trio⁴ were instilled intraperitoneally (i.p). Dialysate volume was followed as a function of time using i.p. RISA (^{125}I human serum albumin). A ^{51}Cr-EDTA infusion was given intravenously. Microsampling (10 µl) of plasma and dialysate was performed repeatedly during 2 h for determinations of glucose, Na^+, hematocrit, RISA and ^{51}Cr-EDTA. The clearance of RISA from plasma to peritoneum was determined in separate experiments (n=7).

Peritoneal volume vs. time curves [V(t)], in percent of infused volume, were very similar to those earlier observed in rats. The clearance of RISA out of the peritoneal cavity was 8.91±1.0 µl/min and the clearance of RISA to plasma was 1.49±0.13 µl/min. The mass transfer area coefficient (PS) for glucose and Cr-EDTA were on average approximately 10-15 % of the values characteristic for a 300 g rat (PS for glucose and PS for Cr-EDTA were 29.6±3.1 µl/min and 34.3±5.8 µl/min, respectively). The RISA Cl→D was, however, only 0.13±0.04 µl/min (~2 % of rat value).

In conclusion peritoneal transport coefficients in mice were on average 10-15 % of those previously assessed in 300 g rats. Data in rats and mice were in close agreement when adjusted by the scaling factor (body weight)$^{0.7}$. By contrast, Cl→D in mice was much lower than predicted. The low Cl→D in mice may be explained by the fact that large solute exchange, in contrast to small solute exchange, occurs from capillaries distributed within the whole depth of the peritoneum in a rat (~1 mm). The lower Cl→D in mice may be explained by the much thinner mouse parietal tissues (0.2-0.3 mm), having less capillaries that can leak macromolecules.

F-PO411

Classification of Peritoneal Membrane Function in Uremic Patients Prior to Dialysis: Comparison between Artificial Neural Network and Logistic Regression Models. Chiou-An Chen,[1] Jainn-Shiun Chiu,[2] Chee-Fah Chong,[3] Shih-Hua Lin,[1] Kuo-Cheng Lu,[4] Pauling Chu,[1] Yuh-Feng Lin,[1] Yu-Chuan Li.[5] *[1]Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei City, Taiwan; [2]Department of Nuclear Medicine, Buddhist Dalin Tzu Chi General Hospital, Chiayi County, Taiwan; [3]Emergency Department, Shin Kong Wu Ho-Su Memorial Hospital, Taipei City, Taiwan; [4]School of Medicine, Fu-Jen Catholic University, Taipei County, Taiwan; [5]Graduate Institute of Medical Informatics, Taipei Medical University, Taipei City, Taiwan.*

High peritoneal membrane function (PMF) carries a higher morbidity and mortality in continuous ambulatory peritoneal dialysis (CAPD) patients. Prescription in accordance to an accurate classification of PMF will result in a better prognosis. Therefore, we constructed and compared each performance of an artificial neural network (ANN) and a logistic regression (LR) model in predialytic classification of PMF.

We retrospectively analyzed 112 uremic patients (50 male and 62 female, age 49.3±15.3 years) in a 6-year database. Predictive variables included predialytic parameters (demographic characteristics, associated diseases, blood and urinary biochemistries) and outcome variable consisted of the type of PMF defined by standard peritoneal equilibration test, which can either be Group H (high and high average transporters, n = 57) or Group L (low average and low transporters, n = 55). For assessing ability of each model, receiver-operating characteristics (ROC) curve with discriminating power determined by area under ROC curve (AUC) was used.

The final best ANN model was a feed-forward, multilayer perceptron (MLP) using back-propagation supervised training algorithm. The MLP model had a higher (sensitivity, specificity) of (75.4%, 72.7%), compared to (57.9%, 58.2%) from the LR model. Pairwise comparison of each ROC curve showed that MLP model significantly outperformed LR model (AUC = 0.769±0.044 vs. 0.659±0.051, p = 0.044) in a better calibration.

In conclusion, ANN had a better performance than traditional LR model in predialytic classification of PMF and might be helpful in delivering optimal CAPD prescription.

F-PO412

BMP-7 Antagonize TGF-β-Induced Epithelial Mesenchymal Transdifferentiation in Peritoneal Mesothelial Cells. Jinn-Yang Chen,[1] Chi-Chang Juan,[2] Hui-Ling Chen,[3] An-Hang Yang,[4] Wu-Chang Yang,[1] *[1]Division of Nephrology, Taipei Veterans General Hospital, Taipei, Taiwan; [2]Institute of Physiology, National Yang-Ming University, Taipei, Taiwan; [3]Center of Livre Disease, National Taiwan University Hospital, Taipei, Taiwan; [4]Department of Pathology, Taipei Veterans General Hospital, Taipei, Taiwan.*

Epithelial mesenchymal transdifferentiation (EMT) of mesothelial cells was observed in the process of peritoneal fibrosis in long-term peritoneal dialysis (PD) patients. In order to examine the mechanisms of EMT, bone morphogenic protein-7 (BMP-7) was administered to antagonize the pro-fibrotic effects of TGF-β in cultured human peritoneal mesothelial cells (HPMC).

EMT of HPMC was induced by treating HPMC with TGF-β for 48 hours. Bone morphogenic protein-7(BMP-7) was added 30 minutes before the addition of TGF-β to antagonize the effects of TGF-β. The expressions of cytokeratin, α-SMA and E-cadherin were assessed by immunofluorescence microscopy and immunoblot analysis.

Inverted microscope revealed the change of HPMC into myofibroblastic morphology after TGF-β (0.6 ng/ml) treatment. BMP-7 block TGF-β-induced morphologic transformation. Immunofluorescence study showed TGF-β induced the expression of α-smooth muscle actin (α-SMA) and suppressed the expression of E-cadherin in HPMC. BMP-7 block the induction of α-SMA by TGF-β and restore the expression of E-cadherin. Western blot showed that TGF-β induced the expression of α-SMA in a dose-dependent manner.

Our results revealed that EMT of peritoneal mesothelial cells could be abrogated by BMP-7. Strategies targeting at the prevention or interruption of EMT process of HPMC might be a method to preserve peritoneum in long-term PD patients.

F-PO413

Do Antibiotics Added to Filtered, Buffered Dialysis Solutions Affect Transport Properties of Rat Peritoneal Barrier after 60 Daily Treatments? Jaehwa Choi,[1] Kimberly Credit,[1] Karla Henderson,[1] Ravi Deverkadra,[1] Heather M. Vanpelt,[1] Zhi He,[2] Michael D. Hughson,[2] Lafayette Wales,[3] Barry J. Robert,[4] Michael F. Flessner.[1] *[1]Medicine, Univ MS Med Ctr, Jackson, MS; [2]Pathology, Univ MS Med Ctr, Jackson, MS; [3]Laboratory Medicine, Univ MS Med Ctr, Jackson, MS; [4]Laboratory Animal Facilities, Univ MS Med Ctr, Jackson, MS.*

High infection rates, reported recently in an animal model of peritoneal dialysis, result in pathophysiological changes in the peritoneum, such as fibrosis and neoangiogenesis. We hypothesized that the use of antibiotics in our rat model would alter the acute infection rate but have no significant effect on the transport properties. To address this, rats (female Sprague-Dawley, 200-300g, n=10 each group) were injected daily with 30-40 ml of a sterile solution for two months via peritoneal catheters tunneled to a subcutaneous port in the neck or flank. Solutions were: Krebs-Ringer solution (KR), KR with antibiotics (A, cefazolin 200 mg/L and gentamicin 2 mg/L), KR with 4% dextrose (D), and KR with both dextrose and antibiotics (D+A). After 2 mo, transport of water, small and large molecules was assessed in each animal and peritoneal fluid was cultured for bacteria. Fibrosis and angiogenesis were evaluated by quantitative image analysis of tissue sections stained with trichrome and CD31. Technical survival was slightly lower in the D (90% survival) than in all other groups (over 90%). The infection rate in D was 10%, whereas it was 20% in D+A. There was no difference among the groups in the mass transfer of mannitol, protein, osmotic ultrafiltration, or pressure-driven convection. Fibrosis and angiogenesis appeared to be increased in all of the groups treated with peritoneal dialysis solution compared to catheter and age control groups (Age=CC). Results for the thickness of the collagen layer were: Age+CC 65±24, KR 193±47, A 91±27, D 133±31, D+A 70±8 (µm, mean±SE, n>6). Numbers of vessels·mm² were: Age=CC 108±45, KR 317±82, A 179±43, D 175±28, D+A 140±28 (mean±SE, n>6). In summary, addition of antibiotics to dialysis solution does not affect the apparent transport characteristics of the peritoneum or the pathologic reaction of the tissue to solutions.

F-PO414

Characteristics of the Peritoneal Membrane Permeability at Onset of Peritoneal Dialysis (PD) and Longitudinal Follow-Up. Eric Goffin,[1] Gaetan Clerbaux,[1] Julie Francart,[2] Pierre Wallemacq,[3] Annie Robert.[2] *[1]Nephrology, Universite Catholique de Louvain, Brussels, Belgium; [2]Epidemiology and Biostatistics, Universite Catholique de Louvain, Brussels, Belgium; [3]Medical Biology, Universite Catholique de Louvain, Brussels, Belgium.*

A 2.27 % glucose PET defines peritoneal permeability (PP) for small solutes while a 3.86 % glucose PET adds sodium sieving determination. Reference values for 3.86 % glucose PETs at PD onset, their clinical determinants and evolution during PD remain unknown.

We document them in 72 consecutive patients (all on CAPD) at PD onset, and in 35 (25 on APD, 34 on icodextrin) and 18 (10 on APD, 16 on icodextrin) patients one and two years later.

PP parameters at PD onset are presented (± SD) in the table. MTAC creat is affected by gender (female: r:-0.26; p:0.03), BSA (r:0.29; p:0.02) and ACE inhibitors prescription (r:0.31; p:0.01), but not by age, type of nephropathy, or statins prescription. MTAC creat negatively correlates with serum albumin (r:-0.39; p:0.002). Sodium sieving is significantly correlated with BSA (r:-0.29, p:0.02;), serum albumin (r:0.29; p:0.02), UF (r:0.32; p:0.01) and log MTAC creatinine (r:-0.36; p:0.004). With time on PD, serum albumin decreases from 3.8 ± 0.5 to 3.4 ± 0.5 and 3.3 ± 0.5 g/dl at one and two years, respectively (p:0.01); small solute transport increases (MTAC phosph: p:0.04, and MTAC creat: p:0.08) while UF decreases (p:0.08). No modification is observed for sodium sieving, b2-microglobulin's and a2-macroglobulin's clearances.

At onset of PD, MTAC creatinine and sodium sieving are directly correlated to BSA. In addition, a higher MTAC creatinine is associated with ACE inhibitors prescription and low serum albumin. Longitudinal assessment of the PP indicates a progressive increase in small molecules transport, a loss in UF capacity, and a decrease in serum albumin concentration. This occurs despite a high percentage of patients on APD and on icodextrin.

MTACcreat (ml/min)	12.1 ± 5.5
MTACphosph (ml/min)	11.3 ±6.3
MTACglucose (ml/min)	11.8 ± 3.4
Net UF (ml)	678 ± 288
Sodium sieving	0.053 ± 0.023
Albumine clearance (ml·min)	0.23 ± 0.12