPORTANCE OF RESIDUAL VOLUME IN THE ASSESSMENT OF OSMOTIC CONDUCTANCE TO GLUCOSE IN PERITONEAL DIALYSIS: A PROSPECTIVE SINGLE-CENTER STUDY

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Objectives
The osmotic conductance of glucose (OCG) is a crucial determinant of UF in peritoneal dialysis (PD). OCG is typically assessed on the basis of drained volumes in two consecutive 60 min glucose dwells, usually 1.5% and 4.25% glucose, in a so called double-mini peritoneal equilibrium test (PET). However, recent data show that OCG, assessed from drained volumes, exhibits a remarkably poor ability to assess the osmotic transport properties in individual patients. Here we performed a prospective single-center study to compare different methods to assess OCG taking residual volumes into account. We also tested a new single-dwell equation to estimate OCG.

Methods
In 21 prevalent PD-patients, a double mini PET was performed. Drained volumes were carefully assessed. Measurements of albumin, sodium, creatinine and urea were performed in the effluent, making it possible to determine the residual volume before, between, and after the two exchanges. The classic three-pore model was used to determine the UF coefficient and diffusion capacity for creatinine, urea and glucose.

Results
Similar to a recent study, OCG, when determined from drained volumes, failed to correlate with several key parameters for peritoneal water transport such as net UF (P=0.7; r=0.07) and free water transport (FWT). OCG calculated taking RVs into account correlated with net UF (P < 0.001, r=0.78). OCG assessed using the novel equation strongly correlated with net UF (P < 0.001, r=0.98) and FWT (P < 0.001).

Conclusions
We conclude that the residual volume should be taken into account when measuring OCG. Moreover, in our data the novel single-dwell equation provided a robust and reproducible estimate of OCG.
CAN ASSISTED PERITONEAL DIALYSIS BE AN ALTERNATIVE FOR INMIGRANT POPULATION? EXPERIENCE AT CHU BRUGMANN-(BRUSSELS)

Dr Consolación Rosado Rubio1, MS Isabelle Brayer2, Ms Carla Bernaer2, Ms Nadine Rossez2, Ms Elena Vieru2, Ms Christelle Fosso2, Dr Max Dratwa2

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Objectives
Peritoneal dialysis assisted by visiting nurses is increasing in European countries. It offers a domiciliary treatment to not autonomous patients, preventing them to be transferred to hemodialysis, which is a more aggressive technique, especially for elderly people. It is necessary to establish strict protocols for these visiting nurses in order to assure the continuity of the assistance and the absence of complications, mainly peritonitis.

Our objective is to study the characteristics of the patients included in this modality of peritoneal dialysis at CHU Brugmann, in Brussels, who is located in a zone with a high percentage of immigrant population, foreigners and people with social problems. We try to determine if these particular demographic patterns could influence the election of these modality of peritoneal dialysis, as well as to evaluate the results of the assisted peritoneal dialysis in these patients.

Methods
We have carried out an observational, descriptive and transversal study of the demographic and clinical particularities, as well as the results of the technique in the patients included in the assisted by visiting nurses peritoneal dialysis in June 2018.

The information was analized by the SPSS v.20.0 program, the quantitative results are expressed in median (first and third quartil) and the qualitative ones are expressed in percentage.

Results
In the period of our study, 22 patients were included in the peritoneal dialysis program (21 patients with Baxter® system and 1 patient with Fresenius® system), 6 of them (30%) were included in the assisted peritoneal dialysis program, made by visiting nurses belonging to home-care services companies, who are taught by the nephrology nurses of the Peritoneal Dialysis Unit of the CHU Brugmann. Their median age was 61 years (54-66,5). Their demographics, social and clinical particularities are shown in Table 1. None of them suffered from peritonitis during the study, and the rate of peritonitis of these group of patients during the first six month of the year with regard to the total of peritoneal dialysis patients was 33,3%.

Table 1: Description of the patients receiving assisted peritoneal dialysis in June 2018

<table>
<thead>
<tr>
<th>DATE OF BIRTH</th>
<th>SEX</th>
<th>MAIN DISEASE</th>
<th>DEBUT DIALYSE</th>
<th>TECHNIQUE</th>
<th>NATIONALITY</th>
<th>Nº PERITONITIS</th>
<th>GERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>M</td>
<td>HYPERTENSION</td>
<td>2017</td>
<td>DPA</td>
<td>MAURITANIA</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1934</td>
<td>W</td>
<td>DIABETES</td>
<td>2018</td>
<td>DPA</td>
<td>GREECE</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>W</td>
<td>DIABETES</td>
<td>2016</td>
<td>DPCA</td>
<td>VIETNAM</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>W</td>
<td>DIABETES</td>
<td>2018</td>
<td>DPA</td>
<td>CONGO</td>
<td>1</td>
<td>S. sanguinis</td>
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<td>2010</td>
<td>DPA</td>
<td>MOROCCO</td>
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<td>S. haemolyticus S. salivarius Staphylococque coagulase- négatif PAS ISOLE</td>
</tr>
<tr>
<td>1956</td>
<td>M</td>
<td>DIABETES</td>
<td>2016, assisted in 2017</td>
<td>DPA</td>
<td>BELGIUM</td>
<td>1</td>
<td>NOT ISOLATED (before assisted peritoneal dialysis)</td>
</tr>
</tbody>
</table>
Conclusions
Patients receiving assisted peritoneal dialysis at CHU Brugmann are relatively young people. This can be due to the particular demographic and social characteristics of these part of the city, which could difficult the training of the technique and avoid their autonomy.

The rate of peritonitis in this group of patients is less than in autonomous patients or in those helped by relatives, because of the heavy training received from the nephrology nurses.

This study shows that assisted peritoneal dialysis can be offered to younger patients or people with social problems, as al alternative to hemodialysis.
CALCIPHYLAXIS: A SUCCESSFUL OUTCOME WHILST ON PERITONEAL DIALYSIS

Ana Gaspar1, Luís Falcão2, Sofia Correia3, Maria João Carvalho1, Anabela Rodrigues1, António Cabrita1

1Hospital Prof. Doutor Fernando Fonseca, Lisbon, Portugal, 2Hospital Beatriz Angelo, Lisbon, Portugal, 3Hospital Geral de Santo António, Oporto, Portugal

Objectives
Calciphylaxis is a rare and life threatening disease. Patients with chronic kidney disease (CKD) on dialysis and patients treated with vitamin-K antagonists have an increased risk. It is frequently recommended that patients on peritoneal dialysis (PD) with calciphylaxis be transitioned to hemodialysis.

Methods
A 55-year-old woman with CKD on PD was admitted at the nephrology department for calciphylaxis of the lower limbs. The patient started hemodialysis at the age of 31 and received a cadaveric renal transplant at 34. She kept the transplant for 20 years progressing to graft failure and congestive heart failure. She transitioned to continuous ambulatory PD (CAPD) with low calcium solutions and kept residual renal graft function. She had also a prior history of atrial fibrillation and was anticoagulated with warfarin.

Five months after starting PD, she presented with livedo on both lower limbs that progressed to extensive and painful cutaneous necrosis. Three years earlier she had been diagnosed with calciphylaxis after a skin biopsy of a leg ulcer that was treated with dressing of the wound and suspension of vitamin D analogs. The blood analysis showed hypoparathyroidism. Warfarin was stopped and treatment with sodium thiosulfate was initiated. For lack of improvement, she was admitted to the nephrology department two months later. The PD prescription was optimized to automated PD (APD) with an extra diurnal exchange, with optimal calcium and phosphate control. She completed eight months of treatment with sodium thiosulfate and sixty sessions in the hyperbaric chamber, maintaining wound dressings and antibiotic treatment whenever there were signs of skin infection. Pain was managed with high doses of opiates and pain adjuvants.

Results
There was significant improvement and the patient was discharged after 5 months.

Conclusions
The patient maintained APD, ensuring high efficiency dialysis, which associated with treatment with sodium thiosulfate and hyperbaric chamber lead to a favorable outcome.
TWO CASES OF ENCAPSULATING PERITONEAL SCLEROSIS - 10 YEARS SINGLE-CENTER EXPERIENCE

Yury Kalantarenko¹, Mr Igor Kuchma¹

¹Olexanders Kiyv City Hospital, Kiyv, Ukraine

Objectives
For 10 years, 126 patients were treated. Mean treatment duration - 7 years 10 months. 2 cases of encapsulating peritoneal sclerosis were identified.

Methods
Case 1. The patient was treated with the method of peritoneal dialysis for 7 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Solution</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.27% -2.0 L</td>
<td>4 t per day</td>
<td>3 t per day</td>
<td></td>
<td>2 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
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<tr>
<td></td>
<td>2.27% - 2.5 L</td>
<td></td>
<td>2 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
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<tr>
<td></td>
<td>3.86% -2.0 L</td>
<td>1 t per day</td>
<td>1 t per day</td>
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<td></td>
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<tr>
<td></td>
<td>3.86% -2.5 L</td>
<td>2 t per day</td>
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<tr>
<td></td>
<td>APD</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>2.27% -5 L</td>
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<td></td>
<td>3.86% -5 L</td>
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</tr>
<tr>
<td></td>
<td>Icodextrin</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td>1 t per day</td>
<td></td>
</tr>
</tbody>
</table>

Case 2. The patient was treated with peritoneal dialysis for 8 years.

Received treatment:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.27% -2.0 L</td>
<td>4 t. per day</td>
<td>3 t. per day</td>
<td>1 t. per day</td>
<td>1 t. per day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.27% -2.5 L</td>
<td>t. per day</td>
<td>t. per day</td>
<td>t. per day</td>
<td>t. per day</td>
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</tr>
<tr>
<td>3.86% -2.0 L</td>
<td>1 t. per day</td>
<td>t. per day</td>
<td>t. per day</td>
<td>t. per day</td>
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</tr>
<tr>
<td>3.86% -2.5 L</td>
<td>1 t. per day</td>
<td>1 t. per day</td>
<td>1 t. per day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

APD

2.27% -5 L | 3 t. per day | 3 t. per day | 3 t. per day | 2 t. per day |
| 3.86% -5 L | 1 t. per day | 1 t. per day |

Icodextrine

Results

Case 1. From November 2017 - spontaneous episodes of haemoperitonium 1-2 times a month. In May 2018, peritoneal dialysis treatment was discontinued due to episodes of hemoperitonium and haemodialysis was initiated.

In July 2018 - is fever and leukocytosis. CT with contrast: signs of peritoneal sclerosis and signs of total peritoneal calcification.


Due to the recurrence of peritonitis in 2018, peritoneal dialysis treatment was discontinued. After the start of hemodialysis, a CT with a contrast was performed. On CT - signs of peritoneal sclerosis, partial calcification of the peritoneum.

Conclusions

Conclusions: EPS appeared in patients treated with peritoneal dialysis of 7 and 8 years and had 2 or
more episodes of peritonitis. The incidence rate was 1.58% among all treated and 4.16% among those who received solutions with high glucose concentrations. Establishing a list of examinations for patients who have long been treated with PD in order to early identify the preconditions for the development of ENP and initiate preventive treatment is needed.
APPLICATION OF BIO-IMPEDANCE TO CLINICAL ASSESSMENT OF FLUID AND NUTRITIONAL STATUS IN PERITONEAL DIALYSIS PATIENTS

Dr Natália Silva¹, Dr Catarina Eusebio¹, Dr Sofia Cerqueira¹, Dr Joana Rocha¹, Dr Luis Oliveira¹, Dr Rui Castro¹, Dr Teresa Morgado¹

¹Centro Hospitalar Trás Os Montes e Alto Douro, Vila Real, Portugal

Objectives
Evaluation of fluid and nutritional parameters of peritoneal dialysis patients by Bioelectrical Impedance and correlation with clinical and laboratorial biomarkers.

Methods
A cross-sectional study was performed in the patients in Peritoneal Dialysis (PD) in our Unit, through the analysis using a Body Composition Monitor (FMC). We assessed whether there was an association between the nutritional and fluid parameters obtained using Bio-impedance and the clinical and laboratorial biomarkers.

Results
We evaluated 32 patients, 57% male, with a mean age of 51 ± 14 years [79-19]. Fifteen (46%) presented uncontrolled hypertension (HTA≥140 mmHg) and the number of antihypertensive drugs was 3 ± 1 [6-0]. Seven patients (21%) presented diabetes mellitus (DM). The median time in PD was 2,4 years [0.2-6.5].

Nineteen (59%) had residual renal function (RRF) (diuresis> 200ml/day). Eleven patients (34%) were euvoletic (0,68 ± 0.5L [-0.9 to 1.5]), 11 (34%) hypervolemic patients (3,0 ± 1.7 L [1.6-6.5]) and 10 (31%) hypovolemic (-0,7 ± 0.49L [-0.1 to -1.5]). The body mass index (BMI) was 26 ± 5.1kg/m2 [18.3-37.2] and the lean tissue index (LTI) was 14 ± 4kg/m2 [8-26].

There was a higher prevalence of overhydration (OH) (p=0.02) in DM patients. Higher pro-BNP values were more prevalent in hypervolemic patients (p=0.04).

Four patients (13%) were malnourished (phase angle<4º). Age was a risk factor for malnutrition (p=0.04). A correlation was found between NS and serum albumin (p=0.002), BMI (p=0.04), LTI (p=0.001) and CRP values (p=0.004). In the linear regression model, there was a positive relationship between OH and malnutrition (p <0.003).

Conclusions
BIA allowed the quantification of OH, specially in those patients with controlled TA and clinically euvoletic. Hypervolemia was associated with poorer NS. Serum albumin, BMI, LTI and CRP values were the best markers of NS.
QUALITY OF LIFE ON PERITONEAL DIALYSIS AFTER LONG-LASTING HAEMODIALYSIS TREATMENT: MATTER OF PSYCHOLOGICAL PROFILE?

Dr Tamara Knežević¹, bacc.med.techn. Sanja Benić¹, Dipl. Psychologist Ana Strahinja Ratković¹, Dr. Ivana Kovačević Vojtušek¹

¹University Hospital Centre Zagreb, Zagreb, Croatia, Zagreb, Croatia

Objectives
Chronic kidney disease and the related medical therapy is often associated with the decreased health related quality of life. Constant efforts are being made to improve patients’ ability to enjoy normal life activities. One of the main advantages of peritoneal dialysis (PD) is often highlighted by better quality of patients' life when compared to haemodialysis (HD). Regardless of the mentioned, HD remains the initial modality of therapy in most of the patients. Herein we present cases of two patients who transferred to PD after long lasting HD treatment. Our objective was to determine whether and to what extent the quality of life was affected by the change from HD to PD treatment. Obtained results will be used in the assessment of whether the choice of treatment shall also consider its psychological and social impact on patients.

Methods
We report two cases of two female patients who started PD as the final option after complications with haemodialysis vascular access. The 54- year old patient with ANCA positive vaculitis and chronic HCV infection was transmiited to PD after 27 years of treatment with haemodialysis due to the loss of vascular access and several P. aeruginosa sepsis and AV fistula thrombosis.

For the 52- year old patient with polycystic kidney disease who was treated with haemodialysis for 7 years after two unsuccessful kidney transplantations, afterwards diagnosed with atypical hemolytic uremic syndrome, and loss of vascular access due to thrombosis.

Patients were scored 6 months after the start of PD using the Short Form 36 (SF-36) questionnaire. SF-36 is a practical questionnaire used to evaluate the health related quality of life of the patient and to provide a better understanding of the impact of treatment strategies on patient's life. The SF-36 consists of eight scaled scores, transformed into a 0-100 scale. The higher the score the less disability. Zero is equivalent to maximum disability and a score of 100 is equivalent to no disability.

Results
The results show that the 54- year old patient rated her quality of life relatively poorly, while the quality of life of the 52- old patient was on a relatively satisfactory level. In terms of numbers, results of SF-36 questionnaire are as follows: role of physical functioning (25; 85, respectively), role limitations due to physical health (100; 100, respectively), role limitations due to emotional problems (0; 0, respectively), energy/fatigue (30; 75, respectively), emotional well-being (52; 44, respectively), social functioning (50; 50, respectively), pain (55 ; 100 respectively), general health (15; 65, respectively), health change (75; 100, respectively).

Conclusions
Although very few patients were enrolled in the study, the potential of a better health related quality of life under PD treatment compared to HD treatment is substantial. Whether the choice of treatment shall also consider its psychological and social impact on patients shall be furtherly investigated. Better understanding of both healthcare providers and patients on the impact that treatment modality has on the patients quality of life is beneficial for better individual approach to treatment strategies.
PATIENTS' EXPERIENCES OF A TRANSITION FROM HOME-BASED TO IN-CENTER BASED RENAL REPLACEMENT THERAPY (RRT) MODALITIES: A QUALITATIVE STUDY

Ms Els Holvoet1, Professor Wim Van Biesen1, Prof Sofie Verhaeghe2, Gill Combes2, Liesbeth Van Humbeeck1

1Renal Division, Ghent University Hospital, Ghent, Belgium, 2Institute of Applied Health Research, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom, 3Department of Public Health and Primary Care, Ghent University, Ghent, Belgium

Objectives
Although transitioning between RRT modalities is common, data on it are scarce. INTEGRATED is an international consortium aiming at improved understanding of quantitative and qualitative aspects of transitioning. We aimed at exploring the experience of patients transitioning from a home based to an in-center modality using a qualitative inductive approach.

Methods
Patients who transitioned RRT modality were purposively selected. Semi-structured interviews were performed by one female researcher, recorded and transcribed verbatim. Data analysis was performed consistent with Charmaz’ constructivist approach of grounded theory and supported by NVivo10 (QSR International).

Results
14 patients (78 % male, average age of 60.5 years (range: 27-84)) participated. The conditions of the transitioning process impacted the participants’ experience, resulting in divergent experiences and associated emotions. Not all participants experienced a loss of control due to the therapy-related changes (paradox of control). Some felt tied down and having lost independence, whereas others regained control as they felt relieved from responsibility. Whether patients experienced not of this paradox of control was related to the patient having (1) experienced a fit of HD with their personal life-style, (2) a frame of reference, (3) a certain level of care requirement, (4) insight in the underlying reasons for transitioning, and (5) trust in the health care providers. Appreciation of self-esteem, fear for the unknown and the future were however common themes.

Conclusions
Combined with the collective perspective that preparation and initiation of in-center dialysis therapy is emotionally fraught, care teams need to offer ample opportunities to elicit patient’s knowledge and fears, dispel myths and forge connections with other patients. A visit to the dialysis unit can alleviate anxiety. Interventions that facilitate a sense of control need to be grounded in the meaning the disorder has for the person and its impact on their sense of self.
NUTRITIONAL ASSESSMENT IN PERITONEAL DIALYSIS PATIENTS SHOW LOWER PROTEIN AND ENERGY INTAKE THAN RECOMMENDED

Professor Bojan Knap, Janja Kogovsek, Professor Damjan Kovač, MD, Ph D Andrej Škoberne, Assistant Professor Žejlka Haler - Večerić, Assistant Professor Andreja Marn, Professor Jelka Lindič, Professor Miha Arnol

1University Clinical Center, Nephrology, Ljubljana, Slovenia, 2Biotechnical faculty, University of Ljubljana, Ljubljana, Slovenia

Objectives
Protein malnutrition is common in peritoneal dialysis patients and depends on many factors. The aim of this clinical study was to analyze dietary intake of dialysis patients and to determine if it meets their nutritional needs.

Methods
A clinical study was carried out on 25 dialysis patients in the Peritoneal Dialysis Unit of University Clinical Center of Ljubljana. Nutritional interview was conducted unannounced three times over a period of one month with the 24 hour recall method. Results were analyzed with the Prodi 6.7 Expert software. Body composition has been measured with bio impedance spectroscopy.

Results
Average caloric intake of 25 patients is 22,74 ± 6,54 kcal / kg body weight per day, average protein intake is 0.86 ± 0.30 g / kg body weight per day. Average values of body weights are 73,33 ± 13,76 kg, BMI (body mass index) is 24,26 ± 2,53 kg/m^2^, average LTI - lean tissue index 13,67 ± 3,21 kg/m^2^ and values of Phase angle are 5,08 ± 1,17. Results are in table 1: Caloric (kcal), protein, fat, carbohydrate (CHO), sodium (Na+), potassium (K+), and phosphorus (P) intake in 24 hours was monitored. 25 patients were analyzed. Calorlic and protein intake values were lower than recommended for dialysis patients.

<table>
<thead>
<tr>
<th>N=25</th>
<th>Intake kcal/kg bw/day</th>
<th>Recommended kcal/kg/day</th>
<th>Intake protein g/kg bw/day</th>
<th>Recommended protein intake g/kg bw/day</th>
<th>Intake fat g/kg bw/day</th>
<th>Recommended min fat intake g/kg bw/day</th>
<th>Intake OH</th>
<th>Recommended min OH intake</th>
<th>Intake P g/day</th>
<th>Recommended min P intake g/day</th>
<th>Intake K g/day</th>
<th>Recommended min K intake g/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>22.74± 6.54</td>
<td>35</td>
<td>0.86± 0.30</td>
<td>1.2</td>
<td>0.82± 0.35</td>
<td>0.8</td>
<td>2.68± 1.08</td>
<td>3</td>
<td>0.87± 0.29</td>
<td>0.55</td>
<td>3.39± 0.66</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions
Successful collaboration between patient and dietitian is crucial for objective results of nutritional assessment. Protein and energy intake were found to be lower in peritoneal dialysis patients than recommended.
PHASE ANGLE AND RESIDUAL RENAL FUNCTION IN PERITONEAL DIALYSIS PATIENTS

Professor Bojan Knap1, Assistant Professor Žejlka Haler1, MD Krištof Knap1, Professor Jernej Pajek1, Professor Jadranka Buturović - Ponikvar1

1University Clinical Center, Nephrology, Ljubljana, Slovenia

Objectives
Body mass composition using bio-impedance spectroscopy is extremely important for evaluation nutrition status in peritoneal dialysis patients. Protein malnutrition and comorbidity are very common in this group of patients. The aim of our observational study was to look for correlation between body mass composition as phase angle and lean tissue index and residual renal function in PD patients.

Methods
We observed twenty six patients in our peritoneal dialysis department which is a part of University Clinical Center. Non-invasive and easy to use bio-impedance analysis was used to measure body mass composition of PD patients. Obtained values of lean tissue index, phase angle and statistical analysis data were compared with residual renal function. We used Spearmen partial correlations coefficient to find any connection between two variables of body mass composition and residual renal function.

Results
Average nutritional status of our group is good, PA is higher than 5, lean tissue index is 13.6kg/m2. Renal residual function is preserved in 80% of our patients. Results of PA (phase angle) are 5.18 +/- 1.04, LTI (lean tissue index-kg/m2) 13.64 +/- 2.92 kg/m2 and RRF (residual renal function-ml/min) 3.6 +/- 2.87ml/min. Partial correlation exists between PA, LTI (0.54, p = 0.0069), RRFI(0.52, p= 0.001) and negatively correlate with age (-0.68, p = 0.0001).

Conclusions
Positive selection of our small PD group can be the cause of good nutritional status of our patients which together with preserved residual renal function could be important for good rehabilitation results. Partial correlation coefficient between PA and RRF exist.
FLUID OVERLOAD IN A PATIENT WITH CYSTINOSIS, A RESULT OF CYSTINE ACCUMULATION IN PERITONEAL MEMBRANE?

Miss Kelly De Schuyter

UZGent, Ghent, Belgium

Objectives
A 26-year-old patient with cystinosis on peritoneal dialysis (PD) for 6 months after failed allograft due to chronic rejection, presented with progressive volume overload. The patient had consistently elevated intraleukocyte cystine levels (LCL’s) despite high prescribed doses of mercaptamine. It was speculated this patient had ultrafiltration failure (UFF) due to cystine accumulation in the peritoneal membrane.

Methods
Peritoneal membrane function was examined by double mini-peritoneal equilibration test (mini-PET). A peritoneal biopsy was taken during transplant-nephrectomy for inflammation due to chronic rejection with allograft failure. A semi-structured interview was performed to assess the patient’s experiences of transitioning between PD to in-center based renal replacement therapy (RRT) because of intractable fluid overload.

Results
Mechanical problems of the catheter were excluded by a volume over time outflow curve. The double mini-PET demonstrated presence of a high average transporter, as expected by the chronic inflammation induced by chronic rejection. There was however no evidence for aquaporin dysfunction (D/P\text{Sodium} 0.88) or decreased osmotic conductance of glucose (OCG 6.04µL/min/mmHg). A peritoneal membrane biopsy showed deposition of cystine crystals. The semi-structured interview highlighted that non-adherence to fluid restriction contributed substantially to the fluid overload. Maladapted coping with his disease condition and deterioration of residual renal function were further contributive elements. Associating ability to drink unrestrictedly with being a “normal” person and peer pressure were identified as drivers for excessive fluid intake.

Conclusions
We describe for the first time cystine deposition in the peritoneal membrane. Membrane malfunction (true UFF) caused by cystine deposition in the membrane due to elevated LCL’s was the hypothetical reason for fluid overload. However a peritoneal function test did not confirm this. In this patient non-adherence to fluid restriction and loss of residual kidney function were more probable causes of volume overload. Volume status in a PD patient is a balance between dietary intake and fluid output.
20-YEARS EXPERIENCE OF PERITONEAL DIALYSIS RELATED PERITONITIS IN A UNIVERSITY HOSPITAL DIALYSIS CENTRE: PERITONITIS RATE AND OUTCOME

Assoc. Professor Robert Ekart L, Full Professor Breda Pečovnik Balon 2, Assoc. Professor Sebastjan Bevc 2, Ass. Professor Benjamin Dvoršak 3, MD Tina Stropnik Galuf 1, MD Martin Hren 1, MD, PhD Eva Jakopin 3, Assist.Prof. Maša Knehtl 3, MD Tina Stropnik Galuf 1, MD Martin Hren 1, MD Nejc Piko 1, Full Professor Radovan Hojs 2, 3

1 UKC Maribor; Clinic for Internal Medicine, Dept.of Dialysis, Maribor, Slovenia, 2 University of Maribor, Faculty of Medicine, Maribor, Slovenia, 3 UKC Maribor; Clinic for Internal Medicine, Dept.of Nephrology, Maribor, Slovenia

Objectives
The objective of this study is to evaluate the prevalence, risk factors, microbiology, and outcome of first peritonitis in patients on chronic peritoneal dialysis (PD) in our dialysis centre.

Methods
We retrospectively reviewed medical records of all 60 PD patients (42 men; 70%) who were treated in our centre in the time between 1998 and 2018. All patients were analysed until the episode of first peritonitis (P=peritonitis group) or until December 28th 2018 (NP=without peritonitis group).

Results
In the observational period of cumulative 61525 days (2050.8 months) we registered 21 episodes of first peritonitis in all patients (peritonitis rate 1 episode/97.7 PD months). Eight patients died during the whole period of PD treatment, only two of them after peritonitis episode. Twenty-three (38.3%) patients underwent kidney transplantation, fourteen patients (23.3%) switched to hemodialysis, ten of them (16.7%) because of PD failure after peritonitis. Microorganisms isolated were Gram-positive in 16 patients (76.2%), Gram-negative in 3 patients (14.2%), Mycobacterium tuberculosis in one patient (4.8%), and culture negative in one patient (4.8%). The mean treatment time in all patients was 1025 days (29-3780; SD ±849 days), we did not find a statistically significant difference in the treatment time in P and NP group (1047 vs 1014 days; P=0.884). A statistically significant difference in serum albumin at the start of PD treatment was found between P and NP group (mean 35.2g/L vs 38.2 g/L, P=0.031), but not in other parameters (Table 1). With multiple regression analysis, we found statistically significant relationship only with serum phosphorus at the start of PD treatment (β=-0.271; P=0.041).

Conclusions
The results of our study demonstrated a low peritonitis rate and mortality (3.3%) caused by first peritonitis. We found a significant effect of higher serum phosphate and lower serum albumin on the occurrence of first peritonitis episode. These findings at the start of PD treatment might help us identify patients with a higher risk of peritonitis.

<table>
<thead>
<tr>
<th>Variable at the start of PD</th>
<th>Peritonitis group (N=21)</th>
<th>Non-peritonitis group (N=39)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>47.6±12.4</td>
<td>44.4±14</td>
<td>0.381</td>
</tr>
<tr>
<td>Serum BUN (mmol/L)</td>
<td>27.6±9.1</td>
<td>26.5±6.3</td>
<td>0.568</td>
</tr>
<tr>
<td>Serum creatinine (µmol/L)</td>
<td>771±220</td>
<td>790±174</td>
<td>0.715</td>
</tr>
<tr>
<td>eGF (ml/min)</td>
<td>8.1±8</td>
<td>6.2±1.7</td>
<td>0.165</td>
</tr>
<tr>
<td>Hemoglobin (g/L)</td>
<td>104±12</td>
<td>107±13.1</td>
<td>0.310</td>
</tr>
<tr>
<td>C-reactive protein (mg/L)</td>
<td>14±28.9</td>
<td>9.2±12.2</td>
<td>0.371</td>
</tr>
<tr>
<td>Potassium (mmol/L)</td>
<td>4.7±0.58</td>
<td>4.7±0.9</td>
<td>0.977</td>
</tr>
<tr>
<td>Phosphorus (mmol/L)</td>
<td>1.84±0.4</td>
<td>1.68±0.4</td>
<td>0.139</td>
</tr>
<tr>
<td>Calcium (mmol/L)</td>
<td>2.1±0.28</td>
<td>2.2±0.2</td>
<td>0.165</td>
</tr>
<tr>
<td>Serum albumin (g/L)</td>
<td>35.2±6</td>
<td>38.2±4.3</td>
<td>0.031</td>
</tr>
<tr>
<td>iPTH</td>
<td>450±307</td>
<td>384±374</td>
<td>0.489</td>
</tr>
<tr>
<td>Observational time (days)</td>
<td>1047±885</td>
<td>1014±841</td>
<td>0.884</td>
</tr>
</tbody>
</table>
Table 1. Baseline clinical and biochemical characteristics of 60 chronic kidney disease patients on peritoneal dialysis (PD) divided into two groups according to the presence of peritonitis after the start of PD treatment.

Abbreviations: eGF - estimated glomerular filtration; BUN - blood urea nitrogen; iPTH - intact parathyroid hormone;
ARTIFICIAL INTELLIGENCE HELPS PREVENT PERITONITIS AMONG PATIENTS ON PERITONEAL DIALYSIS

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Objectives
Peritonitis is a common complication of peritoneal dialysis (PD). It leads to increased healthcare costs, technique failure and contributes to mortality – especially for the patients that are less prone to manage their own therapy at home. There currently is no valid outcome prediction tool allowing physicians to reliably and quickly stratify patients according to their peritonitis risk profile so that appropriate preventive action can be systematically undertaken. We developed a peritonitis risk predicting algorithm in a large cross-national sample of PD patients.

Methods
We screened for eligibility patients treated with PD and registered in the Fresenius Medical Care network (FME) between 1991 and 2018. To enhance representativeness of the sampling strategy for risk score use in real life setting, we enrolled patients with at least 90 days on PD within FME irrespective of their previous renal replacement therapy (RRT) (n=9585). Study endpoint was the occurrence of first peritonitis within 12 months. We adopted a random forest classifier to predict 1-year risk of peritonitis. We derived the model in a random partition of the original sample (70%) and assessed model discrimination in the remaining 30% of patients.

Results
Most patients were men (55%), treated with CAPD (73%), were on RRT for less than 180 days (72%) and had hypertension (59%). Mean age was 51±17 years, BMI=25.7±10, albumin 2.3±0.6, hemoglobin 10.4±2. There were 1.59 peritonitis/1000 patient-days. In the validation sample, the area under the receiver operating curve (AUC) was 0.86. The 10 most important discriminating features were age, leukocytes, hemoglobin, BMI, calcium, phosphate, urea, potassium, glucose, creatinine.

Conclusions
The FME peritonitis risk algorithm demonstrated elevated accuracy in discriminating 1-year risk of peritonitis. Patients at high risk may benefit form extended monitoring and better training or retraining programs.
A RISK SCORE TO PREDICT THE OCCURRENCE OF TECHNIQUE FAILURE OR DEATH WITHIN 2 YEARS IN A CROSS-NATIONAL SAMPLE OF PD PATIENTS.

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Objectives
Peritoneal dialysis (PD) is a cost-effective technique for patients needing renal replacement therapy (RRT). Only 5-15% of patients are offered PD worldwide. Patient selection bias and uncertainty surrounding patients’ technique failure (TF) risk may contribute to suboptimal PD utilization. TF is associated with increased mortality, hospitalization, healthcare costs and patients’ life-style disruption. We developed an TF risk predicting algorithm in a large cross-national sample of PD patients.

Methods
We screened for eligibility patients treated with PD and registered in the Fresenius Medical Care network (FME) between 1991 and 2018. To enhance representativeness of the sampling strategy for risk score use in real life setting, we enrolled patients with at least 90 days on PD within FME irrespective of their previous renal replacement therapy (RRT) (n=9585). TF was defined as the occurrence of switch to HD for more than 1 month or death within 2 years. We adopted a random forest classifier to predict 2-year risk of TF. We derived the model in a random partition of the original sample (70%) and assessed model discrimination in the remaining 30% of patients.

Results
Most patients were men (55%), treated with CAPD (73%), were on RRT for less than 180 days (72%) and had hypertension (59%). Mean age was 51±17 years, BMI=25.7±10, albumin 2.3±0.6, hemoglobin 10.4±2. There were 359 TF/1000 patient-years. In the validation sample, the area under the receiver operating curve (AUC) was 0.72. The 10 most important discriminating features were age, BMI, calcium, phosphate, urea, hemoglobin, potassium, leukocytes, glucose, albumin and living conditions.

Conclusions
The Fresenius Medical Care Technique Failure risk algorithm demonstrated moderate accuracy in discriminating 2-year risk of technique failure or death. The model may identify patients at high risk that may not gain additional benefit from PD compared to HD. It may also guide the health care practitioner and patients to address pre-emptively some of the key drivers linked to drop-out.
COMPARATIVE USABILITY EVALUATION OF A NOVEL PERITONEAL DIALYSIS ASSISTANCE DEVICE USING MOBILE EYE TRACKING

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Objectives
Patients in peritoneal dialysis (PD) have beside of their disease further comorbidities like diabetes, arthritis and more. This result in several limitations like tactile and visual restrictions or dexterity shortfalls. When developing a novel medical device, it is mandatory to consider such characteristic of later users and to focus on its safe and efficient use. This is only realisable by continuously developing the user interface of the medical device together with representative users.

The aim is to evaluate the usability development by objectively comparing two different prototype status of a novel dialysis patient assistance device. The two raising questions are (1) Is the development of the user interface continuously gone in the direction of a safer and more efficient use? and (2) Where are the differences in the usability of the main interface features?

Methods
This is achieved with a usability study using mobile eye tracking and nine representative novice participants (77% younger 65 years (av. 25 years), 23% older than 65 years (av. 73 years)). In this study, the participants use the most recent prototype version and an older prototype version of the medical device in the PD handling cycle.

Results
Gaze data and task performances show that the challenges in the PD handling cycle with the device are comparable between the two user groups. The main user interface features of the device are the buttons and the lever on the right-hand side. When comparing the relating gaze data of the interaction, differences between the two prototype versions can be found. The lever is gazed at less than one second on average in the relevant handling stages for both versions, with slightly lower focus times for the older version. The buttons of the most recent version are gazed at between 33 percent (1.36 / 2.03 seconds) up to 51 percent (0.75 / 1.53 seconds) on average shorter.

Conclusions
The gaze data of the main user interface features indicate for both prototype versions a low level of cognitive load. While the usability of the lever is comparable for both versions, the buttons of the most recent prototype version seem to need a lower level of concentration compared with the buttons of the older prototype version.
THE RELATION SERUM UREA TO CREATININE IN PERITONEAL DIALYSIS: WHICH FACTORS DEFINE THE INDIVIDUAL SETTING?

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Objectives
There are individual differences between serum urea in relation to serum creatinine at peritoneal catheter placement which seem to persist even after peritoneal dialysis start. The aim of the study was to evaluate influencing factors of the urea to creatinine ratio in an adult peritoneal dialysis population.

Methods
The serum urea to creatinine ratio at catheter placement and at the first two peritoneal equilibration tests (PET) at 6 and 12 months after dialysis start was evaluated together with clearance, transport status and fractional excretion of urea (FeUrea) in 73 patients (median age 65 years). The lower quartile of the urea/creatinine ratio was compared to the upper quartile. Mann-Whitney test was used for the comparison of groups.

Results
The urea/creatinine ratio at catheter placement correlated significantly to the corresponding at the first (r=0.41, p<0.01) and second PET (r=0.60, p<0.001). Patients in the lower urea/creatinine quartile presented inferior estimated glomerular filtration rate compared to patients in the upper quartile (median, 4.9 vs 7.3 ml/min/1.73m² MDRD) before dialysis start. At 6 and 12 month of follow up, significant differences between the lower and the upper quartile persisted for age (median, 63 vs 69 years), body surface area (1.90 vs 1.83 m²), urea distribution volume (41 vs 37 litres) and urinary FeUrea (0.65 vs 0.55 at 6 months, 0.64 vs 0.46 at 12 months). Peritoneal FeUrea was slightly higher in the lower quartile (1.85 vs 1.44 at 6 months, 1.57 vs 1.37 at 12 months). There was no relation between urea/creatinine ratio on the one side and Kt/V, creatinine clearance, peritoneal transport status on the other side during follow up.

Conclusions
A low urea/creatinine ratio is related to lower age, higher urea distribution volume and FeUrea. This individual setting persists during peritoneal dialysis and does not depend on the peritoneal transport type.
RETROSPECTIVE ANALYSIS REGARDING EFFECTIVELY CREATED DIALYSIS ACCESES AFTER PRE-DIALYSIS INFORMATION IN A BELGIAN NEPHROLOGY-DIALYSIS DEPARTMENT

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Objectives
Terminal renal failure calls for renal transplantation or dialysis therapy, either hemodialysis (HD) or peritoneal dialysis (PD). Usually patients are encouraged to choose which treatment they think is most appropriate for them after having received objective and thorough information. This is also the case in our centre, but most of them ended in HD. Thus we made a retrospective enquiry based on the pre-dialysis files in order to identify modifiable factors in our pre-dialysis protocol; and if needed, to establish a new adequate one.

Methods
We collected the following information obtained between 01/01/2014 and 31/08/2018: number of sessions given for any given year, their dates, the number of information received by patient, eGFR at the time of information, the patient's choice, the time elapsed between the information session and the next appointment with the referring nephrologist, the type of dialysis access eventually created, and the reason of a possible change between the latter and the patient's initial choice.

Results
214 pre-dialysis information sessions have been provided between 01/01/2014 and 31/08/2018. One third of patients had an eGFR between 15 and 10 ml/min/1.73m². The proportion of patients opting for PD varied between 31% in 2014 and 29% for the first half of 2018; for the same periods, HD was chosen by 44% and 21% respectively. And no clear choice was expressed by 22% and 9% of patients respectively. Sixty% of these patients ended up on HD while forty% were lost to follow-up. All the patients who had chosen HD received an access for HD. Patients already on HD when information was given chose to remain on HD. Among those who opted for PD, 60 % received a PD catheter. However, relative to the cumulative total of information sessions, only 25% had a PD catheter implanted. The time spent between information and next appointment with their nephrologist was 1 to 2 months in the majority of patients, independently of their eGFR.

Conclusions
This retrospective analysis in a single centre over the past 5 years has shown that:

- only one quarter of the patients have had a PD catheter implanted according to their wish.
- patients who did not express a clear choice after receiving the information ended up on HD.
- between 1 and 2 months elapse from the information session and the next appointment with their nephrologist.

These findings led us to implement a new type of pre-dialysis information file.
EFFECT OF EDUCATION AND DECISION SUPPORT ON UNPLANNED START DIALYSIS PATIENT; MULTIDIMENSIONAL EVALUATION

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Objectives
Despite ideal approach in nephrology care is timely referral, timely education and timely start to replacement therapies, many studies have shown that patients with CKD are generally lately referred to the nephrology team and associated with increased morbidity and mortality.

Methods
86 urgent start dialysis patients enrolled to the study. The patients randomized into two groups, 43 were on “only educational”, 43 were on “education and decision support intervention”. Both groups educated in accordance with the “designed urgent start education program in two separate session. One group additionally provided with “Decision Tree Application” after education to support patient to make decision. Before and after 3 months of education, the effect on treatment satisfaction, compliance, self care, quality of life, depression, laboratory and clinical outcomes evaluated.

Results
It was seen that laboratory and clinical values were statistically better, treatment compliance (151.55±50.17vs269.38±25.96p<.001) and satisfaction (28.77±6.63vs52.33±4.76;p<.001) increased, the ability of self-care (1.87±.48vs4.05±.28;p<.001) and the quality of life (.28±.19vs.74±.10;p<.001) improved and the level of depression(97%vs48%; p<.001) decreased in the group where the decision tree was applied with education. According to only education group, it was seen that statistically significant difference was found in all areas in the group where the Decision Tree was applied with education.

Conclusions
The results of our study indicate that to provide training to patients who urgently start dialysis treatment and support them in the choice of treatment may improve patient outcomes. It is important to conduct research with larger patient groups in this area.
PERITONEAL PROTEIN LOSSES AND BIOCOMPATIBLE SOLUTIONS

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Objectives
Peritoneal protein losses (ppp) are associated with cardiovascular disease being an indirect marker of endothelial dysfunction. The ppp can produce malnutrition and hypoalbuminemia. They are also a marker of large pore disorder. The objective of the study was to demonstrate in our patients that biocompatible solutions prevent ppp and protect the peritoneal membrane.

Methods
We study in the adjustments of our patients, the variables: dialysis volume, albuminemia and proteins in dialysis fluid (DF). We compared the variables in 2 groups (before using biocompatible solutions and afterwards). The results are expressed as mean ± standard deviation and the comparison was made with the 2-tailed Student's T for independent data. Values of p <0.05 were considered statistically significant.

Results
In a total of 1984 adjustments from July 1996 to January 2018 we studied the variables. 1172 in CAPD, 812 in APD. The average age was 59.77 ± 17.4 years, the average volume of dialysis fluid was 11380 ± 6256.67 liters, albuminemia 3.8 ± 1.5 g / dl, proteins in DF 55.7 ± 42.2 mg / dl. The comparison of the variables in the 2 groups (table1).

Conclusions
The ppp are significantly higher in patients who used non-biocompatible solutions and therefore with higher cardiovascular risk. However, there is no difference in albuminemia levels. Patients who used biocompatible solutions have higher levels of CA 12.5 in DF and better preserved the membrane.

Table1

<table>
<thead>
<tr>
<th></th>
<th>Not biocompatible (N 962)</th>
<th>Biocompatible (N1022)</th>
<th>p</th>
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<tr>
<td>Volume DF</td>
<td>11035.5±7153.8</td>
<td>11642.2±4804.9</td>
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<tr>
<td>Albuminemia</td>
<td>3.8±2.1</td>
<td>3.8±0.4</td>
<td>0.94</td>
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<tr>
<td>Proteins in DF</td>
<td>76.4±49.2</td>
<td>36.3±20.3</td>
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<tr>
<td>Volume of urine</td>
<td>725.6±1093.1</td>
<td>847.8±765.5</td>
<td>0.95</td>
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<td>Age</td>
<td>59.3±16.9</td>
<td>60.2±17.7</td>
<td>0.13</td>
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<tr>
<td>CA12.5 in DF</td>
<td>15.4±11.3</td>
<td>18.5±13.4</td>
<td>&lt;0.001</td>
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</tbody>
</table>
EFFECT OF SINGLE-DWELL TREATMENT WITH A LOW-NA SOLUTION IN HYPERTENSIVE PATIENTS UNDERGOING PERITONEAL DIALYSIS – A RANDOMIZED, CONTROLLED TRIAL

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Objectives
Patients on peritoneal dialysis (PD) may suffer from Na and fluid overload, hypertension and increased cardiovascular risk. Low-Na dialysis solutions, by increasing the diffusive removal of Na, might improve blood pressure management (BP).

Methods
A glucose-compensated, low-Na PD solution (112 mmol/l Na, 2% glucose) was compared to a standard-Na solution (133 mmol/l Na, 1.5% glucose) in a prospective, randomized, single-blind study in hypertensive patients on PD. Both solutions were substituted for one daily exchange of the standard dialysis regime for 6 months. The primary outcome (response) was defined as either a decrease of 24 h systolic BP by ≥6 mm Hg or a fall in BP requiring a medical intervention (e. g. a reduction of antihypertensive medication) at 8 weeks.

Results
125 patients were assessed for efficacy. Response criteria were achieved in 34.5% and 29.1% of patients using low and standard Na solutions, respectively (p=0.51). 24 h and office BP showed slightly more pronounced decreases under low-Na treatment, the self-measured systolic BP was significantly lower with the low-Na solution compared to control. Total body water (TBW) decreased slightly in the low-Na group and increased slightly in the control group, but treatment group differences were not significant. Hypotension and dizziness occurred in 27.0% and in 16.9% of patients in the low-Na group and in 16.9% and 4.6% in the control group, respectively.

Conclusions
After 8 weeks of treatment statistical superiority of low-Na PD solution over standard-Na solution according to primary response criteria could not be shown. The usage of once daily exchanged low-Na PD solution with the here studied Na concentration was associated with hypotensive episodes which might suggest a more moderate and continuous approach when introducing low-Na dialysate solutions.
P-120
CONNECTING THE PROTEOME AND METABOLOME OF PERITONEAL DIALYSIS EFFLUENT - INFLUENCE OF DWELL DURATION AND CYTOPROTECTIVE INTERVENTION

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Objectives
PD-effluent represents a rich but underexplored source of molecular markers for the prediction of clinical outcome, therapy monitoring and investigation of deregulated molecular and cellular processes during PD. Novel PD fluids (PDF) may enable patient-tailored interventions, such as peritoneal immunomodulation. High performance chromatographic coupled high-resolution mass spectrometric methods allow monitoring of a myriad of analytes in parallel. In this study, we investigate the proteome and metabolome of PD effluent samples after different dwell times and with or without intervention by alanyl-glutamine (AlaGln) addition to PDF.

Methods
The proteomes of 24 samples from six patients obtained after two PD-dwell time (16h followed by 4h PET) with and without addition of 8mM AlaGln were assessed using a refined recently established proteomics workflow. Proteome analysis and quantification was performed using isobaric mass tags and included internal standardization for data normalization. Small molecule concentrations were determined in a targeted metabolomics approach at four different dwell time points (0h, 1h, 4h, 16h) and from plasma at the 2h PET time point. Pathway analysis results from both datasets were conjoined to reveal novel insights into the “PD effluentome”.

Results
We identified and quantified approximately 2700 proteins and 300 metabolites in PD-effluent. Molecular properties correlating with membrane transport characteristics were defined by comparison with plasma proteome reference values and metabolomic plasma samples from the same PD dwells. Bioinformatic analysis of proteome-metabolome interference was employed to discriminate local and systemic regulation and transport. Furthermore, we propose mechanisms explaining the protective effects of short and elongated periods of AlaGln-supplementation to PDF.

Conclusions
This combinatorial investigation of proteomic and metabolomic properties of PD-effluent represents the first cross-omics based investigation of peritoneal pathomechanisms and transport characteristics during PD. The results enable a further step to investigate the protective potential of AlaGln-supplementation and its molecular mode of action in PD therapy.
ICODEXTRIN-ASSOCIATED LEUKOPENIA IN CAPD PATIENT: A CASE-REPORT

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Objectives
Icodextrin is a water soluble glucose polymer, used as an alternative to glucose in order to enhance dialytic fluid removal in peritoneal dialysis patients. Although its safety and efficacy is well-established, it has also side effects: skin rashes, culture negative peritonitis, acute pancreatitis, salt depletion. We report the first case of a 70-year-old woman with end-stage renal disease (CKD) in peritoneal dialysis (CAPD), using dextrose solution, who developed severe leukopenia after initiation of icodextrin, administered to enhance dialytic fluid removal.

Methods
On day 26 after her exposure to icodextrin, the patient was admitted to our unit because of intense astenia in absence of other clinical events or recent changes in pharmacological therapy. Her physical examination revealed a normal body temperature, blood pressure 90/70 mmHg, absence of abnormal clinical signs from the chest auscultation and palpation of abdomen. The peritoneal effluent was clear and the white blood cells in the fluid was 0/mmc. Laboratory tests revealed a low WBC count with severe neutropenia: WBC 1,800 cells/l, neutrophils 36.5% (absolute count 670 cells/l); hemoglobin 9.1 g/dL; PLTs 231,000 cells/l; stable renal function with salt and calcium depletion.

Results
Cessation icodextrin improved the absolute neutrophil counts within the following days: after four days WBC was 5,200 cells/l, absolute count neutrophils 2,970 cells/l.

Conclusions
The suspect of icodextrin-related leukopenia is strong mainly on the basis of the chronological association between the exposure to icodextrin and the onset of the severe neutropenia and fast improvement of absolute neutrophile count after withdrawing icodextrin, in the absence of any other etiology.

Icodextrin-associated leukopenia is not described in the literature. The pathogenesis of hematological toxicity is unknown and here we present the first case known.

Although the safety and efficacy of icodextrin is well documented, clinicians should maintain vigilance about biocompatibility issues for this highly effective and useful glucose polymer.
SELF-CARE HAEMODIALYSIS IN THE COMMUNITY SETTING: FIVE YEARS ON

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Objectives
• To provide a history of the first non-hospital based self-care haemodialysis unit in the United Kingdom
• To investigate the impact of self-care as a pathway towards home haemodialysis
• To explore training for assisted home haemodialysis

Methods
A case study detailing descriptive statistics of the self-care haemodialysis unit is outlined alongside patient R’s experiences of transitioning from self-care to home haemodialysis and the outcomes of assisted home haemodialysis training.

Results
Since opening, approximately 6372 haemodialysis sessions have been performed within the self-care unit (to date); including training, home haemodialysis respite and patients availing of self-care. Demand for self-care spaces is increasing, with extended opening times planned in the upcoming months. Of the 27 patients trained to independence, in the self-care unit, 33% transitioned to home haemodialysis. Another 33% went on to receive a transplantation and only 0.54% patients returned to in-centre dialysis.

Patient-R having had a failed transplant, due to focal segmental glomerulosclerosis disease recurrence, attended the self-care unit. Patient R had a fear of self-cannulation and required intensive encouragement to overcome this barrier. With peer-influence and staff encouragement, R now dialyses at home.

Furthermore, last year the self-care unit staff provided assisted dialysis training for the family of a 54 year-old man with complex needs, meaning travelling to the dialysis unit thrice weekly was limiting quality of life.

Conclusions
A self-care unit away from the hospital setting has enabled patients unsuitable for home haemodialysis, due to either physical co-morbidities or psychosocial barriers, to become empowered. The unit has been a success, with ever increasing patient interest and successful outcomes.
CHANGING THE PD PROFILE OF PERITONITIS IN OUR PATIENTS - IS THE TIME FOR A DIFFERENT THERAPEUTIC APPROACH?

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\textsuperscript{1}Military Medical Academy, Belgrade, Belgrade, Serbia

Objectives
Despite significantly reduced rate of peritonitis during last decade, this complication is still challenging for treatment especially due to changing of microbiological profile of leading causers. In our paper we analyzed main microbiological profiles of peritonitis our PD patients including outcome of treatment during two different periods.

Methods
Medical records of PD peritonitis patients in Military Medical Academy between 2001. to 2010. and 2017.-2018. were reviewed. We analyzed and compare microbiological diagnosis and treatment outcomes.

Results
During the period 2001-2010. there were 123 peritonitis episodes in 156 PD patients with incidence of 1 episode /29,91 patient months. A single Gram (+) organisms were isolated in 65,02 %, Gram negatives in 17,01%, polymicrobial forms in 3,25% with 13,09% culture negative episodes. Coagulase-negative staphylococcus (CoNS) was the most common causer accounting for 41,46% of all peritonitis episodes (51/123), Staphylococcus aureus was responsible for 7,32% cases and there was one episode of fungal peritonitis (1,63%). A total of 15 patients required transfer to hemodialysis (12,19%) with 3 peritonitis-related deaths (2,44%).

In last 2 years we diagnosed 25 episodes of peritonitis in 46 patients, with incidence of 0,35 pt/episodes/year, with increasing of proportion of Gram negative (28%), fungal (12%) and Staphylococcus aureus related episodes who became leading causer in 24% of total episodes. We verified reducing in CoNS (12%) and culture negative related forms (8%), without any polymicrobial forms. In this period we removed of 28% catheters (according with dominant causers) with mortality rate of 4%.

Conclusions
Decreasing of CoNS and culture negative related peritonitis during last 2 years is confirmation of well conducted training our patients. On the other hand, increased rate of Staphylococcus aureus, gram negative and fungal related peritonitis who are associated with less favorable outcomes demands much more serious prevention and initially treatment especially in elderly population.
MYCOBACTERIUM ABSCESSUS INFECTION IN A PERITONEAL DIALYSIS PATIENT: SUCCESSFUL TREATMENT OF A RARE CAUSE OF PERITONITIS AND SOFT TISSUE DISEASE ENSUING PERITONEAL DIALYSIS RE-INITIATION

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Objectives
Mycobacterium abscessus (M.abscessus) infection ranges from asymptomatic colonization to life-threatening disseminated infection. Extremely rarely, it has been described in peritoneal dialysis (PD) catheters associated infections, leading to catheter removal and PD discontinuation due to high recurrence risk.

Methods
The authors describe the case of a melanodermic 52 years-old man born in São Tomé e Príncipe who presented with end stage kidney disease at age of 49 due to chronic glomerulonephritis. He was transferred to Portugal and started PD, presenting chronic exit site infection (ESI) due to Methicillin-Sensitive Staphylococcus aureus (MSSA) 3 months later. This was refractory to antibiotic therapy (ABT) with oral cotrimoxazole and flucloxacillin leading to catheter replacement. One year later he presented again with ESI due to MSSA, refractory to oral cotrimoxazole, intraperitoneal (IP) cefazolin and shaving of the external cuff. Catheter removal and replacement while under antibiotic therapy was performed. Two weeks later he presented with peritonitis and multiple abscesses localized at the subcutaneous tunnel of the previous PD catheter. Absence of response to IP vancomycin and ceftazidime led to catheter removal. M.abscessus was isolated at the PD fluid, probably signifying that ESI was due to MSSA and M.abscessus coinfection, with peritoneal contamination by the later after cuff shaving.

Results
Levofloxacin, clarithromycin and cefotaxime were prescribed for 12 months, with peritonitis and abscess resolution 1 and 3 months later, respectively.

Patient upheld the desire to restart PD since it allows travelling to his home country and maintain professional and familiar connections. PD was re-initiated 9 months after peritonitis resolution, while on ABT. Presently, 6 months after treatment completion, he remains with no evidence of relapse.

Conclusions
Although the severity of M.abscessus infections, success of treatment made possible to safely re-initiate PD with no evidence of relapse, validating this option in selected cases.
EXPERIENCE OF THE TREATMENT OF DIALYSIS PERITONITIS WITH A REDUCED TIME OF ANTIBIOTICS THERAPY IN COMPARISON WITH ISPD RECOMMENDATIONS

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Objectives
Peritonitis remains one of the most frequent causes of hospitalization in the department of nephrology. The cost of treatment depends on the length of stay of the patient in the hospital. The aim of the study was to evaluate the effectiveness of therapy of dialysis peritonitis while reducing the duration of treatment compared with the recommendations of ISPD for 3 days. The control was the treatment of dialysis peritonitis in accordance with international guidelines.

Methods
This prospective study was conducted during 3 years from 2016 to 2018 in the dialysis center of the Botkin Hospital, Moscow. The study included 94 patients who received treatment with peritoneal dialysis. All patients who had peritonitis were hospitalized in the department and received the necessary antibiotic therapy for 3 days shorter than the recommended period. We evaluated the results compared with the same observation period retrospectively with the control group (96 patients) who received the standard duration of antibiotic treatment at our center from 2013 to 2016.

Results
We analyzed 245 episodes of dialysis peritonitis in 190 patients. The different duration of antibiotic therapy did not significantly affect the incidence of recurrent, relapsing and repeated dialysis peritonitis. The frequency of replacing or removing a peritoneal catheter did not differ either. The incidence of fungal peritonitis had a tendency to decrease with a reduction in the time of treatment with antibiotics but did not reach reliable statistical significance.

Conclusions
Reduction of the treatment time of peritonitis with antibiotics compared with generally accepted standards did not lead to deterioration in the outcome of peritonitis and saved money.
OBJECTIVE

Exit-site infection (ESI) is a frequent peritoneal dialysis (PD) complication, and its inadequate management can predispose to PD-related peritonitis. Point-of-care ultrasound (POCUS) is an emerging bedside discipline aiming to enhance physical examination with real-time information from the ultrasound. We report the first experience of using POCUS in the management of ESI.

METHODS

A 42 years old female, on regular PD program since 2015 due to Alport syndrome, resorted to the PD outpatient clinic due to a Methicillin-sensitive Staphylococcus aureus (MSSA) ESI. She was started on flucloxacillin.

One week later, POCUS of the PD catheter was performed using a linear probe: on a transversal approach, there was an anechoic collection adjacent to the external cuff, measuring 22 mm in its wider length. On a longitudinal plan, there was a significant collection in the segment between the two cuffs, measuring 20 mm in height.

RESULTS

Two days later, she developed erythema, edema, and tenderness over the subcutaneous pathway. Flucloxacillin was stopped, and local gentamicin and intraperitoneal (IP) vancomycin were initiated, as well as prophylactic fluconazole. She was treated for 21 more days and the inflammatory signs over the subcutaneous pathway resolved. POCUS showed that there was still a collection between the two cuffs, measuring 14 mm in height.

One week later, ESI had relapsed. She was restarted on IP vancomycin for 21 days and external-cuff shaving was performed. Microbiology of the cuff revealed an MSSA. Her clinical symptoms improved and POCUS revealed a significant reduction of the anechoic fluid collection, with a height of < 10 mm. No further MSSA-associated ESI episodes were diagnosed.

CONCLUSIONS

POCUS of the PD catheter performed by a Nephrologist is a safe and quick procedure that can accurately detect the extension of the infection, and can probably be used to monitor the response to ongoing therapy and predict ESI relapses.
MYCOBACTERIUM TUBERCULOUS PERITONITIS IN CAPD PATIENT: A CASE REPORT

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¹Nephrology Department Sahloul Hospital, Sousse, Tunisia, ²Microbiology department Sahloul Hospital, Sousse, Tunisia

Introduction
Tuberculous peritonitis is relatively uncommon in continuous ambulatory peritoneal dialysis (CAPD) patients, which may pose a diagnostic and therapeutic challenge for nephrologists. We report a case of PD-associated peritonitis caused by Mycobacterium tuberculosis that was difficult to treat and led to PD failure and patient death.

Case report
A 54-year-old lady who has been on CAPD since July 2016 for chronic renal failure secondary to diabetic nephropathy, consulted in August 2018 for diarrhea followed by abdominal pain with fever and inflammatory syndrome. She had received an amoxicillin-clavulanic acid antibiotic for 3 months for a diabetic foot infection. Examination of the peritoneal fluid showed Leukocytes at 280 with 70% Lymphocytes. Empirical antimicrobial therapy based on metronidazole-vancomycin-cefotaxim has been initiated without improvement of the patient whose general condition was deteriorating. The culture of liquid peritoneal fluid (BacT / ALERT MP vial, bioMerieux and solid (Löwenstein-Jensen medium) returned positive after 13 days of incubation. The agent identified was a Mycobacterium tuberculosis. A quadritherapy has been initiated: Rifampicin / INH / Pyrazinamide / Ofloxacin.

In view of the persistence of abdominal pain and inflammatory syndrome, the dialysis catheter was ablated and the patient was switched to hemodialysis. The evolution was unfortunately fatal after two weeks of hemodialysis.

Conclusion
Our case corroborates the findings from previous series that mycobacterial infection in PD patients carries a high mortality and can often pose a diagnostic challenge to attending clinicians. Clinicians should have a high index of suspicion for mycobacterial peritonitis in CAPD patients with features of peritonitis who do not respond promptly to conventional anti-microbial agents.
NO-GROWTH CULTURE IN PERITONITIS ON PERITONEAL DIALYSIS: AN UNANSWERED DILEMMA

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Objectives
Peritonitis is a serious and quite common complication of peritoneal dialysis (PD) and, even if its incidence is decreasing in the last years, it remains the primary reason of drop-out from PD. Peritonitis is diagnosed in presence of abdominal pain, cloudy PD fluid with increased neutrophils count and positive culture. In most peritonitis, microbiological culture grows bacteria, but in 20-40% of cases, culture shows no-growth (2016 ISPD peritonitis recommendations suggest to review sampling and culture methods if more than 15% of peritonitis is no-growth culture). Reason of this high percentage could depend on the failure in obtaining a PD fluid sample before antibiotic treatment, but also the methods of sampling and sample handling (i.e. direct culture vs. post-centrifugation/sedimentation sowing). Moreover, peritonitis is not always due to bacterial contamination, but also to chemical peritonitis (accidental contamination by disinfectants), glucose degradation products of PD fluid, endotoxins/LPS or malignancies.

Methods
Retrospective analysis of peritonitis with no-growth culture in our centre from 28th July 2008 to 31st December 2018.

Results
Two hundred and six peritonitis were found (mean peritonitis/patient-year 0.26) and 43 (22.8%) showed no-growth. Even if total peritonitis numbers are decreasing through the years, those cases with no-growth culture are rising (figure 1).

Conclusions
Peritonitis with no growth culture still are a challenging diagnosis. Few literature is present and differential diagnosis is difficult for the lack of easy lab tests to identify possible causes of peritonitis other than bacterial contamination.
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MICROBIOLOGICAL SPECTRUM IN A PERITONEAL DIALYSIS UNIT. EIGHT YEARS OF EXPERIENCE. NOT ONLY PERITONITIS.

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Infections are the most limiting pathological situations for peritoneal dialysis (PD). Peritonitis are the events most related to mortality, hospital admissions and the failure of the PD technique. Empirical treatment of peritonitis (before having antibiograms available) must cover the most frequent microbiological spectrum in each geographical area and Dialysis Unit. However, patients are also exposed to other types of infections other than peritonitis or less common germs that should also be considered in the initial empirical strategy. We present the spectrum of infections and germs that occurred in our Unit over a period of 8 years of follow-up in different types of infectious diseases, not just peritonitis. Between January 2011 and December 2018, we followed up on 109 patients 38 women and 71 men with a mean age of 58.01 ± 13.9 years and with a follow-up time in PD of 23.04 ± 22.37 months.

A total of 1374 biological cultures were performed in relation to different processes (peritoneal fluid, blood, urine, feces, exudates, catheter exit site (ES), nasal exudates, vaginal exudates or respiratory tract cultures). Of 444 nasal exudates, only 84 (18%) were carriers of S Aureus. A total of 427 cultures were positive. (288 of ES). 61 episodes of peritonitis were recorded in 30 patients in whose control 172 cultures of peritoneal fluid were performed. Except for peritonitis, the most frequent infections were those of the catheter exit orifice, urine infections, bacteremia and skin. The most frequent infections and germs are presented in the table.

<table>
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<tr>
<th></th>
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<th>Urine</th>
<th>Stool</th>
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<th>Respiratory tract</th>
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Peritonitis accounts for only 48.2% of infections without considering those of the exit orifice, so we must consider the appearance of other potential germs when establishing an empirical therapy appropriate to our casuistry. In three patients with extraperitoneal infections only sensitive to the parenteral route, we used the peritoneal route to administer antibiotics, resolving the infection and avoiding hospital admission. Continuous analysis of the microbiological spectrum allows us to modify the empirical treatment protocol and introduce ampicillin to cover Streptococcus.
Epidemiology and outcome of peritoneal dialysis related infections

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Objectives
Infections related to peritoneal dialysis (PD) are the most frequent cause for technique failure and have a significant impact on mortality. We examined the epidemiology and outcome of PD related infections in our centre.

Methods
In this retrospective, observatory, single centre study we examined the epidemiology and outcome of PD related infections (peritonitis, tunnel and exit-site infections) over a period of 6 years, from January 2013 to December 2018.

Results
We included 79 patients with a total of 132 years at risk. Peritonitis rate was 0.14 episodes per year at risk, for a total of 18 episodes. The pathogens responsible for peritonitis episodes were multiple microorganisms (28%), gram-positive bacteria (22%), gram-negative bacteria (11%), fungi (17%) and in 22% the peritonitis was culture-negative. No Staphylococcus aureus peritonitis was observed. PD failure was recorded in 67% of cases, the most common causes were refractory peritonitis (28%) and fungal peritonitis (17%). Two (11%) peritonitis episodes resulted in death. Tunnel and exit-site infection rate was 0.17 episodes per year at risk, for a total of 23 episodes. Gram-positive bacteria accounted for 35% of cases of which predominant pathogens were Staphylococcus aureus, coagulase-negative Staphylococci and Corynebacterium. Gram-negative bacteria accounted for 30%, multiple organisms for 31% and fungi for 4% of cases. The causes of treatment failure (26% of cases) were refractory tunnel and exit-site infections.

Conclusions
The rate of infections related to PD was very low in our patients. Especially peritonitis rate was much lower than the acceptable upper limit of 0.5 episodes per year at risk as suggested by guidelines. We observed more frequent episodes of polymicrobial peritonitis probably due to polymorbidity of patients, while gram-positive cocci remained the major cause of exit-site and tunnel infection. Surprisingly, high rate of technique failure was observed, presumably because of severe fungal, polymicrobial and refractory infections.
Introduction
A 40 year-old-man with AIDS and Chronic Kidney Disease, caused by membranoproliferative glomerulonephritis, starts peritoneal dialysis program in 2001. He had no complications during 8 years.

Clinical Case
He was seen in the emergency department between 2009 and 2010, because of several peritoneal dialysis-related peritonitis caused by S. epidermidis. Then, we had to remove the peritoneal dialysis catheter and the following day, we placed a long-term hemodialysis catheter. Seven days later, the patient had fever but no other symptoms associated. Due to this situation, we did a series of three blood cultures and started empirical treatment (Vancomycin and Gentamicin). Blood cultures were positive (E. coli), so we added Meropenem and trimethoprim-sulfamethoxazol. Despite antibacterial therapy during two weeks, his condition worsened, so a computed axial tomography was done: severe pericardial effusion. Then we requested an echocardiogram: Loculated severe pericardial effusion around the left ventricle, with purulent content. After pericardiocentesis and antibacterial therapy, the patient died because of septic shock.

Conclusions
In conclusion, acute suppurative pericarditis is a rare and severe disease, that could be related to the removal and placement of the catheter at the same time.
**Objectives**

Peritoneal dialysis (PD) infectious complications are strongly associated with technique failure and mortality risk.

**Methods**

An ongoing survey among prevalent PD patients in several PD units in Greece is being conducted in order to identify factors that may be associated with risk for infectious complications. Geographical factors (linear distance from PD center in km, residence in difficult to reach areas) social factors (sex, educational level, marital status) and other factors such as training time and PD trainers, initial PD regimen, use of antibiotics, type of PD catheter and mode of catheter implantation were analyzed. Kaplan Meier analysis was applied to estimate time to 1st peritonitis episode and log-rank and Cox regression analysis were used to evaluate hazards for peritonitis.

**Results**

10 PD units have already sent data from 297 PD patients (182 male and 115 female), who represent 41.1% of total PD population in Greece. Median age was 60.8 years (range 21-88) and median time on PD 29.8 months. 107 patients had at least one episode of peritonitis in 244830 days at risk and the 50th percentile of survival time was 1986 days. Peritonitis incidence was 212 episodes in 891.3 patient-years (=0.24 patient-year). Among risk factors that were analyzed (a) training by PD nurse vs non-nurse (HR 0.58, p=0.03), (b) use of IV antibiotics before catheter implantation (HR 0.18, p<0.001), (c) shorter distance (in Km) from PD center (HR 1.01 per 10 km increase in distance p=0.03) and (d) APD as initial regimen (HR 0.38, p=0.001) were shown to reduce hazards for peritonitis.

**Conclusions**

Peritonitis rate seem to be low in Greece. Several factors beyond clinical may influence this finding and patient training seems to be one of the most critical steps to achieve optimal outcomes.
THE EFFECTIVENESS OF 2% CHLORHEXIDINE SWAB PREVENTING INFECTION RATE IN PERITONEAL DIALYSIS (PD) EXIT SITE COMPARED WITH 10% POVIDONE-IODINE IN OMANI POPULATION

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Objectives
This study aims to determine the potential effectiveness of the application of 2% chlorhexidine swab at the catheter exit site in preventing exit site infection compared with 10% Povidone-iodine for adult PD patients following Royal Hospital for a period of nine months.

Methods
A quantitative randomized control design examined the effectiveness of 2% chlorhexidine swab in preventing infection in PD catheter exit site compared to 10% povidone-iodine solution on total of 27 adults’ patients who were on peritoneal dialysis at the Royal Hospital. All participants received same training for exit site care by use of antiseptics (2% chlorhexidine or 10 % povidone-iodine solution). The participants were followed up every four to six weeks at Peritoneal Dialysis Clinic, during follow up we examined the site for catheter patency, for any signs of inflammation and sent routine site swab for c/s and microscopy. All information recorded on excel sheet for nine months period started from November 2017 to July 2018 used STATA.

Results
27 patients were recruited, randomized treatment group (51.9%) and control group (48.1%), male 11(27) the mean (SD) 53.5 (23.2%) and female were 16 (27%) the mean (SD) 42.6 (24.3%). The mean (SD) of age (years) was 47 (24). Total of 6 (22.2%) got exit site infection during study period, 2 cases from chlorhexidine group and 4 from control group. There were 4 (14) patients from treatment group experienced skin reaction after using the 2% chlorhexidine swab stick, varied from minor to major reaction. The estimated cost of nine months/R.O for treatment group was approximately 110 Omani Rail ($285.7), whereas it cost around 150 Rail ($ 389.62). The approximate consumed time for exit site dressing with control group is 10 minints, compared with only 3 minints with treatment group.

Conclusions
Preliminary data showed that both drugs are effective, but 2% chlorhexidine is probably superior for PD catheter exit site care, easy to use and save money and time.
EFFLUENT CYTOLOGY IS A USEFUL DIAGNOSTIC SUPPLEMENT IN PERITONEAL DIALYSIS ASSOCIATED PERITONITIS

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Objectives
Infectious complications are still one of the leading causes of treatment failure and death among peritoneal dialysis (PD) patients. Targeted antibiotic treatment is only possible on the basis of microbiological diagnosis. However, the microbiological work up takes some time and there are also cases of culture negative peritonitis. Hence, microscopy of Gram stained effluent in addition to cell count might enable a more timely and effective antimicrobial treatment, in particular when culture results remain negative.

Methods
In this single center retrospective analysis, all patients undergoing PD between January 2007 and December 2017 were included. In addition to automated cell count of dialysate effluent using Sysmex UF-1000i (Sysmex Austria®), a microscopic sediment (Olympus BH-2 microscope) and cytological analysis applying Hemacolor Stain (Hemacolor® Rapid Staining Kits®) was performed as part of the routine checkup every 4 to 6 weeks. In case of automated white blood cell count ≥50/µl Gram Stain of effluent sediment and culture was conducted.

Results
A total of 250 patients (68 % male) were included. The mean age was 56 ± 15 years at PD start, a total number of 155 peritonitis cases occurred in 662.7 years at risk (centre-referential peritonitis rate was 0.234 per patient year; 1 episode every 51.2 month respectively). Ten of a total of 41 cases with culture negative peritonitis (CNP) showed mainly eosinophil granulocytes in the microscopy of effluent cytology indicating a non-microbial cause of peritonitis. In one half of the remaining 31 CNP, microscopy could at least identify the germ species by gram stain (13 cases gram positive cocci, 2 cases gram negative rods, 1 case fungal, 1 case gram positive rods), enabling a more specified empiric antimicrobial treatment.

Conclusions
Dialysate effluent microscopy may represent a useful supplement in the diagnostic workup of PD-associated peritonitis and thus may feasibly improve peritonitis outcome especially in CNP.
REPEATED AND RELAPSING PERITONITIS: SAME MICROORGANISM, TWO REALITIES

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Objectives
Peritonitis is one of the main complications of peritoneal dialysis (PD) and is a major reason for discontinuing PD therapy. Relapsing and repeat-peritonitis are complicated infections caused by the same microorganism and are distinguished by the time of occurrence – before or after 4 weeks of completion of antibiotic treatment for a prior episode of peritonitis, respectively.

The primary outcome of this study was to compare rate of complete cure, hospitalization and temporary and permanent transfer to hemodialysis between relapsing and repeat-peritonitis. The secondary outcome was to find predictor factors for developing each group of peritonitis.

Methods
We developed a single-center, retrospective, observational study to analyze all relapsing and repeat-peritonitis that occurred on the 225 patients treated between 1st January 1998 and 31st December 2018. Relapsing and repeat-peritonitis were defined by ISPD Guidelines.

Results
Overall, 270 peritonitis occurred in 105 patients. 7.8% were relapsing peritonitis and 13.0% were repeat-peritonitis. Patients with relapsing peritonitis were older (61 years, IQR [48 -73] vs 53 years, IQR [58-67], p=0.013), female (33.3% vs 11.4% p=0.046), had ischemic cardiomyopathy (12.9 % vs 0 % p=0.001) and had history of recent antibiotherapy (71.4 % vs 28.6%, p=0.020). 53.3% episodes of repeat-peritonitis were caused by Streptococcus spp. (vs 11.8% in the relapsing group, p=0.006). In multivariate analysis, age (OR 0.9, 95% CI [0.76 – 0.95]) and gender (OR 0.85, 95% CI [0.013 – 0.91]) were the only significant predictors.

There was no difference in rate of complete cure (23.8% vs 40.0% p=0.256), hospitalization (20.0% vs 11.4% p=0.443), temporary transfer (14.3% vs 8.6% p=0.551), and definite transfer (19.0% vs 11.4% p=0.456) to hemodialysis between relapsing and repeat-peritonitis.

Conclusions
There was no difference in rate of complete cure, hospitalization, temporary and definite transfer to hemodialysis between relapsing and repeat-peritonitis. Older patients and females have a higher odd of developing relapsing peritonitis.
REPEAT-PERITONITIS: ALL THE SAME, ALL DIFFERENT

Marina Reis¹, Catarina Ribeiro¹, Ana Marta Gomes¹, Clara Santos¹, João Carlos Fernandes¹

¹Centro Hospitalar Vila Nova De Gaia/Espinho, Vila Nova de Gaia, Portugal

Objectives
Peritonitis is a main complications of peritoneal dialysis (PD) and a major reason for discontinuing PD. Repeat-peritonitis is defined as a new episode of peritonitis by the same organism occurring more than 4 weeks after completion of therapy for a prior episode. Currently, it is not clear if should exist a limit of time after which we should consider a new episode of peritonitis instead of a repeated one.

The primary outcome was to compare rate of catheter removal (CR), complete cure (CC), hospitalization and temporary (TT) and permanent transfer (PT) to hemodialysis between repeat-peritonitis within 6 months after the previous episode and repeat-peritonitis that occurred at least 6 months after the previous episode. The secondary outcome was to compare age, gender, microorganisms involved and comorbidities between each subgroup of peritonitis.

Methods
We developed a single-center retrospective observational study to analyze all repeat-peritonitis that occurred on the 225 patients treated between 1st January 1998 and 31th December 2018.

Results
In 20 years, 270 peritonitis occurred in 105 patients. 13,0% (n=35) were repeat-peritonitis, 60% (n=21) occurred in the first 6 months after the last episode and 40% (n=14) occurred at least 6 months after the previous episode. There was no statistical significative difference in age, gender, comorbidities and causative microorganisms between subgroups.

Repeat-peritonitis that occurred in the first 6 months after the last episode have lower CC rate (9,5 % vs 50,0%, p=0,015) and higher rate of CR (38,1% vs 7,1%, p=0,04) and hospitalization (28,6% vs 0%,p=0,028). There was no difference in terms of TT or PT.

Conclusions
This data suggests that repeat-peritonitis within 6 months after the first episode should be treated as a relapsing episode and catheter removal should be performed. Otherwise, if a repeat episode occurs after 6 months a more conservative approach should be adopted.
FUNGAL PERITONITIS IN PATIENTS UNDERTAKING PERITONEAL DIALYSIS: OUR EXPERIENCE OVER MORE THAN 20 YEARS.

Ms Elena Astudillo1, Mr. Joquín Bande1, Mr Emilio Sánchez1, Ms Beatriz Peláez1, Ms Mónica Fernández1, Mr Miguel Núñez1, Ms Carmen Rodríguez1

1HUCA, Oviedo, España

Objectives
Fungal peritonitis (FP) is a seldom cause of peritonitis in patients under peritoneal dialysis (PD), however it is associated with a worse diagnosis and higher mortality than bacterial peritonitis. For the time being the underlying factors as well as their treatment have not been clarified.

Hypothesis: Describe the characteristics of patients with FP. Assess existing causes potentially adjustable and that can determine their appearance.

Methods
We retrospectively reviewed all the cases of FP that have appeared over twenty five years out of 879 patients under PD. We gathered demographic characteristics, aetiology of Chronic Kidney Disease (CKD), Mellitus Diabetes, immunosuppression causes, variables related to the technique, the existence of infections and other.

Results
We detected 12 FP. Average age 70 years old. 50% men. 33% diabetes, the most common aetiology of CKD was nephroangiosclerosis (33,3%). The albumia were 2.7 g/dl, it was not correlated with FP (p=0.6). Average time in technique were 4 years, the longer time under PD treatment, the higher risk of FP (p=0.010). 91,7% undertook CAPD, 66,7% did three exchanges and half of them used Icodextrin, it was not correlated with FP (p=0.77). CAPD brings over some risk of FP development (p=0.006), that increases with a higher number of exchanges (p<0.042). 50% of the patients had had ESI frequently to S.aureus (16,7%). 66,7% had previous bacterial peritonitis to S. aureus, were not associated with FP (p=0.38). The most common aetiology was Candida albicans (58,3%/p=0.023). 58,3% of the patients had received prophylaxis with fluconazole. All of them had their PD catheter removed (p=0.006)

Conclusions
FP is an infrequent complication that mostly occurred in patients who have been in a long PD programme, with higher risk when more number of exchanges. We suggest to increase the re-trainings as a measure of protection.
IMMUNOCOMPROMISED PATIENT ON AUTOMATED PERITONEAL DIALYSIS TREATMENT (APD) WITH A RARE CASE OF PERITONITIS - L. MONOCYTOGENES PERITONITIS - A CASE REPORT

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General Hospital Slovenj Gradec, Slovenj Gradec, Slovenia

Objectives
This text presents a case of a rare etiology of peritonitis in patient on automated peritoneal dialysis treatment (APD). L. monocytogenes is Gram positive, facultative anaerobic and very virulent bacteria with biofilm formation, and appears to be present in gastrointestinal system in 10% of general population. Infection occurs with digestion of uncooked or undercooked milk or meat products. Clinical manifestations vary from gastroenteritis, sepsis in immunocompromised patients and neonatal meningitis and abortions.

L. monocytogenes peritonitis is rare, it is described in patients with liver cirrosis and in kidney patients on peritoneal dialysis with malignancies, mostly of hematologic origin. It is more common in males and after 60 years. In published data, we found 11 cases of L. monocytogenes peritonitis in patients on CAPD and in 2 patients on APD.

Methods
We present a case of 69-years old patient with end stage kidney disease due to plasmocitoma, not suitable for bone marrow transplantation, treated with bortezomib and dexametasone, that was treated with PD for five years, last year on APD. He was admitted in October 2018 with malaise and cloudy peritoneal fluid, skin area around catheter was intact. At first, he did not present with fever and pain in the abdomen, this developed later during hospitalization. His markers of inflammation were high, he had no leukocytosis, in peritoneal fluid there was predominant leukocytosis.

Results
L. monocytogenes was isolated from peritoneal fluid, other cultures were negative. At first, patient was treated with cefamezine and gentamicine, later we used ampicillin iv for three weeks. After transient hypotension with a need for vasoactive support and monitoring, patient stabilised, markers of inflammation reduced, peritoneal fluid became transparent. As he strictly denied malpractice with his PD catheter handling or any possible potential dietary source of infection, we assumed the route of infection was via gastrointestinal tract because of decreased immunity. This was his first episode of peritonitis.

Conclusion
When assessing patients that are also treated with chemotherapy or have concomitant known malignancy and they present with symptoms of peritonitis, we have to consider rare etiologies of peritonitis, such as Listeria; as well as with peritonitis that does not respond well to standard treatment. Ampicillin is a drug of choice, aminoglycosides are added if treatment is not going well.
MYCOBACTERIUM CHELONAE: A RARE CAUSE OF PERITONEAL DIALYSIS CATHETER EXIT SITE INFECTION

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Objectives
Mycobacterium chelonae is a rare atypical mycobacterium. It is most frequently associated with disseminated skin infections in immunosuppressed patients but rarely a cause of peritoneal dialysis (PD) associated infection. There are no evidence based orientations to treat Mycobacterium chelonae PD catheter exit site and tunnel infections. Besides antibiogram oriented treatment, most cases require cuff shaving or catheter removal.

Methods
A 68 year-old male with end-stage chronic kidney disease due to hypertensive nephroangioesclerosis, on continuous ambulatory peritoneal dialysis for one year, presented at the peritoneal dialysis department with redness and purulent discharge from PD catheter exit site. He had never been treated with imussupressive drugs. Three months prior he had developed an exit site granuloma, treated with silver nitrate cauterization and chloramphenicol ointment. He also had psoriatic lesions, mostly on the abdomen and nearby the PD catheter exit site, although when the catheter was placement they were not present. The bacterial skin exudate identified Pseudomonas aeruginosa and he was treated with intraperitoneal ceftazime for four weeks and topical gentamicin. Despite the treatment he maintained redness and discharge from the PD catheter exit site and a new bacteriological exam was performed. The preliminary results identified acid-fast bacilli, suggestive of Nocardia, and the patient was treated with empirically with oral trimethoprim-sulfamethoxazole. However the definite result was obtained one week later through polymerase chain reaction and Mycobacterium chelonae was identified.

Results
The patient was treated with a three day course oral azithromycin with marked improvement of the clinical signs of infection. The new bacteriological exam performed one month later was negative. Through this period there was never clinical or laboratory evidence of peritonitis.

Conclusions
The patient had a previous skin condition which possible altered the skin flora. However it was possible to treat the exit site infection with antibiogram oriented treatment, without the need of further invasive procedures.
TAUROLIDINE LOCK SOLUTIONS IN REPEAT-PERITONEAL DIALYSIS RELATED PERITONITIS DUE TO PSEUDOMONAS SPECIES: A CASE WITH FAVORABLE OUTCOME

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Objectives
Peritonitis is the most common and severe complication in patients undergoing peritoneal dialysis. Peritoneal dialysis-related peritonitis is also the major cause of catheter removal and technique failure, mainly if concomitant catheter infection is present. Peritonitis caused by Pseudomonas species are often associated with a poor prognosis and relapsing and repeat-episodes. Instillation of taurolidine lock solutions into the endovascular catheter in patients undergoing hemodialysis has shown a decrease in the number of infections by avoiding the development of a biofilm. Few data have been published for this procedure in peritoneal dialysis catheters. We report a case of successful treatment of the fourth episode of repeat-peritoneal dialysis-related peritonitis caused by Pseudomonas aeruginosa, after the instillation of taurolidine lock solution into the peritoneal catheter.

Methods
A 68-year-old caucasian woman with end-stage renal disease secondary to cardiorenal syndrome was admitted to our hospital with a diagnosis of peritoneal dialysis-related peritonitis due to Pseudomonas aeruginosa infection, complicated by bacteremia and septic shock. Despite antibiogram-guided treatment with dual intraperitoneal antibiotic therapy for three weeks, she presented in the following months three other episodes of Pseudomonas repeat-peritonitis. Due to her cardiovascular condition transferece to hemodialysis was discarded.

Results
We decided to add taurolidine lock solution into the peritoneal catheter, firstly twice a week, then once a month. Our patient developed a favorable outcome with clinical and microbiological remission. She has not presented new episodes in the last five months. All cultures remain negative.

Conclusions
We would like to suggest the relevance that taurolidine lock solutions may have in cases of repeat peritoneal dialysis-related peritonitis in order to decrease recurrences and avoid catheter removal. Nevertheless, the available data is too limited, and more studies are required.
IN HOSPITAL OR AMBULATORY TREATMENT OF PERITONITIS: ARE THERE INDICATORS FOR A SAVE AMBULATORY TREATMENT?

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Objectives
ISPD Peritonitis Recommendations indicate that the degree of abdominal pain and tenderness are important factors for hospitalisation admission. Patients with minimal pain could be treated in ambulatory. The aim of the study was to analyse patient and laboratory characteristics of peritonitis treatment regimens.

Methods
Incident patients with peritonitis symptoms during the period 2009 - 2017 were included in this retrospective study. The medical decision, ambulatory treatment or hospitalisation, was not defined by internal guidelines. 107 peritonitis episodes were registered in 49 adult patients, out of these 46.7 % were treated in ambulatory. Hospitalisation rate per year varied between 30.8 and 87.5 %. Differences between treatment regimens were analysed by Mann-Whitney and X2-test.

Results
There were no differences regarding the distribution of gram positive and negative pathogens (prevalence of gram positives in each group). Cultures of three episodes showed fungi. In the ambulatory group, culture negative peritonitis was present in 24% whereas in 8.8 % in the hospitalisation group (p=0.03). Duration of hospitalisation was 9 days (median). Three patients died during hospitalisation due to intestinal perforation whereas no patient in the ambulatory group. In the latter group, patients were significantly older (73 vs 70 years), presented shorter time on dialysis (17 vs 25 months), had lower C reactive protein (2.1 vs 12.0 mg/dl), lower creatinine (8.11 vs 8.99 mg/dl), higher albumin (3.41 vs 3.25 g/dl), lower dialysate leukocyte count (1562 vs 3970 /mm3) and higher dialysate leukocyte reduction (82% vs 60% after 24 hours) (all median values). Initial blood leucocyte count was similar in both groups (7280 vs 7820 /mm3). Ambulatory treated patients presented lesser pain intensity, whereas all patients with severe pain were treated in hospital.

Conclusions
Shorter time on dialysis, lower C reactive protein, lower dialysate leukocyte count and absence of severe pain at peritonitis presentation might indicate safe ambulatory treatment.
HDAC1 INHIBITION BY MS-275 IN MESOTHELIAL CELLS LIMITS CELLULAR INVASION AND PROMOTES MMT REVERSAL

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Objectives
To evaluate the effect of Histone Deacetylases (HDACs), key components of the epigenetic machinery regulating gene expression, in the re-acquisition of epithelial-like features by mesenchymal mesothelial cells (MCs) and molecular mechanisms involved.

Methods
MCs were isolated from effluent of PD patients. Alternatively, MeT5A mesothelial cell line was used. Cells were treated with three different selective HDAC pharmacological inhibitors: Trichostatin A (class I and II inhibitor), MS275 (class I inhibitor) and MC1568 (class II inhibitor). As a verification of MS-275 specificity, compound MC2500, an inactive meta isomer of MS-275 was also used. Moreover, HDAC1 was silenced with a specific siRNA. Alternatively, epithelial-like MCs were treated with stay safe balance PD fluid to induce MMT and treated as above.

The expression of epithelial-mesenchymal cell markers was evaluated by qRT-PCR, western blot analysis on cell lysates. Cell morphology was analysed by confocal microscopy. Moreover, cells were subjected to scratch assay and 3-Dimensional invasion assays on Matrigel using Ibidi chambers. Chromatin Immunoprecipitation (ChIP) experiments to analyse Snail/HDAC1 interactions with E-cadherin promoter were performed.

Results
While the effect of other inhibitors was limited to a partial E-cadherin re-expression, MS-275, a HDAC1-3 inhibitor, promoted: i) downregulation of mesenchymal markers (MMP2, Col1A1, PAI-1, TGFβ1, TGFβRI) ii) upregulation of epithelial markers (E-cadherin, Occludin), iii) upregulation of microRNA endowed with anti-fibrotic activity, iv) reacquisition of an epithelial-like morphology and v) marked reduction of cellular invasiveness. Results were confirmed by HDAC1 genetic silencing. Mechanistically, MS-275 causes: i) increase of nuclear histone H3 acetylation ii) rescue of the acetylation profile on E-cadherin promoter, iii) functional impairment of Snail, the EMT master gene.

Conclusion
Overall, our study, pinpointing a role for HDAC1, revealed a new player in the regulation of peritoneal fibrosis, providing the rationale for future therapeutic opportunities.
OBJECTIVES

Peritoneal Dialysis (PD) is a time-limited procedure due to alterations of the Peritoneal Membrane (PM), as fibrous thickening and vasculopathy. Biopsy studies demonstrated MP thickening in PD, correlated with dialysis duration and failure. Ultrasonographic (US) studies showed a non-invasive measure method, founding direct correlation of thickness with permeability, not always with PD duration. So far, all previous US studies evaluated only the PP. As the risk for Encapsulating Sclerosing Peritonitis (ESP), involving the Visceral Peritoneum (VP), increases over time, our purpose was to measure by US the VP too. We also calculated Doppler indexes of Superior Mesenteric Artery (SMA) and Celiac Trunk (CT).

METHODS

We examined 22 adult patients for 36.4±25.6 (4-86) months in DP, without peritonitis, surgery, abdominal diseases along the previous six months. US were performed by single operator, with MyLab/Alpha-Seven Esaote®. After measuring Doppler indexes of splanchnic arteries, we scanned the PM following a standardized procedure in the four quadrants: Q1/right-upper, Q2/right-lower, Q3/left-upper, Q4/left-lower.

RESULTS

Mean PP resulted thicker than VP, not significatively (PP 493±138μ vs VP 473±124μ). They strictly correlated each other (r=0.841, p<0.000001). The lowest variability index were found in Q1 and Q3. Unlike previous studies focused on PP, here resulted a significative inverse correlation between VP and dialysis duration (meanVP r -0.337, p<0.043) (VP/Q1 r -0.445, p<0.038). Mean PP correlated positively with BMI (r=0.439, p<0.041). As for RI values of splanchnic arteries, no correlation was found with VP or PP.

CONCLUSIONS

We observed greater thickness of PP vs VP; they correlated well each other and to BMI. We explored first the measure of VP thickness by ultrasonography, useful in monitoring ESP risk. Our most striking finding was the decreasing thickness of VP over time on dialysis, which agrees with some studies on PP suggesting that thickening of PM is not inevitable, when membrane function is preserved.
PERITONEUM MORPHOLOGY AND HEART STRUCTURE ON PERITONEAL DIALYSIS

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Objectives
Cardiovascular complications are responsible for higher mortality and morbidity in chronic kidney disease (CKD) patients (pts). In these pts, the peritoneal membrane begins to undergo morphological changes before the start of chronic peritoneal dialysis (CPD). The present study was conducted to evaluate the morphologic changes on the peritoneum at the beginning of CPD and its impact on survival, peritoneal ultrafiltration as well as its correlation with heart structure.

Methods
We reviewed the clinical records of pts that started CPD between 1 January 2012 and 31 December 2017 and divided them in Diabetic mellitus (DM) and non DM. At the time of CPD catheter insertion, the peritoneum was sampled to assess the presence or absence of mesothelial cell denudation, acellular sclerotic changes in sub-mesothelial connective tissue. Echocardiography and ankle-brachial index assessment were performed.

Results
109 pts, 35% DM, 65% non DM. Both groups had similar age. Sub-mesothelial connective tissue thickness was significantly greater in the DM (p < 0.023). During the follow up there were no differences in the incidence of hospitalizations, cardiovascular events, or peritonitis rate between the two groups. DM had lower PTH, same KT/V and ultrafiltration. No correlation was found with the presence of fibrosis and peritoneal kinetic study and ultrafiltration volume. There were no differences in peritoneal fibrosis and echocardiographic indices. There was statistically significant higher ankle-brachial index in DM. There were some linear correlations between: Pulse pressure vs age (R=0.68; p=0.03); peritoneal fibrosis vs diastolic pressure (R=0.61; p=0.028) only in DM. The mean survivals were similar.

Conclusions
Peritoneal membrane damage seems to be an integrated part of cardiovascular system damage in CKD but, regardless morphological changes of the peritoneum at the start of CPD, our findings indicate that CPD is a successful dialysis option for diabetic patients during the first years of this renal replacement therapy.
**Objective**

To assess the effects of four Peritoneal Dialysis Fluids (PDFs; CAPD, Bicavera, Balance and Physioneal) on the induction of contractile phenotype in mesothelial cells as an index of Mesothelial-to-Mesenchymal Transition (MMT).

**Methods**

MeT-5A mesothelial cells were used in the study. $10^6$ synchronized cells/mL were embedded into neutralized collagenous mixture of 10% RPMI+PDFs in 1:1 ratio in 24-well plates. Gel were scanned and their area was measured at 24, 48 and 72 hours after application of the PDFs in order to determine the kinetics of gel contraction.

**Results**

In comparisons among the four PDFs at 72 hours, the gel areas of Bicavera group (71.61±0.45%) was significantly higher than CAPD (65.12±2.03%; p<0.01) and Physioneal (67.76±1.09%; p<0.01) groups. No other differences were found.

Comparing of the kinetics of gel contraction in each PDF group, the gel areas in all cases were significantly lower after 48 hours compared to 24 hours (CAPD 24 hours: 74.18±0.96%, p<0.01 vs CAPD 48 hours: 68.11±1.83%; Bicavera 24 hours: 77.31±0.76%, p<0.001 vs Bicavera 48 hours: 72.61±0.52%; Balance 24 hours: 77.51±0.82%, p<0.001 vs Balance 48 hours: 73.4±0.81%; Physioneal 24 hours: 76.38±0.83%, p<0.001 vs Physioneal 48 hours: 69.93±0.94%, p<0.001). Gel areas after 72 hours were significantly lower compared to 24 hours of incubation in all groups (CAPD 72 hours: 65.12±2.04%, p<0.001; Bicavera: 71.61±0.46%, p<0.001; Balance: 69.27±0.68%, p<0.001; Physioneal: 67.76±1.09%, p<0.001).

Gel areas at 72 hours were significantly lower compared to 48 hours in CAPD (48 hours: 68.11±1.83%, p<0.01 vs 72 hours: 65.12±2.04%) and Balance (48 hours: 73.4±0.81%, p<0.01 vs 72 hours: 69.27±0.68%).

**Conclusions**

Bicavera induced significantly less mesothelial cell contractile phenotype after 72 hours incubation. Gels containing CAPD and Balance demonstrate continuous gel contraction while but Bicavera and Physioneal did not. Overall in this functional assay Bicavera was superior in delaying MMT features compared to the other 3 PDFs.
TARGETING HISTONE DEACETYLASE IN RENAL TUBULAR EPITHELIAL CELLS INHIBITS AMPLIFICATION OF TH1 CELL-MEDIATED INFLAMMATION

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Objectives
More studies are focusing on renal tubular epithelial cells (RTECs) as a new target to restore inflammatory environment as clarifying their immune regulatory function. Here, we investigated whether histone deacetylases (HDACs) are activated in RTECs during T cell-mediated inflammation and their blockade is able to reduce the inflammatory responses.

Methods
Human renal proximal tubular epithelial cell line HK-2 was cultured in the presence or absence of recombinant interferon gamma (IFN-g) 200 U/ml plus tumor necrosis factor alpha (TNF-a) 5 ng/ml. The HDAC activity was determined on the expression levels of acetylated H3 and a-tubulin by immune blot assay. To determine the functional activity of HDAC inhibitor SB939, we analyzed the immune stimulatory phenotype of HK-2 cells such as class II MHC molecule, CD80, CD86, and CD40 by flow cytometry. In addition, the culture supernatants were used for measuring cytokines and chemokines by ELISA assay.

Results
We found that HDAC activity was markedly increased in HK-2 cells by treatment of IFN-g/TNF-a within 12 hours. Treatment of pan-HDAC inhibitor SB939 in HK-2 cells completely prevented HDAC activity increased by IFN-g treatment. SB939 treatment predominantly inhibited up-regulating CD40 expression but not MHC class II, CD80, and CD86. In addition, MCP-1 was significantly inhibited more than IL-6 and TNF-a by SB939 treatment. We found that HDAC activity was markedly increased in HK-2 cells by treatment of IFN-g/TNF-a within 12 hours. Treatment of pan-HDAC inhibitor SB939 in HK-2 cells completely prevented HDAC activity increased by IFN-g treatment. SB939 treatment predominantly inhibited up-regulating CD40 expression but not MHC class II, CD80, and CD86. In addition, MCP-1 was significantly inhibited more than IL-6 and TNF-a by SB939 treatment.

Conclusions
Our results demonstrate that 1) HDAC activity is increased in RTECs in response to IFN-g, 2) which further facilitates T cell-mediated inflammatory responses through CD40 and MCP-1. Therefore, our study suggests that HDAC inhibitor has a therapeutic potential for the treatment of chronic inflammatory diseases such as peritoneal fibrosis or tubulointerstitial fibrosis in chronic kidney disease.
THE RELATIONSHIP BETWEEN FIBROBLAST GROWTH FACTOR 23 AND RESIDUAL RENAL FUNCTION AND PERITONEAL TRANSPORT RATES IN PERITONEAL DIALYSIS PATIENTS

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\textsuperscript{1}Doctor, Antalya, Turkey, \textsuperscript{2}Doctor, Antalya, Turkey

Objectives
The mechanism causing the relationship between serum fibroblast growth factor-23 (FGF-23) and all-cause mortality in patients with peritoneal dialysis (PD) is unknown. The aim of our study was to investigate the relationship between FGF-23 and residual renal function (RRF) and peritoneal transport rate (PTR) in PD patients.

Methods
This cross-sectional study included 34 (61.8%) male with a mean age of 53.7±10.8 years and 21 (38.2%) female with a mean age of 52.2±12.4 years. PTR groups were determined with peritoneal equilibration test (PET) and patients were divided into two groups as high (H-PTR) and low (L-PTR). The presence of RRF was determined by residual glomerular filtration rate (rGFR), residual urine output and renal creatinine clearance (CCr). FGF-23 and soluble klotho (s-KL) levels were determined by enzyme-linked immunosorbent assay. Due to the scattered distribution of variables, statistical calculations were determined by log10.

Results
Mean PD time was 44.1 ± 31.2 months. According to PET findings, 28 (50.9%) patients were H-PTR and 27 (49.1%) were in the L-PTR group. The mean rGFR and renal CCr were 5.9 ± 5.7 mL min/1.73 m\textsuperscript{2}, 56.98 ± 52.53 mL/min/1.73 m\textsuperscript{2}, respectively. The mean log10FGF-23, log10s-KL, was 2.16 ± 0.39 pg / mL, 13.9 ± 3.1 ng/mL, respectively. Log10FGF-23 (p < 0.001) was significantly higher in patients than healthy individuals. rGFR (p = 0.007), residual diuresis (p = 0.006), renal CCr (p = 0.001) were lower and L-PTR (p = 0.002) were higher in log10FGF-23 > 2.16 patients than those with log10FGF-23 ≤ 2.16. A positive correlation was observed between log10FGF-23 and PTR (p= 0.350, r = 0.009). A negative correlation was observed between log10FGF-23 and rGFR (r = -0.211, p = 0.003), residual diuresis (r = -0.019, p = 0.002) and renal CCr (r = -0.27, p = 0.006).

Conclusion
High FGF-23 levels were observed in PD patients compared to healthy subjects. In PD patients, elevated serum FGF-23 levels are observed due to hyperphosphatemia, decreased production of bone, decreased renal and peritoneal clearance, and failure to filter the peritoneal membrane of FGF-23 due to proteins. High serum FGF-23 levels were associated with loss of RRF and H-PTR. Increased H-PTR was detected in patients with high FGF-23 levels compared to those with low FGF-23 levels. FGF receptors and sodium-phosphate (P) cotransporters are present on the peritoneal mesothelium. High serum FGF-23 levels may be effective on renal P clearance as well as peritoneal P clearance in PD patients. Low serum FGF-23 levels may also have an effect on the presence of RRF, with the exception of known factors of reduced mortality.

Keywords: Fibroblast growth factor-23, Peritoneal dialysis, Peritoneal transport rate, Residual renal function

Tables

Table 1. Comparison of patient characteristics with healthy control group

<table>
<thead>
<tr>
<th></th>
<th>Patient (n = 55)</th>
<th>Healthy control group (n = 45)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ca (mg/dL)</td>
<td>9.46 ± 0.8</td>
<td>9.26 ± 0.4</td>
<td>0.004</td>
</tr>
<tr>
<td>Mean ± S.S/(%)</td>
<td>4.4 (2.8.4)</td>
<td>3.3 (2.5-38)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>P (mg/dL)</td>
<td>12.2 (4-26.7)</td>
<td>18.1 (6.9-58.9)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>25(OH)\textsubscript{2}VitD (ng/mL)</td>
<td>13.1 (2.1-56.5)</td>
<td>25.2 (4.2-66.2)</td>
<td>&lt; 0.027</td>
</tr>
<tr>
<td>log\textsubscript{10}FGF-23 (pg/mL)</td>
<td>2.16 ± 0.39</td>
<td>2.08 ± 0.29</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Log\textsubscript{10}s-KL (ng/mL)</td>
<td>13.9 ± 3.1</td>
<td>18.2 ± 3.6</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>
Table 2 Comparison of patient characteristics according to mean log\(^{10}\)FGF-23 levels

<table>
<thead>
<tr>
<th></th>
<th>Log(^{10})FGF-23 ≤ 2.16 (n = 27)</th>
<th>Log(^{10}) FGF-23&gt;2.16 (n = 28)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPD APD</td>
<td>22 (81.5%)</td>
<td>21 (75%)</td>
<td>0.561</td>
</tr>
<tr>
<td>H-HA-PTR L-LA-PTR</td>
<td>6 (29.6%) 19 (70.4%)</td>
<td>20 (71.4%) 8 (28.6%)</td>
<td>0.002</td>
</tr>
<tr>
<td>rGFR (mL/min/1.73 m(^2))</td>
<td>6.76 (0.6-20.4)</td>
<td>2.25 (0.2-18.2)</td>
<td>0.007</td>
</tr>
<tr>
<td>Residual urine output (mL/day)</td>
<td>1000 (20-2000)</td>
<td>500 (50-10000)</td>
<td>0.006</td>
</tr>
<tr>
<td>Renal Kt/Vurea CCr (mL/min/1.73 m(^2))</td>
<td>1.11 (0.15-2.92) 70.89 (6.4-173.93)</td>
<td>0.32 (0.02-1.87) 19.3 (0.04-139.7)</td>
<td>0.004 0.001</td>
</tr>
</tbody>
</table>
CALCINEURIN INHIBITORS AND ENCAPSULATING PERITONEAL SCLEROSIS IN TRANSPLANTED PERITONEAL DIALYSIS PATIENTS

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Objectives
The prevalence of encapsulating peritoneal sclerosis (EPS) in peritoneal dialysis (PD) patients varies from 0.7 to 3.3%, the reported mortality range is 25–55% and increases with the time spent on PD. The "post-transplantation EPS" (PT-EPS) usually appears within two years from PD interruption in patients who have received a kidney transplantation (KT). One of the hypothesized pathogenesis of PT-EPS is the immunosuppressive therapies with calcineurin inhibitors (CNIs).

Methods
A monocentric retrospective study in transplanted PD patients (KT-PD) between 1979 and 2018. Data on demographics, occurrence of PT-EPS, time on PD, time on KT, and immunosuppressive therapy schedule were gathered.

Results
One thousand and fourteen patients used peritoneal dialysis: 229 kidney transplantation was performed in 215 (21.4%) patients. 199 (86.9%) received a single kidney from deceased donors, 17 (7.4%) patients received a kidney from living donors, 11 (4.8%) patients received twice kidney transplant, two (0.9%) received a combined kidney-pancreas transplantation. Nine (4.4%) patients were submitted to two transplants: eight patients from deceased donors and one from a living donor. PT-EPS occurred in 5/215 KT-PD with a prevalence of 2.5%, like to that of the DP patients not transplanted (21/977= 2.1%). 96.4% of KT-PD was in therapy with CNIs: the most common drug associations were corticosteroids (ST, 41%), Mycophenolate Mofetil (MYC, 34%) or both (42%). mTOR-Inhibitors (mTOR-Is) was associated to CNIs (25%), CNIs plus ST (24%) and ST (7%). Mortality due to PT-EPS was 4.3%.

Conclusions
In our experience the prevalence of PT-EPS is low and like to C-EPS. The CNIs therapy does not appear to be a key factor for PT-EPS. For KT-PD patients we believe proposable and safe an immunosuppressive scheme based on the use of CNIs, but always associated with mTOR-Is and/or in MYC and/or corticosteroids.
PERITONEAL JUNCTION PROTEINS AND THEIR REGULATION BY PERITONEAL DIALYSIS

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Objectives
Limited fluid and solute transport capacity is a major drawback of PD. Junction-proteins represent the molecular counterparts of peritoneal semipermeability and transport function. Understanding of their expression, function and regulation is mandatory to design novel PD fluids with improved and sustained efficacy.

Methods
We performed arteriolar transcriptome and proteome analyses in children with normal renal function, CKD5 and on PD with acidic, high GDP and neutral pH, low GDP PD fluids, respectively. Eight junction components were validated immunohistochemically in parietal peritoneum. Transepithelial resistance (TER) and transport capacity were quantified in human primary peritoneal mesothelial and endothelial cells and junctions localized by super resolution microscopy.

Results
Gene ontology and pathway analyses revealed regulation of arteriolar junction proteins and associated pathways by PD. Scaffolding protein ZO-1 was upregulated in low GDP PD, while sealing proteins CLDN1,-3 and -5 were downregulated. Parietal peritoneal junction abundance was age dependent and unchanged in children with CKD5, but modified by PD. Mesothelial and endothelial abundance of the selective cation/ water channel CLDN-2 increased in patients on low and high GDP PD, endothelial and mesothelial occludin remained unchanged.

TER was increased 3- and 4-fold in mesothelial and endothelial cells after incubation with high GDP PD fluid, 10kDa transport was reduced. Low GDP fluid transiently increased TER without changing the 10 kDa transport function. Addition of alanyl-glutamine to low GDP PD fluid, increased resistance, restored ZO-1, OCL and CLDN5 at cell-cell contacts, and pore-forming CLDN2 was clustered at the nanoscale.

Conclusions
Endothelial and mesothelial junction proteins exhibit age-dependent expression, remain unaltered in CKD5, but are differentially regulated by low and high GDP PD fluid; the cellular barrier and transport function is altered. Junctions represent promising therapeutic targets for modulation of peritoneal function, e.g. by alanyl-glutamine, shown to reduce peritoneal protein loss in a recent clinical trial (Vychytil et al., KI 2018).
P-150
THE IMPACT OF GENE POLYMORPHISMS IN INTERLEUKIN-6 (IL-6), VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) AND TRANSFORMING GROWTH FACTOR BETA (TGFβ) IN PERITONEAL DIALYSIS PATIENTS

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Objectives
Peritoneal concentrations (PI) of markers of peritoneal fibrosis such as VEGF, IL-6, TGF-beta and CA-125 could have a significant role on development of peritoneal membrane failure. The aim of our study was to assess the role of polymorphisms in different genes (-634 G/C and -2549 I/D in VEGF respectively, -174G/C in IL6, -869 T/C and -509 C/T in TGF-beta respectively) on concentration, production velocity (v) of those markers and transport characteristics of peritoneal membrane during the treatment.

Methods
Thirty-seven subjects treated with CAPD were enrolled in the study. Polymorphisms were analyzed with PCR method and RFLP when it was needed. Change of ultrafiltration (UF)/month of peritoneal dialysis duration was defined as stable, reduced (drop of UF from the start; L-UF/PD) and increased (rise of UF from the start; H-UF/PD).

Results
There was a lower v(PI-CA-125) in group of patients with GG polymorphism (GG vs. G/C+CC) in VEGF(-634G/C) (p<0.05), but no difference in its peritoneal concentration and change in ultrafiltration. A one-way ANOVA test revealed that polymorphism in IL-6(-174G/C) affects PI-TGF-beta and v(PI-TGF-beta) (p<0.05). Further Mann-Whitney test indicates that patients with genotype GG (GG vs. GC+CC) had higher PI-TGF-beta (U = 34, p<0.001), but same velocity of its production and no changes in UF.

Patients with CT genotype (CT vs. TT+CC) of TGF-beta(-509C/T) polymorphism had lower PI-CA-125 (p<0.05) and v(PI-CA-125) (p<0.05). They also had H-UF/PD (p<0.05). Patients with TT genotype had higher PI-CA-125 and L-UF/PD (p<0.05) without impact on v(PI-CA-125).

There were no differences in studied parameters for VEGF (-2549 I/D) and TGF-beta (-869 T/C) polymorphisms. We also didn’t observe any statistical difference in peritoneal concentrations and production velocity of IL-6 and VEGF.

Conclusions
Statistically lower PI-CA-125 and v(PI-CA-125) in the group of patients with CT genotype in gene TGF-beta is associated with pronounced drop in UF, which suggests this genotype as “unfavorable” one and connects it with worse outcome. On the other hand, TT genotype in gene TGF-beta seems to indicate better membrane survival.
EFFECTS OF ANGIOTENSIN CONVERTING ENZYME BLOCKERS, ANGIOTENSIN RECEPTOR BLOCKERS AND STATINS ON PERITONEAL TRANSPORT AND INFLAMMATION MARKERS

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Objectives
Therapy with angiotensin converting enzyme inhibitors (ACE) and angiotensin receptor blockers (ARB) as well as statins might protect the peritoneal membrane and vessels in peritoneal dialysis patients. The aim of this study was to analyse the effect of treatment on peritoneal transport and inflammation markers.

Methods
The first two peritoneal equilibration tests in adult peritoneal dialysis patients, respectively 6 and 12 months after dialysis start, were analysed for this retrospective study. Use of ACE, ARB and statins was registered. Serum C reactive protein, blood leukocyte and platelet count were used as inflammation markers. Data sets of 173 examinations were acquired. Mann Whitney U test was performed for the comparison of therapy groups. Median patient age was 66 years.

Results
80 measurements (46,2%) were without ACE and ARB, whereas 90 measurements (52%) without statins. D/P creatinine in patients without ACE, ARB and statins was 0.63 (all median values, 39 cases), respectively in patients under therapy with ACE, ARB and statins 0.65 (43 cases). Use of ACE and ARB without statins resulted in D/P creatinine 0.64 (50 cases), whereas use of statins alone in D/P creatinine 0.62 (41 cases). The differences between groups was statistically not significant. There was a tendency of higher values of D/P creatinine (median 0.68) in patients under therapy with ACE and statins. Serum C reactive protein was higher in patients without ACE, ARB and statins compared to patients with ACE, ARB or statins (0.60 versus 0.27 mg/dl, p<0.05). Furthermore platelet count was slightly higher in patients without ACE, ARB and statins (258000 versus 229000 /mm3). Blood leukocyte count did not present significant differences (median values 8300 to 8600 /mm3).

Conclusions
Our limited data suppose the absence of a protective effect of ACE, ARB and statins on peritoneal transport expressed by P/D creatinine despite reduced signs of systemic inflammation.
ICODEXTRIN IN CHILDREN ON PERITONEAL DIALYSIS, ALGERIAN EXPERIENCE

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Objectives
The peritoneal dialysis is a modality of renal replacement therapy commonly prescribed in paediatric patients while waiting for renal transplantation. The loss of Ultrafiltration is one of reasons for abandoning the modality. Icodextrin, a solution of polymer glucose (Baxter) provide sustained ultrafiltration over a long dwell time. We report our experience as for the use of icodextrin fluid.

Methods
Retrospective study on all patients whom the peritoneal dialysis icodextrin fluid was used between 2015 and 2018. The extraneal fluid was used for patients presented insufficient ultrafiltration with sodium and water overload.

Results
A total of 124 patients received chronic PD at our service during the study period. 28 children were treated by icodextrin. Underling renal disease were glomerular disease (11), CAKUT (5), hereditary nephropathy (4), unknown (2), others (6). 23 children were on CAPD and 05 children on CCDP (all solutions PD from Baxter), their median age was 9,4years (0, 5 - 15,3years). the median age of initiating PD was 6,5years (0,2 – 13,6), the median age of icodextrin’s introduction was 7,5years (0,3 – 15), the time between PD start and introduction of icodextrin was 1,4years (2weeks – 7,5years).

The median time on PD was 3 years: (0,16 - 8 ).The median time on icodextrin was 1,5 years (0,16- 3,5). The fill volume of icodextrin was 400-1550ml/m2 SBA. the time dwell was 8-12h . A mean of UF volumes solutions: icodextrin 460 ml/m2 (70 - 900), 3,86% glucose fluid 400 ml/m2 (90-900), 1,36% glucose fluid 160 ml/m2 after 12h dwell (-100 → 450). No Side effects of icodextrin was noted.

Conclusions
Our observations reveal that icodextrin is safe and it optimized ultrafiltration, it allowed to extend the duration of peritoneal dialysis and save the lives of patients whose peritoneal dialysis was the only choice.
P-153
MANAGEMENT OF CHILDREN REQUIRING PERITONEAL DIALYSIS(PD) AT GREAT ORMOND STREET HOSPITAL: INTRODUCTION OF A REMOTE PATIENT MANAGEMENT(RPM) PLATFORM

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Objectives
To investigate the impact of the introduction of a web-based, RPM platform (SharesourceTM) on delivery of home PD services at Great Ormond Street Hospital, London.

Methods
A retrospective review of medical records of children receiving automated PD for ≥1 day was conducted over two 6-month time periods, pre and post-implementation of RPM. Data were collected on the number and type of programme changes made to individual patient’s dialysis programmes and whether these changes occurred at the time of clinic or remotely to the patient at home.

Results
Following implementation of RPM, the number of PD programme changes increased by 35%. A substantial proportion of these were related to adjusting the default drain alarm settings within the PD machine – the daily drain data now visible with RPM, enabled patient drain volumes to be optimised with confidence. Programme changes made at home increased by 73% per patient per month (0.11 to 0.19). A nurse-led telemedicine clinic was launched for specific patients using RPM, resulting in the number of PD hospital based consultations falling by 20% per patient per month (1.2 to 1.0), with no adverse effect of patient safety.

Conclusions
Clinicians were able to execute a more personalised dialysis programme to patients with more timely adjustments; there was a shift towards greater virtual and remote care.
P-154
END STAGE RENAL DISEASE: PERITONEAL DIALYSIS MEDICAL CARE FOR CHILDREN

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Objectives
Peritoneal dialysis (PD) represents the technique of choice in the management of the child with end-stage renal disease (ESRD), we report a series of 12 children in ESRD treated with PD.

Methods
We report a study of 12 cases of patients aged between 5 and 15 years treated by peritoneal dialysis (CAPD and APD), the parameters of the study are: age, sex, initial pathology, duration of dialysis, the presence of peritonitis and finally the evolution.

Results
Children aged between 10 and 15 represent 77.7%. The male population in 66.66% of the cases, the average duration of PD is 3.3 years in APD and 1.6 years in CAPD, peritonitis are present in CAPD: 44.44%. The evolution was favourable for most of our patients.

Conclusions
Peritoneal dialysis remains the technique of choice in the management of the child's ESRD and awaiting a renal transplant. Strict adherence to the rules and recommendations of good clinical practice for the adequacy of PD of rule.
Objectives
Acute renal failure (ARF) is less frequent in children than in adults, but it can be life-threatening by the risk of acute lung edema and hyperkalaemia, requiring early implementation treatment. PD remains the technique of choice for infants and young children.

Methods
We retrospectively studied 15 cases of children with acute renal failure treated with peritoneal dialysis between 2006 to 2016.

Results
The age of these children was 3 years with a range from newborn to 15.5 years of age. The children are male in 86% and only 14% female.

Causal nephropathy is a hemolytic-uremic syndrome in 100% of cases. They received continuous ambulatory dialysis (CAPD) with transfusion of red blood cells in 53% of cases, antihypertensive treatment in 23% of the cases, platelet transfusion in 11% of cases, only 01 patient benefits from a specific treatment based on eculizumab. Recovery occurred in 80% of the cases, 13% died and 6% developed ESRD.

Conclusions
Peritoneal dialysis (PD) is an extra-renal (ERA) method that should be proposed as a first-line treatment for acute renal failure in children.
P-156
HISTOMORPHOMETRIC VALIDATION OF PARIETAL PERITONEAL MEMBRANE ULTRASOUND FINDINGS

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Objectives
Peritoneal dialysis (PD) induces progressive peritoneal membrane transformation, i.e. submesothelial fibrosis and angiogenesis, which deteriorate peritoneal transport function. Measurement of peritoneal ultrastructure by ultrasound has been suggested for evaluation of the PD membrane status, respective validation is scant.

Methods
Within the scope of the International Pediatric Peritoneal Biopsy Study standardized parietal peritoneal tissue sampling was followed by ultrasound measurements in 24 children, median age 7.9 (4.2, 12.5) years. 11 children were at time of PD catheter insertion (CKD5), 12 on PD for 27.0 (5.6, 36.0) months; 5 had a history of peritonitis. The ultrasound of the area neighboring the sampling site was performed within one week of tissue sampling using a 13 und 18 MHz transducer. Peritoneal tissue samples underwent HE/CD31 staining and digital tissue imaging analyses.

Results
Peritoneal submesothelial tissue thickness was 285 (100, 459) µm. Respective minimal membrane thickness measured by ultrasound was 250 (200, 360) µm, maximal 330 (300, 410) µm and mean thickness 275 (250, 380) µm. Submesothelial thickness correlated with minimal (rho=0.556, p=0.020), maximal (rho=0.457, p=0.087) and mean peritoneal thickness measured by ultrasound (rho=0.427, p=0.078). Within the limits of small numbers, there was no difference in the accuracy in patients with and without history of previous peritonitis and in patients with CKD5 and while on PD. Tissue imaging technique did not improve imaging quality. Parietal peritoneal vessel density and omental tissue findings could not adequately be quantitated by means of ultrasound.

Conclusions
Ultrasound measurements provide information on peritoneal membrane thickness. Repeated ultrasound measurements, which are related to previously published age related reference values, should give an estimate of the fibrotic transformation process of the parietal peritoneum. Valid information on peritoneal ultrastructural transformation including predictive markers such as inflammation, vascularization and EMT still require tissue sampling on occasion of abdominal surgery.
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