

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0788**

**Abstract Submission No. : APCN20250005**

### **Revitalising Care: Advanced Practice Nurse Role in a Peritoneal Dialysis Walk-in Clinic**

Wang Wei<sup>1</sup>; Ng Li Choo<sup>1</sup>; Htay Htay<sup>2</sup>

<sup>1</sup> Nursing Division, Singapore General Hospital, Singapore

<sup>2</sup> Department of Renal Medicine, Singapore General Hospital, Singapore

#### **Abstract**

**Introduction:** Peritoneal dialysis (PD) patients often face complications leading to frequent hospitalisations. Advanced Practice Nurses (APNs) play a crucial role in PD programmes, providing comprehensive care and potentially reducing hospital admissions. This study aims to evaluate the impact of APN-led interventions in a PD walk-in clinic on patient outcomes and hospital admission rates.

**Methods:** We conducted a retrospective review of 72 PD patients who attended an APN-managed clinic from January to December 2023. Data collected included patient demographics, presenting complaints, APN interventions, aetiology of kidney failure, and 30-day post-visit hospital admission rates. We analysed the types of interventions provided by APNs and their impact on patient outcomes.

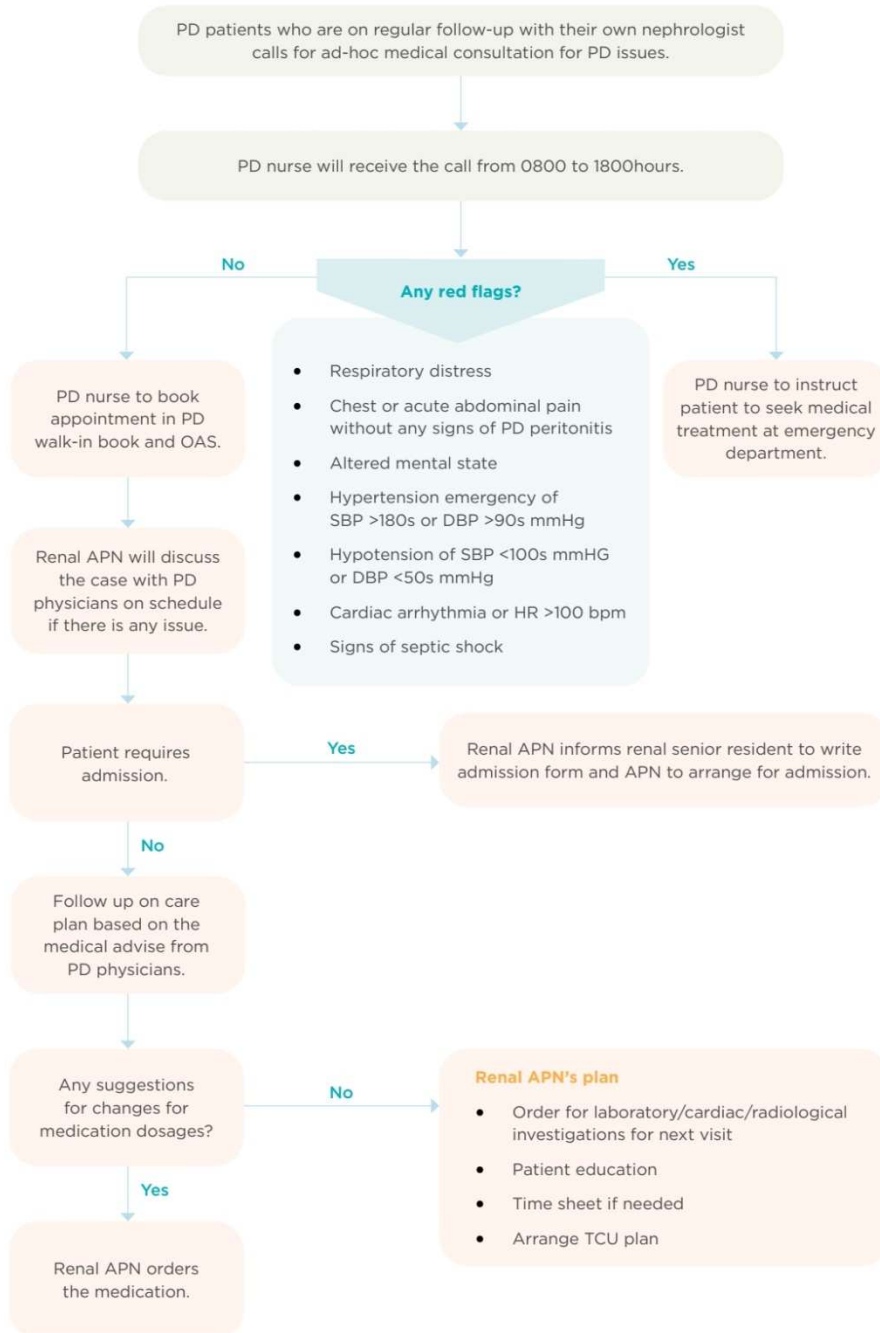
**Results:** The cohort comprised 72 patients (47% female, 53% male), predominantly Chinese (83%), with a mean age of 65 years. Most patients (73%) were aged 61 and above. Primary reasons for clinic visits were blood test reviews (32 cases), fluid imbalance (23 cases), and exit site infections (7 cases). Other reasons included peritonitis, post-discharge follow-up, and catheter malfunction. Diabetic nephropathy (42%) and glomerulonephritis (36%) were the leading causes of kidney failure. Comorbidities were common, with hypertension (81%), hyperlipidaemia (60%), and diabetes mellitus (42%) being the most prevalent.

APN interventions included comprehensive assessments, patient education on PD-related infection prevention, timely management of complications, care coordination, and personalised care planning. APNs provided guidance on diet, fluid management, and medication adherence. They also initiated treatments for infections and managed fluid and electrolyte imbalances. Notably, no hospital admissions were recorded within 30 days following the clinic visits.

**Conclusion:** This study demonstrates the potential effectiveness of APN-led interventions in a PD walk-in clinic setting. The absence of 30-day post-visit hospital admissions suggests that APN care may contribute to improved patient outcomes and reduced hospitalisation rates. The comprehensive approach of APNs, including patient education and timely interventions, appears to be effective in managing the complex needs of PD patients. Further research is warranted to explore the long-term impact and cost-effectiveness of APN-led care in PD management, as well as its potential application in other chronic disease settings.

**Keywords :** Advanced Practice Nurse, Peritoneal Dialysis, Walk-in Clinic, Patient-centered Care, Nurse-led Care, Clinical Outcomes, hospitalisation rate

**Figure 2: APN Led Walk-in Clinic Process Algorithm**



## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0789

Abstract Submission No. : APCN20250015

### Comparison of some techniques for laparoscopic peritoneal dialysis catheter insertion

Munkhjavkhlan Dorjsuren<sup>1</sup>

<sup>1</sup> Division of Vascular access, Department of Surgery, Mungunguur hospital, Ulaanbaatar city, Mongolia

#### Abstract

##### Introduction:

In Mongolia, around 100-150 new cases of chronic renal failure are registered annually, with a rising demand for renal replacement therapy. By 2023, 1,887 patients were undergoing renal replacement therapy, of which 7% (approximately 140 patients) used peritoneal dialysis (PD), a 1% increase from 2020. Surgeons aim to choose less complicated and cost-effective methods for placing permanent abdominal catheters, but complications such as migration and obstruction remain challenging.

##### Materials and Methods:

This study included 24 patients who underwent abdominal catheter placement at Mungunguur Hospital between June 2021 and July 2024. Twelve patients had laparoscopic PDC insertion (control group, Jan 2021-Apr 2023), and twelve had laparoscopically assisted insertion using a low-entry site technique (case group, Apr 2023-Jul 2024). The groups were compared, though limitations included differences in study duration and case numbers. Inclusion criteria: first-time catheter placement, no prior abdominal surgeries, aged 20-50, BMI <27. Exclusion criteria: repeat catheter placement, prior abdominal surgery, or adhesions.

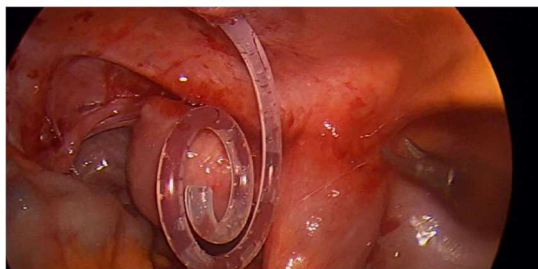
##### Results:

The 24 patients (71% female, 29% male, average age 38) were followed for 6-12 months. No migration occurred in the case group; one case of migration occurred in the control group within 2 months and another after 6 months. In the 12-month follow-up, no catheter occlusions were observed in the case group (P=0.04), while 2 (17%) cases of occlusion occurred in the control group, with omental wrapping as the cause.

##### Conclusions:

Laparoscopic PDC insertion with a low-entry site reduces migration complications. However, more studies are needed to confirm the results. The low-entry site technique may increase tissue damage and hemorrhagic risk. No significant differences were found between omentopexy, omentectomy, and cauterization methods, but cauterization is important to prevent hemorrhage.

**Keywords** : Laparoscopic peritoneal dialysis catheter placement, low entry site



## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0790

Abstract Submission No. : APCN20250059

### Nursing Management Of Peritoneal Dialysis-Associated Peritonitis Complicated By Choledocholithiasis And Cholangitis: A Multidisciplinary Case Study

Ming-Li Zhu<sup>1</sup>; Dong-Jing Zhang<sup>1</sup>; Zhen Zhuang<sup>1</sup>; Yue-Hong Li<sup>1</sup>

<sup>1</sup> Department of Nephrology, Beijing Tsinghua Changgung Hospital, School of Clinical Medicine, Tsinghua Medicine, Tsinghua University

#### Abstract

##### Introduction

Peritoneal dialysis-associated peritonitis (PDAP) is a life-threatening complication in end-stage renal disease (ESRD) patients, with a reported incidence of 0.24–1.66 episodes per patient-year and mortality rates up to 16%. Concurrent choledocholithiasis and cholangitis pose diagnostic and therapeutic challenges due to overlapping symptoms such as abdominal pain, fever, and leukocytosis. This case underscores the complexity of managing PDAP complicated by biliary obstruction and highlights the necessity of multidisciplinary collaboration to optimize outcomes.

##### Methods

A 84-year-old male with ESRD on peritoneal dialysis (PD) for 4 years presented with acute-onset left lower quadrant pain, cloudy dialysate, and recurrent vomiting. Key findings included leukocytosis ( $15.2 \times 10^9/L$ ), elevated peritoneal fluid leukocytes ( $8822/\mu L$ ), and positive cultures for *Escherichia coli*. Imaging revealed a 10×9 mm choledocholithiasis with upstream biliary dilation. Management strategies comprised:

Infection control: Intraperitoneal cefTAZidime (1g twice daily) guided by antimicrobial susceptibility.

Biliary intervention: Urgent endoscopic retrograde cholangiopancreatography (ERCP) with stent placement to relieve obstruction, followed by strict postoperative monitoring for pancreatitis and bleeding.

Nutritional rehabilitation: Initial parenteral nutrition (1440 mL/day of fat emulsion, amino acids, and glucose) transitioning to enteral feeding (low-fat, high-protein formula and homogenized meals) to address hypoalbuminemia (25 g/L).

Multidisciplinary coordination: Weekly interdisciplinary meetings involving nephrologists, gastroenterologists, dietitians, and nurses to align treatment goals, adjust dialysis parameters, and manage anticoagulation risks.

##### Results

Infection resolution: Dialysate clarity restored by postoperative day 16 (May 20, 2024), with negative repeat cultures and normalized C-reactive protein (from 48 mg/L to 6 mg/L).

Biliary recovery: Total bilirubin decreased from 68  $\mu\text{mol/L}$  to 22  $\mu\text{mol/L}$  post-ERCP, and stent patency was confirmed via follow-up imaging.

Nutritional improvement: Serum albumin rose to 32 g/L, accompanied by weight stabilization (62 kg to 64 kg) and reduced vomiting episodes.

Complication mitigation: Post-ERCP bleeding (hematocrit drop to 28%) was managed with vitamin K1 (10 mg IM) and fresh frozen plasma (2 units), avoiding surgical intervention.

Follow-up: At 1-month post-discharge, the patient maintained PD adequacy (Kt/V 2.1), with no recurrence of infection or biliary symptoms.

##### Conclusion

This case illustrates the critical role of early diagnosis, tailored antimicrobial therapy, and interdisciplinary coordination in managing PDAP with choledocholithiasis. ERCP combined with structured nutritional support and vigilant monitoring significantly reduced morbidity risks. Future protocols

should prioritize rapid biliary decompression in similar cases and integrate standardized nutritional pathways for ESRD patients. These strategies may enhance survival rates and reduce healthcare costs associated with prolonged hospitalization.

**Keywords :** Peritoneal dialysis-associated peritonitis ; Choledocholithiasis ; Cholangitis ; Multidisciplinary collaboration

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0791

Abstract Submission No. : APCN20250075

### Association of Alkaline Phosphatase with Mortality in Patients on Peritoneal Dialysis

Jae Young Kim<sup>1</sup>; Tae Ik Chang<sup>1</sup>; Ea Wha Kang<sup>1</sup>

<sup>1</sup> Department of Internal Medicine, National Health Insurance Service Medical Center, Ilsan Hospital, Goyangshi, Gyeonggi-do, Republic of Korea

#### Abstract

**Introduction:** Elevated total serum alkaline phosphatase levels have been associated with higher mortality in the general population, patients with chronic kidney disease, and patients with end-stage kidney disease on hemodialysis. However, this association has received little attention in patients on peritoneal dialysis. The aim of this study was to evaluate the association between alkaline phosphatase and all-cause mortality in patients with end-stage kidney disease on peritoneal dialysis.

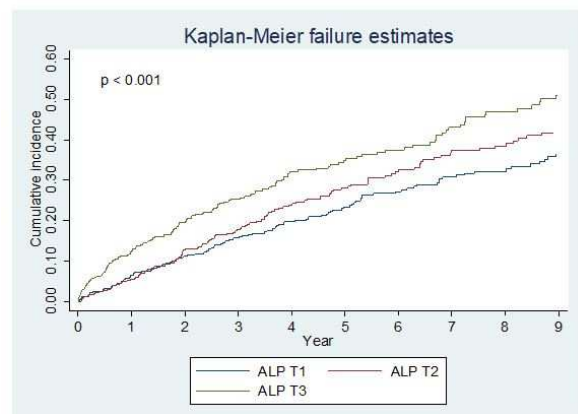
**Methods:** In this single center retrospective cohort study, 1,366 patients who initiated peritoneal dialysis from January 1, 2000, to December 31, 2021, and had a measurement of serum alkaline phosphatase values were enrolled and followed until December 31, 2021. Demographic characteristics and clinical and laboratory results were collected at baseline of the initiation of peritoneal dialysis. The associations of total serum alkaline phosphatase levels with all-cause mortality were examined using multivariable-adjusted Cox models.

**Results:** Mean age of patients was  $61.0 \pm 14.2$  years, 55.8% of patients were men, 24.5% were diabetic, and 6.8% had previous history of cardiovascular disease. The median serum alkaline phosphatase level was 76.0 U/L (interquartile range, 60.0–96.0 U/L). During a 6,746.9 person-years of follow-up period, the primary outcome was observed in 429 (31.4%) patients with an incidence rate of 63.6 per 1000 person-years. There were 125 (27.6%), 142 (31.1%), and 162 (35.5%) deaths in each ALP tertile groups, showing the incidence rate of outcome increased gradually in patients with increasing ALP levels. After adjusting for demographics, comorbid conditions, and laboratory parameters, the highest alkaline phosphatase tertile group was significantly associated with a hazard ratio for all-cause mortality of 1.47 (95% confidence interval, 1.12 to 1.93,  $P=0.006$ ). Each standard deviation increase of alkaline phosphatase level was associated with 34% higher risk of all-cause mortality (95% confidence interval, 1.25 to 1.44,  $P<0.001$ ).

**Conclusion:** Higher total serum alkaline phosphatase levels were independently associated with all-cause mortality in patients with end-stage kidney disease on peritoneal dialysis.

**Keywords :** Alkaline phosphatase, Peritoneal dialysis, Mortality

Figure 1. Kaplan-Meier curve for the outcome



**Abbreviations:** ALP, alkaline phosphatase.

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0792

Abstract Submission No. : APCN20250076

### Factors Influencing Technique Failure in Peritoneal Dialysis Patients

Chang Wan-Chen<sup>1</sup>; Cheng-Chieh Yen<sup>2</sup>; Chiung-Pei Huang<sup>3</sup>; Tsung-Liang Ma<sup>2</sup>

<sup>1</sup> Peritoneal Dialysis Center, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan

<sup>2</sup> Division of Nephrology, Department of Internal Medicine, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan

<sup>3</sup> Hemodialysis Center, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan

#### Abstract

**Background:** Peritoneal dialysis (PD) is a cost-effective renal replacement therapy with comparable outcomes to hemodialysis (HD), offering benefits such as better preservation of residual renal function and greater patient autonomy. However, technique failure (TF), commonly defined as transfer from PD to HD, remains a major barrier to its long-term use. This study aims to identify risk factors associated with TF based on patient characters and data at PD initiation.

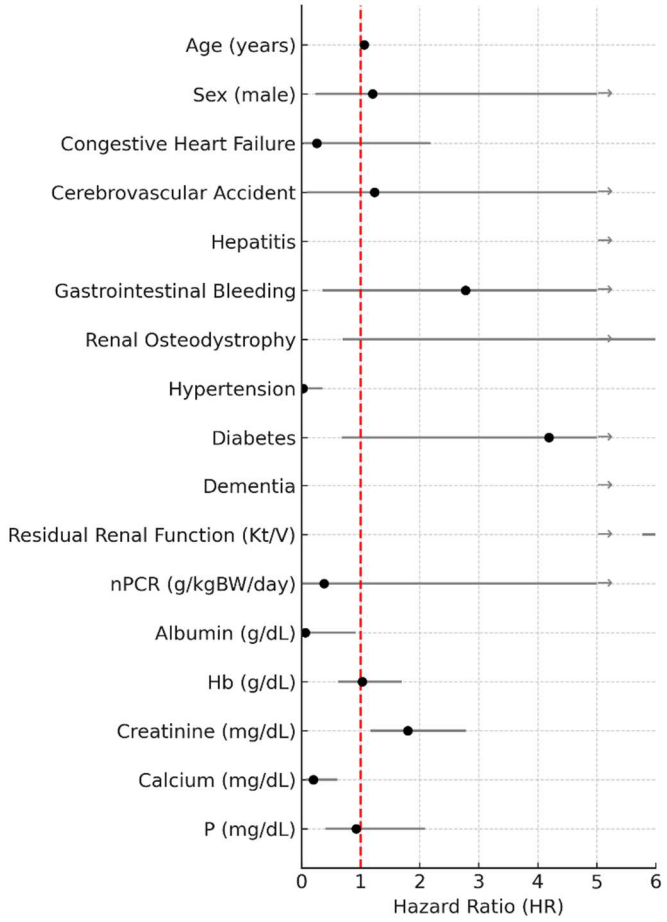
**Materials and Methods:** We conducted a retrospective review of patients who initiated PD after January 1st, 2020. Those with a PD duration of less than 3 months were excluded. TF was defined as a transfer from PD to HD, while transitions due to death or kidney transplantation were considered censoring events. Patient baseline characters and data were analyzed to identify risk factors for TF using Cox proportional hazards regression. Collinearity among variables was assessed using a Spearman correlation matrix.

**Results:** Patient baseline characters and data were largely comparable between patients with and without TF, except for serum calcium, which was significantly lower in the TF group ( $p = 0.04$ ). Univariate Cox proportional hazards regression analysis did not identify any variables significantly associated with TF. However, multivariate analysis, after adjustment for multicollinearity, revealed hepatitis (hazard ratio [HR]: 1167.6), dementia (HR: 361.3), residual renal function (HR: 194.9), and serum creatinine (HR: 1.8) as independent risk factors for TF. In contrast, hypertension (HR: 0.02), serum albumin (HR: 0.06), and serum calcium (HR: 0.20) were associated with a reduced risk of TF.

**Conclusions:** Hepatitis, dementia, and higher creatinine levels were associated with increased risk of TF, while hypertension, higher albumin, and calcium levels appeared protective.

**Keywords :** Peritoneal Dialysis, Technique Failure

Forest Plot (Multivariate Cox, Custom Reve



## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0793**

**Abstract Submission No. : APCN20250098**

### **Case Study : Neck Lymph Node Tuberculosis In Peritoneal Dialysis Patient**

Mei-Chih Hu<sup>1</sup>; Lan-Yen Chen<sup>1</sup>; Ching-Wei Wang<sup>1</sup>; Yueh-Feng Tsai<sup>1</sup>; Li-Chiung Yang<sup>1</sup>; Ting-Yi Wang<sup>1</sup>; Li-Hsueh Huang<sup>1</sup>

<sup>1</sup> Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan

#### **Abstract**

##### **Introduction :**

Tuberculosis usually causes infection of the lungs, but 15-20% of cases occur outside the lungs, and the symptoms are usually atypical, making clinical diagnosis difficult.

##### **Method :**

A 66-year-old male peritoneal dialysis patient began to have unexplained night fevers after the onset of peritonitis. During this period, no special findings were found in various examinations and he fell into a treatment bottleneck. Finally, two months later, right cervical lymph nodes enlargement, he underwent a tissue biopsy and the tuberculosis PCR was positive, and he was diagnosed with extrapulmonary tuberculosis with tuberculous lymphadenitis.

##### **Result:**

The patient started receiving anti-tuberculosis drug treatment after being diagnosed with extrapulmonary tuberculosis and is currently continuing drug treatment.

##### **Conclusion :**

It is common for dialysis patients to suffer from tuberculosis due to factors such as malnutrition, low albumin, reduced immunity and advanced age. However, extrapulmonary tuberculosis is difficult to diagnose clinically due to its atypical symptoms. We hope that the sharing of this experience can provide a reference for medical staff in their care.

**Keywords :** Keywords: peritoneal dialysis, extrapulmonary tuberculosis



## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0796**

**Abstract Submission No. : APCN20250285**

### **Using smart healthcare to improve the self-care ability of peritoneal dialysisrt**

Yang Shu-Chin<sup>1</sup>

<sup>1</sup> Kaohsiung Municipal Fong Shan Hospital-Under the management of Chang Gung Medical Foundation · Division of Nephrology

#### **Abstract**

##### **Background:**

Peritoneal dialysis is as a home treatment mode, Patient receives peritoneal dialysis catheter implantation , learning how to change fluid skills and knowledge for safe discharged f.In Taiwan, the prevalence and incidence of end-stage kidney disease are the highest in the world. middle-aged and elderly patients are suffering from uremia, and their children choose to receive peritoneal dialysis depending on their situation and economic status, have the responsibility to look after their parents with good quality of care, reducing involuntary withdrawal from peritoneal dialysis treatment (such as: peritonitis, catheter infection). This article mainly discusses the experience of caregivers to use the online network care guidance, recording or using video methods to provide appropriate information and measures.

##### **Method:**

The patient receives peritoneal dialysis treatment due to uremia. Using observation and interviews with family, and found that they were not the same caregiver, therefore could not learn about fluid exchange techniques and exit side care together. Discussed with caregivers using the instant messaging software to form a group, and asked family to assist in video recording by teaching care skill, Besides, the caregivers record the weight monitoring, emergency handling and nutrition precautions to put the information on the group. Before care, each caregivers needs to read the technical video and to do the pre-test first. One month later, they need to do the post-test again to understand the family's readiness for peritoneal dialysis knowledge, and individually guide misconceptions and techniques.

##### **Result:**

This method found: 1. Insufficient knowledge of peritoneal dialysis 2. Impairment of family psychological adjustment; In order to solve the pressure and burden between family , intervene and listen to support in accordance with individualized health education, give positive encouragement, and provide correct medical information with the case. When the incident cannot be resolved, in the online for help immediately, and provide assistance at any time. Continue to follow the mental state of the case and return to the original life.

##### **Conclusion:**

The patient does not have peritonitis or catheter infection due to the change of residence in the online network nursing guidance teaching program. When changing caregivers, the health Education first clicked and browsed online care videos for continuous re-education. It is our common goal to reduce the psychological burden of caregivers or individual cases in a timely manner to shorten the relationship between doctors and patients and enhance the sense of trust.

**Keywords :** peritoneal dialysis, online network

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0797**

**Abstract Submission No. : APCN20250323**

### **Comparative Analysis of Mortality Risk in Polycystic Kidney Disease Patients on Hemodialysis and Peritoneal Dialysis**

Aulia Zhafira<sup>1</sup>; Melinda Didi Yudhanti<sup>2</sup>

<sup>1</sup> Department of Emergency, Sebelas Maret University Hospital, Surakarta, Indonesia

<sup>2</sup> Department of Emergency, Yogyakarta Regional General Hospital, Yogyakarta, Indonesia

#### **Abstract**

##### **Objectives:**

The characteristic of Polycystic Kidney Disease (PKD) is the enlargement of kidney volume with cyst formation, leading to a reduced intraperitoneal space. Additionally, cases of diverticulitis, abdominal hernia, and vascular aneurysm are frequently observed in PKD. Therefore, many nephrologists are concerned about the use of Peritoneal Dialysis (PD) in PKD patients. We aimed to compare the mortality risk between PD and Hemodialysis (HD) in Polycystic Kidney Disease.

##### **Methods:**

A systematic literature review was conducted using several core databases, such as PubMed and ProQuest, following the PRISMA guidelines. Polycystic Kidney Disease, Hemodialysis, and Peritoneal Dialysis were used as search terms. Studies with original research using a cohort design were included.

##### **Results:**

Out of 3,839 studies identified, two cohorts were included in this systematic review. One study showed mortality rates in Polycystic Kidney Disease patients treated with HD were 635 (13.7%), while the PD group had 77 deaths (12.1%) after a 5-year observation period. Univariate analysis confirmed that, compared to HD, initiating treatment with PD did not increase the risk of mortality. Even after multivariable analysis, PD did not show a significant association with higher mortality; however, diabetes and older age were identified as significant death risk factors. Another study reported mortality rates of 33 deaths (13.5%) in HD patients with PKD and 13 deaths (10.7%) in the PD group. Meanwhile, the hospitalization rates per person-year were 0.6 in the HD group and 0.7 in the PD group.

##### **Conclusions:**

According to the findings of these studies, PD is an equivalent choice of renal replacement therapy to HD for patients with PKD in terms of overall survival. The study's conclusions are constrained by the lack of certain laboratory data, such as sonography reports, dialysis adequacy evaluations, and direct quality of life measurements.

**Keywords :** Polycystic Kidney Disease, Hemodialysis, Peritoneal Dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0798**

**Abstract Submission No. : APCN20250346**

### **Implementation and Outcomes of Home Video Visits in Peritoneal Dialysis Patients: A Quality Improvement Experience**

Yen-Chun Lin<sup>1</sup>; Yu-Chuan Lu<sup>1</sup>; Miao-Chun Ho<sup>1</sup>; Pai-Hou Huang<sup>2</sup>

<sup>1</sup> Peritoneal dialysis Room, National Taiwan University Hospital, Hsin-Chu Branch

<sup>2</sup> Hemodialysis Center, National Taiwan University Hospital, Hsin-Chu Branch

#### **Abstract**

##### **Background:**

According to statistics from the International Society for Peritoneal Dialysis (ISPD), peritonitis is a common and serious complication of peritoneal dialysis (PD), accounting for approximately 5% of mortality and 16% of all deaths among PD patients. In our institution, the cumulative incidence of peritonitis in 2024 was 2.37 episodes per 100 patient-months, which exceeds the acceptable threshold. In response, the Quality Management Team initiated a home-based video visit program after multidisciplinary discussion.

##### **Methods:**

Starting from January 2025, a home peritoneal dialysis video visit program has been launched to improve care quality and ensure the correct execution of dialysis techniques. Patients identified as needing this service (such as those with peritonitis, new patients, or other care-related issues) will be assessed by a physician. Upon obtaining the patient's consent, the primary nurse will conduct scheduled video visits via communication software. These visits will include assessments and nursing guidance on several aspects: the home environment, storage of dialysis solutions and supplies, peritoneal dialysis exchange procedures, and sterile technique practices.

##### **Results:**

As of May 2025, 18 patients have been enrolled, with an average age of 52 years and a male-to-female ratio of 4:6. Among them, 40% are cases of peritonitis. Analysis shows that patients who developed peritonitis scored lower in four key areas—dialysis environment, technique execution, storage of dialysis solutions, and compliance—compared to those without infections. This indicates that video visits are helpful in the early detection and correction of care issues.

##### **Conclusion:**

The incidence of peritonitis in peritoneal dialysis (PD) is closely associated with the quality of PD technique and the home dialysis environment. Providing home video visits allows for comprehensive assessment of the patient's home setting to identify risk factors that may contribute to peritonitis. Through targeted re-education and corrective guidance, the risk of infection can be reduced. It is recommended that this program be continuously implemented, expanded to all PD patients, and regularly evaluated for effectiveness.

**Keywords :** Home Video Visits, Peritoneal Dialysis, Peritonitis Prevention, Patient Education

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0799**

**Abstract Submission No. : APCN20250349**

### **Nutritional Status-Based Clinical Outcomes of Patients with End-Stage Kidney Disease on Peritoneal Dialysis using the Subjective Global Assessment: A Single Tertiary Center Prospective Study**

Joanna Rose P. Aquino<sup>1</sup>; Donnah Francesca De Leon<sup>1</sup>

<sup>1</sup> Division of Adult Nephrology, National Kidney and Transplant Institute

#### **Abstract**

##### **Introduction**

Malnutrition is a major challenge among patients with End-Stage Kidney disease (ESKD) on Peritoneal Dialysis (PD), contributing to increased morbidity and mortality. Despite the recognized value of the Subjective Global Assessment (SGA) as a practical nutritional screening tool, its routine use in outpatient PD populations remains limited. This study evaluated the prevalence of malnutrition using SGA and its association with clinical outcomes in chronic PD patients.

##### **Methodology**

This prospective cohort study was conducted at a tertiary care center to evaluate the prevalence and clinical impact of malnutrition in adults with end-stage kidney disease (ESKD) undergoing chronic peritoneal dialysis (PD). We enrolled 152 adult patients meeting established inclusion criteria for chronic PD. Baseline nutritional status was assessed using the Subjective Global Assessment (SGA), a validated tool for identifying malnutrition in this population. Patients were systematically followed over time to monitor key clinical outcomes, including all-cause mortality, hospitalization and infection rates (peritonitis, and exit site infections). Data collection was standardized to ensure consistency and reliability. Statistical analyses included descriptive statistics to characterize the cohort, chi-square tests to compare categorical variables, and multivariate logistic regression to identify independent predictors of adverse outcomes.

##### **Results**

Of the 152 participants (mean age 47 years; 55.9% male), 46.7% were moderately malnourished and 28.9% severely malnourished according to SGA. The overall mortality rate was 2.6%, but rose to 9.1% among severely malnourished patients, with no deaths in the well-nourished group. Hospitalization occurred in 15.1% of patients, peaking at 36.4% among those severely malnourished. Infection was documented in 38.8% of the cohort and was most frequent in the severely malnourished group (52.3%). Multivariate analysis identified severe malnutrition as a strong independent predictor of mortality, hospitalization, and combined adverse outcomes (odds ratio for mortality/hospitalization: 12.02; for combined adverse outcomes: 296.6).

##### **Conclusion**

Malnutrition is highly prevalent among chronic PD patients and is a potent, independent predictor of infection, hospitalization, and mortality. Our findings highlight the critical value of routine SGA screening in identifying high-risk individuals who may benefit from early, targeted nutritional and clinical interventions.

Integrating SGA into standard PD care can enable proactive management, reduce adverse outcomes, and ultimately improve survival and quality of life in this vulnerable population.

**Keywords :** Chronic peritoneal dialysis, infection rates, malnutrition, nutritional status, morbidity, mortality

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0800

Abstract Submission No. : APCN20250359

### Prognostic Impacts of Impaired Fasting Glucose, Diabetes Mellitus, $\beta$ -Cell Dysfunction, and Insulin Resistance for All-cause Mortality and Cardiovascular Outcomes in Peritoneal Dialysis Patients

CHI-CHONG TANG<sup>1</sup>; YU-LI LIN<sup>1,2</sup>; BANG-GEE HSU<sup>1,2</sup>

<sup>1</sup> Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan

<sup>2</sup> School of Medicine, Tzu Chi University, Hualien, Taiwan.

#### Abstract

##### Background:

Glucose metabolism disturbances are prevalent in peritoneal dialysis (PD) patients using glucose-based dialysates, with impaired fasting glucose (IFG) and diabetes mellitus (DM) linked to increased mortality. However, the relative impact of IFG versus DM on clinical outcomes, and the contributions of  $\beta$ -cell function and insulin resistance, remain unclear. This study evaluates the association of normal fasting glucose, IFG, or DM with 3-point major adverse cardiovascular events (MACE) and all-cause mortality in PD patients and examines the contributory roles of  $\beta$ -cell function and insulin resistance, assessed by Homeostatic Model Assessment of  $\beta$ -cell function (HOMA- $\beta$ ), insulin resistance (HOMA-IR), and triglyceride-glucose index.

##### Methods:

A cohort of 216 PD patients (71 normal fasting glucose, 58 IFG and 87 DM) was analyzed, and clinical characteristics were compared across groups. Kaplan-Meier survival curves, Cox-proportional hazard models, and Fine and Gray models were used to estimate the risks for 3-point MACE and all-cause mortality across glucose status groups. Glucometabolic parameters, including triglyceride-glucose index, HOMA-IR, HOMA- $\beta$ , advanced glycation end products (AGEs), PD glucose load, and icodextrin use, were also assessed.

##### Results:

Among 69 deceased patients over a median follow-up of 41 months, 42% of deaths were attributed to cardiovascular causes and 38% to infections. Kaplan-Meier analysis showed comparable survival outcomes for patients with IFG and DM, both significantly worse than those with normal fasting glucose for 3-point MACE ( $p = 0.001$ ) and all-cause mortality ( $p = 0.002$ ). In adjusted models, IFG was associated with a significantly elevated risk of 3-point MACE (subdistribution hazard ratios, SHR = 4.00, 95% confidence interval [CI] = 1.50–10.66) and all-cause mortality (HR = 2.48, 95% CI = 1.16–5.32), similar to DM for 3-point MACE (SHR = 2.66, 95% CI = 1.13–6.23) and all-cause mortality (HR = 2.25, 95% CI = 1.13–4.48). Insulin resistance, as indicated by a higher triglyceride-glucose (TyG) index but not by HOMA-IR, was associated with increased risks of adverse outcomes (SHR = 1.66, 95% CI: 1.07–2.58, for MACE; HR = 1.59, 95% CI: 1.13–2.24, for all-cause mortality). In contrast, preserved  $\beta$ -cell function, reflected by higher log-transformed HOMA- $\beta$  values, was independently associated with lower risks of MACE (SHR = 0.37, 95% CI: 0.14–0.94) and all-cause mortality (HR = 0.28, 95% CI: 0.12–0.66).

##### Conclusions:

In PD patients, IFG confers a risk of mortality and cardiovascular events comparable to DM, with  $\beta$ -cell dysfunction and insulin resistance serving as primary drivers of these adverse outcomes.

**Keywords :** Impaired fasting glucose, Diabetes mellitus,  $\beta$ -Cell function, Insulin resistance, All-cause mortality , Cardiovascular outcome, Peritoneal dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0801**

**Abstract Submission No. : APCN20250361**

### **Case Analysis of Inguinal Hernia in A Peritoneal Dialysis Patient**

Ho Miao-Chun<sup>1</sup>; Yen-Chun Lin<sup>1</sup>; Yu-Chuan Lu<sup>1</sup>; Pai-Hou Huang<sup>2</sup>

<sup>1</sup> Peritoneal Dialysis Room, National Taiwan University Hospital, Hsin-Chu Branch

<sup>2</sup> Hemodialysis Center, National Taiwan University Hospital, Hsin-Chu Branch

#### **Abstract**

##### **Background :**

Hernia is a common non-infectious complication in peritoneal dialysis (PD) patients, primarily due to chronically elevated intra-abdominal pressure from dialysate retention. The incidence is approximately 10–20%, with common sites including the umbilicus, previous surgical incisions, inguinal region, and abdominal midline. Without timely intervention, complications such as dialysate leakage, catheter dysfunction, or bowel incarceration may occur. This report presents a case of right inguinal hernia in a PD patient who successfully resumed dialysis following surgical repair.

##### **Methods :**

A 49-year-old male receiving automated peritoneal dialysis (APD) for diabetic nephropathy developed a reducible right inguinal bulge six months into therapy, which became more prominent when standing and reduced when supine. Based on clinical history, physical exam, and imaging, a diagnosis of right inguinal hernia was confirmed. The PD prescription was adjusted to reduce intra-abdominal pressure, and the patient was referred for surgical repair.

##### **Results :**

Within 24 hours after surgery, continuous ambulatory peritoneal dialysis (CAPD) was initiated with five exchanges per day at 1000 mL each. Dialysate volume was gradually increased while monitoring for leakage. After one week, APD was resumed with low-volume, high-frequency exchanges. The SHARESOURCE platform was utilized for real-time prescription adjustments and outcome monitoring, helping to avoid switching to hemodialysis. Wound healing and hernia status were closely observed, with additional education provided on diet and fluid management. Two weeks post-surgery, the hernia resolved, the wound healed well, and the patient successfully resumed his original dialysis regimen.

##### **Conclusion :**

Early diagnosis and prompt management of hernias in PD patients are essential to prevent complications. Postoperative dialysis prescriptions should be individualized, with attention to wound care, dietary advice, and constipation prevention to minimize intra-abdominal pressure and infection risks. This case serves as a reference for clinical management of PD patients with hernias.

**Keywords :** Peritoneal dialysis, Inguinal hernia, Postoperative care

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0802**

**Abstract Submission No. : APCN20250419**

### **Integrating Modified Catheterization and Cloud-Based Data Systems in Peritoneal Dialysis: A Multidisciplinary Nursing Perspective from Taiwan**

Tian Jiu-Yun<sup>1,3</sup>; Hsin-Ling Tai <sup>1,3</sup>; Chi-Fang Cheng <sup>1,3</sup>; Tiang-Chen Chang <sup>1,3</sup>; Szu-Yuan Li <sup>2,3</sup>; Cheng-Yen Chen <sup>4</sup>; Jung-Fen Lee <sup>1</sup>

<sup>1</sup> Department of Nursing, Taipei Veterans General Hospital, Taipei City, Taiwan

<sup>2</sup> Institute of Clinical Medicine, National Yang Ming Chiao Tung University, Taipei City, Taiwan

<sup>3</sup> Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital, Taipei City, Taiwan

<sup>4</sup> Division of Transplantation, Department of Surgery, Taipei Veterans General Hospital, Taipei City, Taiwan

#### **Abstract**

##### **Introduction:**

Peritoneal dialysis (PD) is a preferred renal replacement modality for its flexibility and home-based care potential. At Taipei Veterans General Hospital, a multidisciplinary PD program integrates modified catheterization techniques and cloud-based data tracking to improve patient safety and outcomes. This study evaluates clinical results and highlights the pivotal coordination role of PD case-management nurses within a collaborative team of nephrologists, transplant surgeons, and dietitians.

##### **Methods:**

From 2022 to 2024, modified catheterization techniques, including tunneled exit-site placement, rectus sheath fixation, and hernia prevention sutures—were applied to reduce postoperative complications. A cloud-based platform continuously captured PD data (e.g., fill volume, ultrafiltration) and utilized a green-yellow-red (G-Y-R) alert system for early symptom detection. Case-management nurses conducted preoperative assessments, monitored cloud data, coordinated multidisciplinary responses, and ensured timely education and follow-up.

##### **Results:**

Among 196 patients undergoing modified catheterization, early peritonitis incidence dropped to 1.53%, and hernia-related complications fell below 1%. Catheter malfunction rates were <1%, significantly lower than institutional baseline. The cloud alert system enabled 97% of flagged events to be managed before escalation. In urgent-start PD cases (n=26), same-day catheter insertion and dialysis initiation avoided central venous catheter use and emergency hospitalization. Over 80% of patients reported increased confidence and adherence to therapy. Nurses reported improved workflow efficiency, greater autonomy in managing complications remotely, and enhanced patient-nurse communication. The system also supported urgent-start PD protocols, over 85% of patients reported improved confidence in self-care. Nursing workflow efficiency improved with data-driven monitoring and rapid team coordination.

##### **Conclusion:**

This integrated peritoneal dialysis model—anchored in innovative catheter insertion techniques and enhanced by cloud-based data surveillance—demonstrates measurable improvements in patient safety, urgent-start readiness, and long-term care continuity. The adoption of modified procedural approaches, including optimized exit site design and preemptive hernia prevention, directly contributes to reduced surgical complications and facilitates seamless PD initiation even in emergency contexts. Within this framework, case-management nurses function as pivotal coordinators among transplant surgeons, nephrologists, and allied healthcare professionals, ensuring timely clinical interventions and sustained adherence to evidence-based standards. The experience from Taiwan

provides a scalable and clinically robust blueprint for modernizing PD programs through procedural and digital integration.

**Keywords :** Peritoneal Dialysis; Cloud-Based Monitoring; Modified Catheterization; Case-Management Nursing; Multidisciplinary Care; Urgent-Start PD; Patient Safety

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0803

Abstract Submission No. : APCN20250447

### A Case of Spontaneous Catheter Rupture In A Patient Undergoing Peritoneal Dialysis

Haruka Fukuda<sup>1,2</sup>; Mineaki Kitamura<sup>1,2</sup>; Takuma Ishii<sup>1,2</sup>; Kenta Torigoe<sup>1</sup>; Hiroshi Yamashita<sup>1,2</sup>; Junichi Watanabe<sup>3</sup>; Tomoya Nishino<sup>1</sup>

<sup>1</sup> Department of Nephrology, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan

<sup>2</sup> Department of Nephrology, Nagasaki Harbor Medical Center, Nagasaki, Japan

<sup>3</sup> Department of Urology, Nagasaki Harbor Medical Center, Nagasaki, Japan

#### Abstract

**[Introduction]** Infusion and drainage of the dialysate during peritoneal dialysis (PD) are essential for ensuring effective and uninterrupted treatment. Poor infusion and drainage result in prolonged treatment time, reduce the quality of life for patients with PD, and complicate the continuation of PD. Mechanical issues, such as catheter migration and obstruction typically cause drainage failure in PD. However, spontaneous intraperitoneal catheter rupture is extremely rare.

**[Case presentation]** A 48-year-old man with autosomal-dominant polycystic kidney disease (ADPKD) noticed poor dialysate drainage a few days ago and visited our department for a regular check-up. The computed scan showed a completely amputated PD catheter in the abdominal cavity. He admitted to our department, and a laparoscopic PD catheter removal and reinsertion were performed. Despite a thorough analysis of the removed catheter, the definitive cause of the rupture could not be identified.

**[Discussion]** Only nine cases of intraperitoneal PD catheter rupture have been reported in the literature, including this case, which is very rare. Besides mechanical stress, chemical stress can also cause catheter rupture, and using mupirocin or gentamicin at the exit site is considered a risk factor for catheter damage. In this case, chronic mechanical stress, catheter deterioration due to his obesity (body mass index 40.74 kg/m<sup>2</sup>), was thought to induce catheter rupture. Additionally, the peritoneal wall anchoring technique may be associated with mechanical stress. Patients with obesity and ADPKD are at high risk of catheter rupture. Therefore, intraperitoneal catheter rupture should be considered as a differential diagnosis when investigating the cause of poor drainage in patients undergoing peritoneal dialysis.

**Keywords :** peritoneal dialysis, catheter rupture, obesity, autosomal dominant polycystic kidney disease

**Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0804**

**Abstract Submission No. : APCN20250451**

**Experience Sharing on Reducing Peritoneal Dialysis Catheter Breakage and Infection Through the Use of Waterproof Dressings**

Shu-Chuan Lo<sup>1</sup>; Bei-Yu Shen<sup>1</sup>; Yi-Ju Cho<sup>1</sup>; Hui-Chen Chang<sup>1</sup>; Yen-Huie Pai<sup>1</sup>

<sup>1</sup> Tungs' Taichung MetroHarbor Hospital

**Abstract**

For patients undergoing peritoneal dialysis (PD), care of the catheter exit site is crucial. Inadequate care may allow bacteria to enter the abdominal cavity, leading to peritonitis, and in severe cases, may necessitate removal of the PD catheter. According to statistics from our unit, between January and December 2023, there were three cases of catheter breakage caused by improper use of colostomy bags during bathing and five cases of infection due to water entering the catheter exit site. These incidents negatively impacted dialysis efficacy and patient health. To reduce the occurrence of catheter breakage and water ingress, the nursing team conducted a problem analysis and implemented improvement measures. After evaluation, the previously used colostomy bags were replaced with waterproof dressings to enhance protection around the catheter. Educational content was also reinforced, teaching patients and caregivers the correct use of waterproof dressings, proper catheter protection during bathing, and behaviors to avoid. Following the implementation of waterproof dressings, from January to December 2024, our unit recorded zero cases of catheter breakage and zero exit-site infections caused by water exposure. This experience demonstrates that the use of waterproof dressings, combined with educational guidance, can effectively establish proper care practices, reduce complications such as catheter breakage and infection, and enhance the self-care abilities and quality of life for PD patients. It also provides a valuable reference for clinical nursing practice.

**Keywords :** waterproof dressing, peritoneal dialysis, catheter exit site, infection

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0805

Abstract Submission No. : APCN20250471

### Comparison Of Fast Peritoneal Equilibration Test (Fast Pet) With Standard Peritoneal Equilibration Test (Pet) In End Stage Renal Failure Patients Treated Continuos Ambulatory Peritoneal Dialysis

Nguyen Dang Chi Hung<sup>1</sup>

<sup>1</sup> Nephrology Department, Cho Ray Hospital, Vietnam

#### Abstract

**Background:** Evaluating the transport property of the peritoneal membrane is the essential step in prescribing adequate peritoneal dialysis therapy. Standard peritoneal equilibration test (PET) recommended by ISPD guideline is recognized as the standard test for determination of peritoneal transport types, however, it is laborious, time-consuming for patients and healthcare workers. Fast PET is a more simple method to examine transport types with relative accuracy compared to standard PET. There are published pilot studies to compare the correlation of these tests, however, the data in Vietnam population are scarce.

**Objectives:** (1) Percentage of peritoneal transport type determined by Fast PET and PET; (2) Comparison correlation of Fast PET and PET.

**Population:** End stage renal disease patients on CAPD therapy at Peritoneal Dialysis Unit, Nephrology Department, Cho Ray Hospital from 09/2021 to 12/2021.

**Method:** cross-sectional descriptive.

**Result:** From 09/2021 to 12/2021, 40 patients were enrolled and accomplished both tests at Peritoneal Dialysis Unit, Nephrology Department, Cho Ray Hospital. The median age was 45, male/female = 1/2, more than 50% patients with BMI  $\geq 23$  (kg/m<sup>2</sup>), median time on treatment 54.7 months, diabetic patients was 35% (n=14). Percentage of peritoneal transport type based on Fast PET: high (12.5%); high- average (52.5%); low- average (35%); low (0%). D/P creatinine T4 of Fast PET:  $0.69 \pm 0.12$  (mg/dl). Percentage of peritoneal transport type based on PET: high (20%); high- average (52.5%); low- average (27.5%); low (0%). D/P creatinine T4 of Fast PET:  $0.72 \pm 0.14$  (mg/dl). There was a good correlation of Fast PET and PET with Cohen's kappa coefficient  $\kappa = 0,79$ ,  $p < 0,001$ . Bland-Atman test for D/P creatinine T4 of both tests show high correlation with mean differences D/P creatinine T4 was 0.032, and an agreement interval was [-0,171; 0,236].

**Conclusion:** Fast PET is a simple method with high correlation with standard PET in determination of peritoneal transport type of peritoneal dialysis patients.

**Keywords :** Fast PET, PET, CAPD, transport type

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0806**

**Abstract Submission No. : APCN20250472**

### **Evaluate Quality of Life By Sf-36 In Automated Peritoneal Dialysis At Nephrology Department, Cho Ray Hospital**

Nguyen Dang Chi Hung<sup>1</sup>

<sup>1</sup> Nephrology Department, Cho Ray Hospital, Vietnam

#### **Abstract**

##### **Background:**

To the extent of end-stage renal disease (ESRD), HRQOL is one of parameter for assessing the efficacy of dialysis model. Automated peritoneal dialysis (APD) has been implemented in Vietnam recently. APD has been presumed to ensure better quality of life compared to CAPD because APD free the patients from manually daily exchanges which could be a massive burden in both physical and mental aspects. Vietnamese APD population with differences in socioeconomic background, educational level, quality of dialysis service possibly affect the patient's HRQOL. However, there has been shortage of data about HRQOL of APD patients in Vietnam. In this study, we investigate HRQOL by Short-form 36 (SF-36) in APD patients at Peritoneal Dialysis Center at Cho Ray Hospital. Moreover, we also aim to assess the clinical and bio-chemistry profile which could correlate with HRQOL. The result of this study preliminary grade the quality of life in APD in our center, also reveal factors which could intervene to improve HRQOL.

##### **Objectives:**

- 1) Evaluate some of clinical and biochemistry characteristics of end-stage renal disease on APD patients.
- 2) Assess health-related quality of life by SF-36 in APD patients.

##### **Result:**

From 04/2023 to 10/2023, 12 patients enrolled in our study. Majority of patients are classified on moderate level of QOL (66,7%, n=8), and 33% patient with poor level of QOL. Median score of PCS (Physical component score): 36,3; MCS( Mental component score ): 57,76; Medium score of SF-36: 47,2. Eight sectors of SF-36 components listed: Physical Functioning (1.PF): 37,7; Role-Physical (2.RP): 29,1; Bodily Pain (3.BP): 45,8; General Health (4.GH): 32,6; Vitality (5.VT); 50; Social Functioning (6.SF): 46,6; Role-Emotional (7.RE): 59,3; Mental Health (8.MH): 75. In consideration the correlation of clinical and biochemistry factor with SF-36 domains and SF-36, there is positive correlation of PCS with BMI, serum albumin. In term of MCS and SF-36, it has positive correlation with educational level, serum albumin, and negative correlation with level of dependence on caregivers and serum CRP.

##### **Conclusion:**

In comparison with CAPD patients at our center in published data, APD shows no benefit than CAPD in SF-36 score. APD patients reach higher score in mental health component, but lower score in physical component. We found that serum albumin shows significant positive correlation with both SF-36 and SF-36 domain scores.

**Keywords :** APD, CAPD, quality of life, SF-36

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0807

Abstract Submission No. : APCN20250478

### Machine Learning Models for Predicting Peritonitis in Peritoneal Dialysis Patients

Tzu-Chen Lin<sup>1,2</sup>; Chih-Yuan Huang<sup>3,4</sup>; Cheng-Chieh Yen<sup>3</sup>; Chin-Ya Su<sup>3</sup>

<sup>1</sup> Nurse Practitioner, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan

<sup>2</sup> Department of Nursing, Chung-Jen Junior College of Nursing, Health Sciences and Management

<sup>3</sup> Division of Nephrology, Department of Internal Medicine, Ditmanson Medical Foundation Chia-Yi Christian Hospital, Chiayi, Taiwan

<sup>4</sup> Department of Sport Management, College of Recreation and Health Management, Chia Nan University of Pharmacy and Science, Tainan, Taiwan

#### Abstract

**Background:** Peritoneal dialysis (PD) is a widely adopted kidney replacement therapy for patients with end-stage kidney disease, offering notable advantages over hemodialysis, including greater autonomy and flexibility. However, PD-associated peritonitis (PDP) remains a serious complication, often leading to technique failure, hospitalization, and increased morbidity and mortality. Early risk stratification may allow for timely, personalized preventive strategies. Machine learning (ML) techniques offer potential for improved predictive performance through the analysis of high-dimensional clinical data.

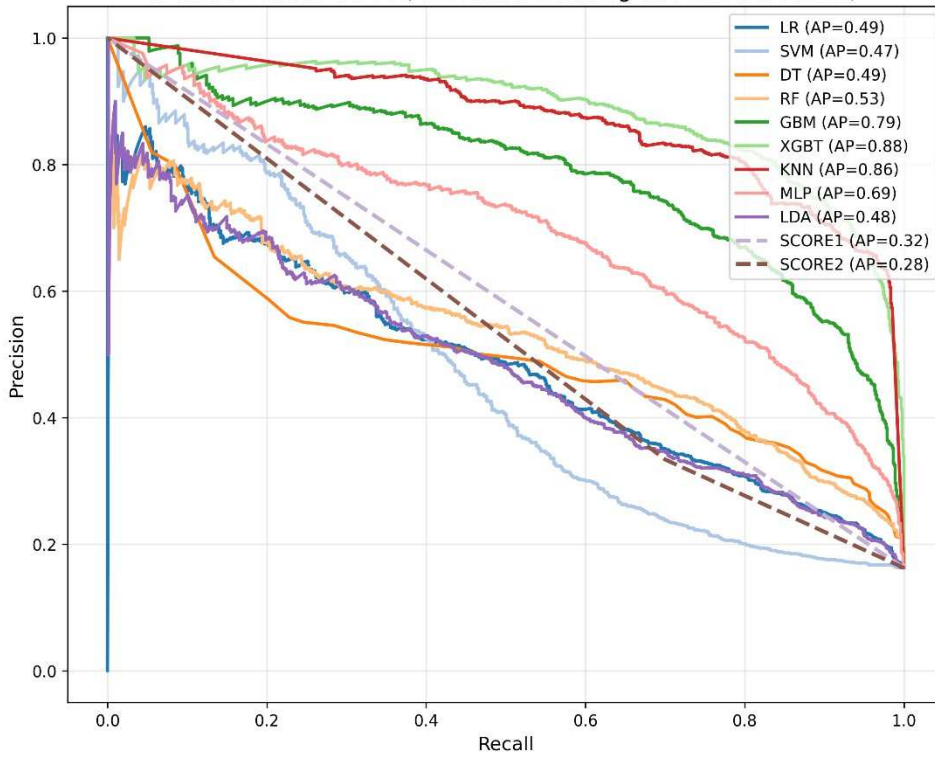
**Materials and Methods:** We conducted a retrospective study involving patients undergoing PD at our hospital from 2011 to 2022. Clinical data were extracted from the Taiwan Society of Nephrology – Kidney Dialysis and Transplantation registry and linked with PDP events. The primary outcome was the occurrence of PDP within 12 months of each monthly report. Nine ML algorithms were evaluated: logistic regression (LR), support vector machine (SVM), decision tree (DT), random forest (RF), gradient boosting machine (GBM), extreme gradient boosting (XGBoost), K-nearest neighbors (KNN), multi-layer perceptron (MLP), and linear discriminant analysis (LDA). Model performance was assessed using area under the receiver operating characteristic (AUROC) and precision-recall curves. Feature importance was evaluated using SHapley Additive exPlanations and permutation methods. Regression coefficients were converted into two scoring systems (SCORE1 and SCORE2), with optimal cutoffs determined by Youden's index. Compact models were constructed using top-ranking features until average precision (AP) exceeded 0.7. Model performance was compared across datasets with original, missing-excluded, and imputed values.

**Results:** A total of 410 patients and 373 PDP events were analyzed across 18,457 monthly reports, with 16.17% followed by a PDP episode within 12 months. Several ML models demonstrated robust predictive performance, with AUROC values exceeding 0.9 for GBM (0.95), XGBoost (0.98), KNN (0.97), and MLP (0.91). AP values were also high (XGBoost: 0.88; KNN: 0.86), and F1 scores surpassed 0.80 for XGBoost. In comparison, SCORE1 and SCORE2 exhibited inferior discrimination. Compact models using only top-ranked variables achieved AP >0.7; notably, XGBoost and KNN reached this threshold using just three features. Performance across datasets with original, missing-excluded, and imputed data showed minimal bias.

**Conclusions:** ML algorithms, particularly XGBoost and KNN, demonstrated high predictive accuracy for PDP within 12 months. These models may support clinical decision-making through early identification of high-risk patients and facilitate targeted prevention strategies.

**Keywords :** Machine Learning, Peritoneal Dialysis, Peritonitis

Precision-Recall Curve (All Models including SCORE1 & SCORE2)



## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0808

Abstract Submission No. : APCN20250491

### Innovative 3D printed for shared decision making Introduction of peritoneal dialysis simulation teaching aid into kidney replacement therapy education

Ching-I, Cheng<sup>1</sup>; Woan-Jean, Lin<sup>1</sup>; Min-Ling, Wang<sup>1</sup>; Tai-Shuan, Lai<sup>2,3</sup>; Chih-Kang, Chiang<sup>2,3</sup>; Jenq-Wen, Huang<sup>2,3</sup>

<sup>1</sup> Department of Nursing, National Taiwan University Hospital, Taiwan

<sup>2</sup> Blood Purification Division, Department of Integrated Diagnostics and Therapeutics, National Taiwan University Hospital, Taiwan

<sup>3</sup> Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taiwan

#### Abstract

##### Background:

When patients progress to end-stage renal failure, a multidisciplinary care team consisting of physicians and chronic kidney disease educators initiates a shared decision-making (SDM) process. In 2020, 200 shared decision-making (SDM) meetings were conducted in our peritoneal dialysis center. Patients initially chose peritoneal dialysis but eventually chose a peritoneal dialysis catheter. Our center developed an innovative "3D printed peritoneal dialysis simulation aid" and introduced it into health education. This study aims to evaluate the ability of the "3D printed peritoneal dialysis simulation aid" in improving the understanding of peritoneal dialysis.

##### Methods:

From July to December 2022, we introduced this innovative aid in a purposive sampling pilot study with 22 participants. Questionnaires were collected before and after the use of the 3D printed peritoneal dialysis simulation aid.

##### Results:

The "3D printed simulated peritoneal dialysis simulation teaching aid" introduced a clinical shared decision-making mechanism for dialysis mode selection, which increased the effectiveness of patients choosing peritoneal dialysis treatment from 50% to 81.8%. The chi-square analysis p value = 0.02, which is statistically significant. Between July and December 2022, 22 patients completed the survey after using the 3D printed peritoneal dialysis simulation teaching aid. The main findings are as follows: "This teaching tool helped me better understand the peritoneal dialysis (PD) operation." Average score: 4.55. Before using the 3D printed simulated peritoneal dialysis model: 2.14, which increased to 4.68 after use. Overall satisfaction with the peritoneal dialysis simulation teaching aid: Average score: 4.64.

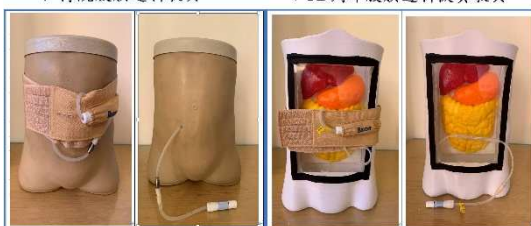
##### Conclusion:

The innovative "3D printed peritoneal dialysis simulation teaching aid" currently used to introduce SDM has achieved good results, helping patients make joint decisions between doctors and patients, with high patient satisfaction and a better understanding of the treatment mode.

**Keywords :** 3D printed, peritoneal dialysis, simulation teaching aid

▼ 傳統腹膜透析教具

▼ 3D列印腹膜透析擬真教具



## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0809

Abstract Submission No. : APCN20250499

### The Impact of Icodextrin on Peritoneal Dialysis Patients with Congestive Heart Failure

LI-YI MA<sup>1</sup>; Pei-Chun Fan<sup>1,2</sup>; Yung-Chang Chen<sup>1,2</sup>; Hsiang-Hao Hsu; Chih-Hsiang Chang<sup>1,2</sup>

<sup>1</sup> Kidney Research Center, Department of Nephrology, Chang Gung Memorial Hospital, Linkou branch, Taoyuan City, Taiwan

<sup>2</sup> College of Medicine, Chang Gung University, Taoyuan City, Taiwan

#### Abstract

**Background:** Icodextrin is an alternative peritoneal dialysis (PD) solution with favorable fluid management and metabolic properties. Given the limited evidence regarding the use of icodextrin in patients with pre-existing congestive heart failure (CHF), this study aimed to evaluate its impact on clinical outcomes in PD patients.

**Methods:** We conducted a retrospective cohort study using the Chang Gung Research Database (CGRD), including 1,800 eligible PD patients with CHF from 2005 to 2022 in Taiwan, followed through June 2023. Icodextrin users ( $\geq 50\%$  of PD duration) were compared with non-users. Primary outcomes included all-cause mortality, cardiovascular mortality, sudden death, and major adverse cardiovascular events (MACE). Multivariable Cox proportional hazards models incorporating time-varying exposure to icodextrin were applied.

**Results:** Icodextrin use was significantly associated with lower risks of all-cause mortality (adjusted hazard ratio [HR]: 0.16, 95% confidence interval [CI]: 0.13–0.20), cardiovascular mortality (HR: 0.20, 95% CI: 0.13–0.30), sudden death (HR: 0.15, 95% CI: 0.11–0.19), and MACE (HR: 0.68, 95% CI: 0.58–0.80). Icodextrin users also had reduced risks of encapsulating peritoneal sclerosis and transition to hemodialysis but lower transplantation rates.

**Conclusions:** In PD patients with CHF, icodextrin use was independently associated with improved survival and cardiovascular outcomes. These findings support its preferential use in high-risk PD populations and warrant further prospective investigation.

**Keywords :** Peritoneal dialysis, icodextrin, heart failure

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0810

Abstract Submission No. : APCN20250504

### Long-Term Outcomes and Predictors of Transient and Persistent Hungry Bone Syndrome in Peritoneal Dialysis Patients Following Parathyroidectomy

SHUN-NENG, HSU<sup>1</sup>; Yu-Juei Hsu; Sin-Yu Lin<sup>3</sup>; Si-Yuan Wu<sup>4</sup>; Shih Ming-Lang<sup>4</sup>; Chih-Chien Sung<sup>1</sup>; Pauling Chu<sup>1</sup>; Shih-Hua Lin<sup>1</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

<sup>2</sup> Department of Biochemistry, National Defense Medical Center, Taipei, Taiwan

<sup>3</sup> Graduate Institute of Aerospace and Undersea Medicine, National Defense Medical Center, Taipei, Taiwan

<sup>4</sup> Division of General Surgery, Department of Surgery, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

#### Abstract

**Background:** Hungry bone syndrome (HBS) is a common yet under-characterized complication following parathyroidectomy (PTX) in dialysis patients with secondary hyperparathyroidism (SHPT), particularly those on continuous ambulatory peritoneal dialysis (CAPD). Its persistence beyond the early postoperative period imposes prolonged clinical management challenges. This study aimed to delineate the clinical course and identify predictors of transient versus persistent HBS in CAPD patients undergoing PTX.

**Methods:** A retrospective cohort of 51 CAPD patients who underwent PTX for severe SHPT was analyzed. HBS was defined by corrected calcium <7.5 mg/dL on postoperative day 3 (POD3) or within postoperative week 1 (POW1). Patients were classified into non-HBS (n = 21) and HBS (n = 30), with the latter subgrouped into transient (n = 15) and persistent (n = 15) forms based on calcium recovery within 6-12 months. Longitudinal serum corrected calcium, phosphate (P), intact parathyroid hormone (iPTH), alkaline phosphatase (ALP), and potassium (K) were tracked, and predictors were identified through logistic regression and receiver operating characteristic (ROC) analyses.

**Results:** HBS occurred in 58.8% of patients, with 50% progressing to persistent HBS, which could last beyond 1 year. Compared to non-HBS patients, the HBS group had significantly lower serum calcium and phosphate levels, elevated ALP levels (particularly at postoperative month 1 [POM1]), and higher potassium levels. Elevated preoperative ALP (>165 U/L) and hypocalcemia on POD3 (<7.8 mg/dL) were identified as independent predictors of HBS. Persistent HBS was associated with even higher perioperative ALP levels and lower POW1 phosphate levels, accompanied by greater calcium and vitamin D supplementation. Long-term follow-up (POM12-36) revealed that persistently lower iPTH levels in the HBS group may contribute to prolonged hypocalcemia. Interestingly, patients with uremic tumoral calcinosis (UTC) frequently developed HBS but rarely required continuous ambulatory intraperitoneal calcium (CAIC) or intravenous calcium, suggesting an altered skeletal buffering phenotype.

**Conclusions:** HBS is a common and often prolonged complication in CAPD patients after PTX, especially with high preoperative ALP. Early postoperative shifts in calcium and ALP, along with persistently low iPTH levels, reflect ongoing skeletal remineralization demand and delayed parathyroid graft recovery. Individualized supplementation strategies are crucial, particularly in patients with high bone turnover or coexisting UTC.

**Keywords :** hungry bone syndrome, hyperkalemia, hypocalcemia, parathyroidectomy, peritoneal dialysis, secondary hyperparathyroidism

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0811**

**Abstract Submission No. : APCN20250506**

### **Improving Exit Site Complications in Peritoneal Dialysis Patients Through a Multimodal Fixed Strategy**

Yan, Chih-Chuan<sup>1</sup>; Ho-Shin-Yi<sup>1</sup>; Chen,Wei-Chen <sup>1</sup>; Hsu,Hsin-Wen <sup>1</sup>; Hsu,Chin-Huei<sup>1</sup>; Huang,Yu-Ying<sup>1</sup>; Kuo Mei-Chuan<sup>1</sup>

<sup>1</sup>高雄醫學大學附設中和紀念醫院腹膜透析室

#### **Abstract**

##### **Background:**

Peritoneal dialysis (PD) is a common renal replacement therapy for end-stage renal disease, offering benefits such as home-based care, fewer hospital visits, and improved quality of life. However, treatment effectiveness depends on catheter stability and healthy exit-site skin. Improper catheter fixation may lead to skin redness, breakdown, granuloma, or infection. From Jan 2023 to Dec 2024, our unit found 29.3% of PD patients had exit-site issues, often linked to poor fixation methods and self-care skills.

##### **Methods:**

Among those with skin complications, 6.4% were within 6 months of starting PD, and 22.9% had 1–3 years of experience, showing the issue spans across all treatment stages. We implemented a "diversified fixation strategy" tailored to patients' lifestyle, activity levels, and body type. Fixation methods included: (1) fixation devices (e.g., Hollister) for new patients, (2) U-shaped tape to reduce tension, and (3) wearable supports like abdominal bands or fitted garments. Nurses provided monthly skin assessments and education to reinforce self-care.

##### **Results:**

After implementing the new strategy, catheter dislocation and skin traction significantly decreased. Most patients reported improved comfort and stability during daily activities. For those with prior complications, symptoms improved notably. From Jan to June 2025, exit-site complication rates dropped to 1%, highlighting the clinical benefit of improved fixation.

##### **Conclusion:**

Catheter fixation quality directly affects PD outcomes. A personalized, diversified fixation approach can reduce complications and improve care. This strategy is practical, cost-effective, and adaptable, with nurses playing a critical role in assessment, education, and ongoing care to ensure treatment success.

**Keywords :** Peritoneal dialysis, diversified fixation strategy

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0812**

**Abstract Submission No. : APCN20250523**

### **Prevalence and Determinants of Peritoneal Dialysis Dropout: A Single State Five-Year Retrospective Study**

Logaruban Aravan<sup>1</sup>; Uvanesan Kathiravelu<sup>1</sup>; Lily Mushahar<sup>1</sup>

<sup>1</sup> Department of Nephrology, Hospital Tuanku Jaafar Seremban, Negeri Sembilan, Malaysia

#### **Abstract**

##### **Introduction**

Peritoneal dialysis (PD) been increasingly recognized as vital modality for home based kidney replacement therapy (KRT). As per Malaysian registry, prevalence of PD patients in 2022 was 7940 patients with PD drop out rate of 20-30% per annum. Study in China reported a PD dropout rate of 41.38%, with the primary reasons being conversion to hemodialysis (41.67%), kidney transplantation (28.21%), and death (25%). A Japanese study reported that 59% of home deaths among PD patients were attributed to sudden cardiac events.

##### **Methodology**

We conducted a retrospective cohort study among three PD Centre's at Negeri Sembilan, Malaysia to evaluate the prevalence and causes of PD dropout among patients with End-Stage Kidney Disease (ESKD) undergoing PD as long term KRT. Patients aged  $\geq 18$  years who received PD  $\geq 3$  months between 1st January 2020 and 31st December 2024 were included. Demographic and outcome data was recorded. Patients with missing or incomplete records were excluded.

##### **Results**

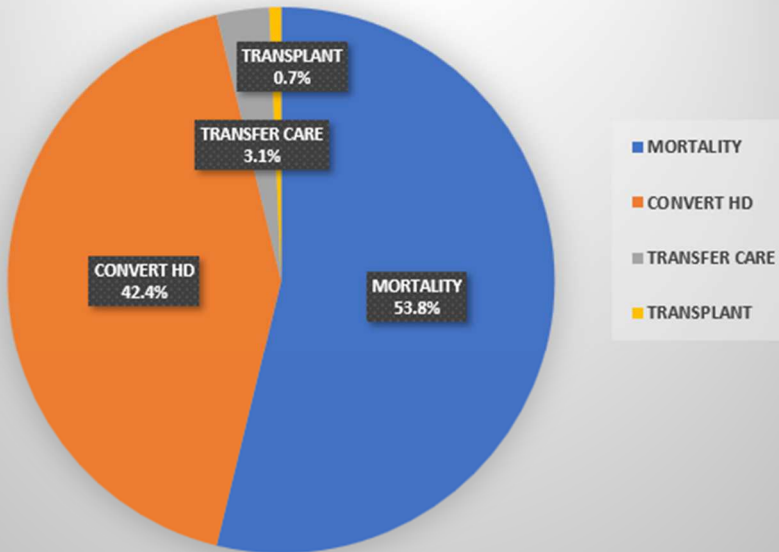
The study recorded a total of 583 new PD patients recruited over a 5-year period, in addition to existing PD patients, averaging 501 PD patients/year. During study period, PD dropout rate was 22.0% over the study period. Among the total PD dropout cases, mortality was a significant contributor, accounting for 53.8% of cases. Meanwhile, 42.4% of patients converted to haemodialysis and transfer of care (3.1%). Successful kidney transplantation accounted for a small proportion of dropout cases (0.7%). The leading cause of death was sepsis, accounting for 40.1% of all deaths, with only one-third attributed to PD-related sepsis. Followed by death at home, which constituted 36.0% of cases. Other documented causes included in-hospital cardiac events (15.2%), stroke (7.0%), gastrointestinal bleeding (1.0%), and malignancy (0.7%). PD drop out due to conversion to haemodialysis was commonly due to peritonitis, accounting for 64.5%. then PD catheter malfunction (13.2%), patient or caregiver preference (12.9%), inadequate dialysis or ultrafiltration failure (5.1%), and hernia-related complications (4.3%).

##### **Conclusion**

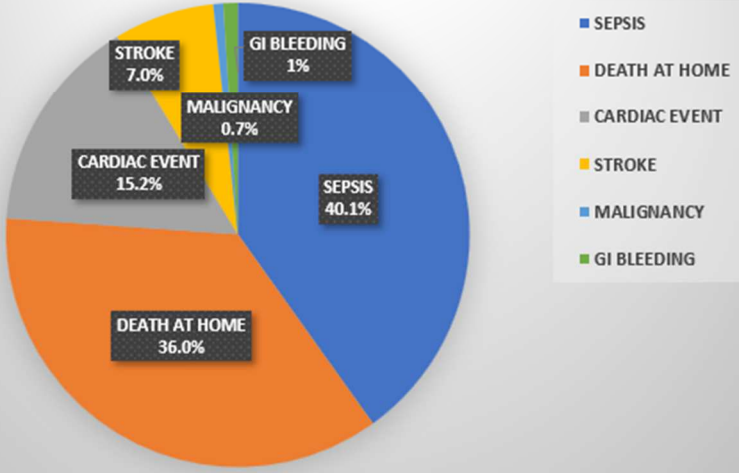
Our study concluded significant PD dropout rate among study population although the rate remained within the national reference range. Mortality which was primarily due to sepsis and deaths occurring at home accounted for over half of all dropout cases. Peritonitis emerged as the leading cause of technique failure, prompting transition to haemodialysis. These findings underscore the critical need for strengthened infection control measures, earlier identification of cardiovascular complications, and enhanced patient support systems to reduce dropout rates and improve the long-term sustainability of PD therapy.

**Keywords :** Peritoneal dialysis, PD. PD Dropout, PD Mortality

### CAUSES FOR PD DROP OUT



### Mortality Contributor Among PD Drop Out



## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0813**

**Abstract Submission No. : APCN20250536**

### **Varicella Zoster Encephalitis In A Peritoneal Dialysis Patient: A Diagnostic Challenge Complicated By Acyclovir-Induced Neurotoxicity**

BEN-CHUNG CHENG<sup>1,2</sup>; Yu-Chuan Huang<sup>1</sup>; Te-Chuan Chen<sup>2</sup>; Wen-Chin Lee<sup>2</sup>

<sup>1</sup> Peritoneal Dialysis Center, Division of Nephrology, Kaohsiung Chang Gung Memorial Hospital, Taiwan

<sup>2</sup> Division of Nephrology, Kaohsiung Chang Gung Memorial Hospital, Taiwan

#### **Abstract**

##### **Introduction**

Varicella Zoster Virus (VZV) encephalitis is a rare but serious neurological complication in peritoneal dialysis (PD) patients. Diagnosis becomes particularly challenging when treatment-related complications arise from antiviral medications. We present a case highlighting the diagnostic dilemma between VZV encephalitis and acyclovir-induced neurotoxicity in a PD patient.

##### **Methods**

We report a 58-year-old male on peritoneal dialysis who developed herpes zoster ophthalmicus followed by neurological complications. His clinical course, diagnostic workup, treatment challenges, and outcomes were documented and analyzed in context of existing literature.

##### **Results**

The patient initially presented with right eye pain and headache, diagnosed as herpes zoster. Following oral acyclovir treatment, he developed progressive neurological symptoms including tremors, confusion, and altered consciousness. These symptoms were initially attributed to acyclovir toxicity, leading to dosage reduction. His condition deteriorated to acute respiratory failure (Glasgow Coma Scale: E1VEM4). Cerebrospinal fluid analysis confirmed VZV encephalitis. The patient was managed with an adjusted CAPD regimen (5 exchanges daily with varying concentrations). Despite recommendations for hemodialysis in acyclovir toxicity cases, he was successfully treated with continued CAPD and adjusted antiviral therapy, showing clinical improvement after three weeks.

##### **Conclusion**

This case demonstrates the challenge of distinguishing between viral encephalitis and drug-induced neurotoxicity in PD patients. It highlights the importance of careful medication dosing in renal impairment and shows that successful management of VZV encephalitis is possible while maintaining PD therapy. Our experience contributes valuable insights into managing cases where drug toxicity and viral infection present with overlapping clinical features.

**Keywords :** Varicella Zoster Encephalitis, Peritoneal Dialysis, Acyclovir Neurotoxicity

## Timeline of Varicella Zoster Encephalitis Case in a Peritoneal Dialysis Patient



2025		
Jan 9	<b>Initial Presentation</b>	Right eye pain and headache; ER visits to multiple hospitals; Pain medication administered
Jan 10	<b>Disease Progression</b>	Right eyelid swelling with vesicles; Diagnosed with herpes zoster; Oral acyclovir initiated
Jan 15	<b>Follow-up Visit</b>	Drug-induced cognitive impairment noted; Acyclovir dosage reduced; Development of tremors, weakness, tinnitus, and somnolence
Jan 16	<b>Neurological Deterioration</b>	Self-talking, disorientation, slurred speech, altered mental status, involuntary movements; Unable to stand; Admitted to emergency room
Jan 17	<b>Critical Condition</b>	Acute respiratory failure; NICU admission; GCS: E1VEM4; Nephrology consultation; CAPD continued (5 exchanges/day); IV acyclovir started
Jan 20	<b>Treatment Decision</b>	GCS remained E1VEM4; NSICU and nephrology consultation; No indication for HD; Continued CAPD regimen
Jan 21	<b>Definitive Diagnosis</b>	VZV detected in CSF; Confirmed VZV encephalitis
Feb 11	<b>Discharged from Hospital</b>	

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0814**

**Abstract Submission No. : APCN20250537**

### **Evaluating Hydrocolloid Dressing for Peritoneal Dialysis Exit-Site Care: A Pilot Trial**

Htay Htay<sup>1,2</sup>; Su Fong Kok<sup>1</sup>; Jasmine Shimin Chung<sup>3</sup>; Mathini Jayaballa<sup>1,2</sup>; Khin Zar Li Lwin<sup>1</sup>; Elizabeth Ley Oei<sup>1,2</sup>; Tan Chieh Suai<sup>1,2</sup>; Angela Yee Moon Wang<sup>1,2</sup>; Marjorie Wai Yin Foo<sup>1,2</sup>

<sup>1</sup> Department of Renal Medicine, Singapore General Hospital, Singapore

<sup>2</sup> DUKE-NUS Medical School, Singapore

<sup>3</sup> Department of Infectious Disease, Singapore General Hospital, Singapore

#### **Abstract**

##### **Introduction**

Routine exit-site care is a critical component in preventing catheter-related infections in peritoneal dialysis (PD) patients. Hydrocolloid dressings are designed for wound care and have inherent anti-septic properties. Additionally, their adhesive nature helps stabilize the PD catheter tubing.

##### **Methods**

This single-center randomized pilot study, conducted from January 2022 to December 2024, enrolled 60 stable PD patients who were assigned to receive either weekly hydrocolloid dressings or daily topical gentamicin cream, with a follow-up period of six months. The study assessed the feasibility of conducting a trial using hydrocolloid dressings, as well as PD-related infection rates, time to first infection episode, adverse events, and patient acceptability. Infection rates were analyzed using Poisson regression, and time-to-event outcomes were evaluated with Cox regression.

##### **Results**

A total of 60 PD patients were screened and enrolled, yielding a 100% recruitment rate. Baseline demographic and clinical characteristics were comparable between the two groups. The median follow-up duration was 168 days (interquartile range [IQR] 159–189). There were 5 episodes of PD-related infection (exit-site infection or peritonitis) in the hydrocolloid dressing group and 2 episodes in the gentamicin group. The difference was not statistically significant (incidence rate ratio [IRR] 2.88; 95% CI: 0.56–14.8;  $p=0.21$ ). Similarly, there was no significant difference in time to first PD-related infection (hazard ratio [HR] 8.5; 95% CI: 0.96–75.3;  $p=0.05$ ). Five adverse events occurred in four patients on hydrocolloid dressing: three developed granulation tissue at the exit site, and two developed localized contact dermatitis. No adverse events were observed in the gentamicin group. Quality of life (measured by EQ-5D) and treatment acceptability (assessed by the Treatment Acceptability Questionnaire) were similar between the two groups.

##### **Conclusions**

In summary, the study showed a trend toward a higher incidence of adverse events with hydrocolloid dressings compared to daily gentamicin cream for exit-site care in PD patients, although the difference was not statistically significant. Future studies are warranted to further investigate these findings.

**Keywords** : exit site care, peritoneal dialysis, hydrocolloid dressing, peritoneal dialysis-related infection

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0815

Abstract Submission No. : APCN20250547

### Can peritoneal dialysis be continued, as opposed to switching to HD, in end-stage renal disease patients with acute coronary syndrome with pulmonary edema?

YI-CHE LEE<sup>1</sup>; Yahn-Bor Chern<sup>2</sup>; Shih-Yuan Hung<sup>1</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, E-DA Hospital, Kaohsiung, Taiwan

<sup>2</sup> Division of Nephrology, Department of Internal Medicine, Yuan's General Hospital, Kaohsiung, Taiwan

#### Abstract

**Background:** The management of acute coronary syndrome (ACS) complicated by pulmonary edema remains clinically challenging, particularly in patients receiving dialysis. Hemodialysis (HD) has traditionally been favored due to its capacity for rapid and effective volume removal. However, peritoneal dialysis (PD) may offer hemodynamic advantages, particularly in vulnerable patient populations. This study aimed to evaluate the clinical feasibility of continuing PD in patients already maintained on PD who develop ACS with concurrent pulmonary edema.

**Methods:** A retrospective analysis was conducted at a single medical center involving 13 patients undergoing maintenance PD, who collectively experienced 15 episodes of ACS complicated by pulmonary edema. Clinical data were obtained from electronic medical records, including patient demographics, comorbid conditions, Killip classification, modifications to PD prescriptions during acute events, and clinical outcomes. PD-related adjustments during the ACS episodes were systematically documented, and the therapeutic efficacy of PD-based management was assessed.

**Results:** Of the 15 ACS episodes, 11 events (73.3%) were successfully managed with PD alone, while 4 events (26.7%) required temporary transition to HD due to inadequate fluid control. The majority of events were classified as Killip Class II (20%) or Class III (73.3%). The mean intensive care unit stay was 4.0 days, and the in-hospital mortality rate was 20%.

**Conclusions:** For patients maintained on PD who develop ACS with pulmonary edema, transition to HD may not be universally necessary. With individualized modifications to PD regimens, most patients can be effectively managed without conversion. Nonetheless, thorough patient-specific assessment remains essential to optimize clinical outcomes.

**Keywords :** acute coronary syndrome; chronic kidney disease; hemodialysis; end-stage kidney disease; peritoneal dialysis; pulmonary edema.

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0816**

**Abstract Submission No. : APCN20250563**

### **Experience in wound care after peritoneal dialysis catheter placement**

Chen Wei-Chen<sup>1</sup>; Chin-Huei Hsu <sup>1</sup>; Chih-Chuan Yan<sup>1</sup>

<sup>1</sup> Department of Nursing Kaohsiung Medical University Hospital, Kaohsiung Medical University

#### **Abstract**

##### **Background:**

Peritoneal dialysis (PD) is a common renal replacement therapy for patients with end-stage renal disease. To perform PD, a dialysis catheter must be surgically implanted, and the quality of postoperative wound care directly impacts the success of dialysis initiation and infection prevention. Traditionally, patients stay in the hospital for 2–3 days after surgery. During this time, they or their family members are trained and evaluated on wound care procedures. After discharge, they must perform daily wound care themselves. This process often causes anxiety and stress, leading to difficulties in self-care, delayed wound healing, and reduced quality of life.

To address this issue, our hospital initiated a postoperative home-care optimization program for PD catheter insertion. The goal was to reduce patient and caregiver anxiety while improving wound healing and overall quality of life.

##### **Methods:**

After team discussions, a new care method was implemented. We used catheter-secured waterproof and breathable dressings, combined with gauze-containing waterproof dressings, applied to both the surgical site and catheter exit site. On the day of discharge, nurses applied the dressings; afterward, patients and their families were not required to perform any wound care at home. Instead, they returned to the hospital after seven days for wound assessment. If any issues arose within those seven days, they could return for immediate medical attention. Additionally, PD nurses followed up via phone calls on the first and third days post-discharge to check on patient status and provide support.

##### **Results:**

From January 2024 to January 2025, 14 patients underwent PD catheter insertion using this new care method. All 14 patients experienced no signs of redness, swelling, or pain at the wound site. Two patients experienced heavy bleeding at home but were immediately treated after returning to the hospital. Most patients and families reported feeling relieved that no wound care was required during the first two weeks at home. They could rest better and experienced less anxiety. Overall, this new wound care model effectively reduced stress for patients and families, while improving wound healing and quality of life.

##### **Conclusion:**

Postoperative wound care using secure, waterproof, and breathable dressings allows PD patients more rest and less anxiety after surgery. It enhances confidence in self-care and lowers the risk of infection. Ultimately, reducing patient and caregiver stress and promoting safe recovery is our primary goal.

**Keywords :** Postoperative wound care

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0817

Abstract Submission No. : APCN20250565

### Association between Peritoneal Equilibrium Test and Plasma Phosphate Level in Patients with End Stage Kidney Disease Undergoing Peritoneal Dialysis: A Cross-Sectional Study

Andika Dhamarjati<sup>1</sup>; Siti Nur Rohmah<sup>2</sup>; Metalia Puspitasari<sup>2</sup>

<sup>1</sup> Department of Internal Medicine, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Indonesia

<sup>2</sup> Nephrology and Hypertension Division, Department of Internal Medicine, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada/ Dr Sardjito General Hospital, Yogyakarta, Indonesia

#### Abstract

**Introduction:** Hyperphosphatemia is a common and clinically significant complication in patients undergoing peritoneal dialysis (PD), contributing to cardiovascular morbidity and mortality. Phosphate clearance in PD is influenced not only by dialysis prescription and dietary intake, but also by transport characteristics of the peritoneal membrane. The Peritoneal Equilibrium Test (PET) is a diagnostic tool used in PD patients to assess the transport characteristics of the peritoneal membrane. However, current evidence does not establish a direct, validated relationship between PET results and level of plasma phosphate in PD patients.

**Methods:** This study was a cross-sectional design in patients with End-Stage Kidney Disease (ESKD) who were over 18 years old and undergoing routine PD  $\geq 3$  months at Sardjito General Hospital Yogyakarta, Indonesia. Patients with history of malignancy, autoimmune, severe cardiovascular disease (e.g., congestive heart failure), and disorder of phosphate metabolism (e.g., secondary hyperparathyroidism) were excluded. PET measurements were conducted in November 2024. Patients were classified according to their PET grade by evaluating their 4-hour dialysate-to-plasma creatinine concentration ratio (D/P creatinine). Subjects with D/P creatinine  $> 0.71$  were considered as having high PET grade. Subjects were also categorized as having hyperphosphatemia when their phosphate level exceeded 4.5 mg/dL. The primary outcomes were relationship between the the PET grade and phosphate level. Furthermore, the difference in the plasma phosphate between high and low grade PET was assessed.

**Results:** From a total of 42 subjects analyzed, there are 30 subjects (71.4%) who have low PET grade. Patients with lower D/P creatinine ( $< 0.71$ ) tend to have higher levels of plasma phosphate (5.13 mg/dL vs 4.07 mg/dL,  $p=0.031$ ). With logistic regression analysis, patients with low D/P creatinine were 4.5 times more likely to have hyperphosphatemia compared to the reference group. Each 0.1 unit increase in D/P creatinine is associated with an approximate decrease of 0.54 mg/dL in plasma phosphate levels. Although the relationship is statistically significant, the strength of the model is weak ( $R^2 = 0.12$ ), indicating that only 12% of the variation in phosphate levels is influenced by D/P creatinine.

**Conclusions:** This study demonstrates a significant negative association between D/P creatinine and plasma phosphate levels in PD patients. However, the models is weak, indicating that other factors may contribute substantially to phosphate regulation and should be explored in further analyses.

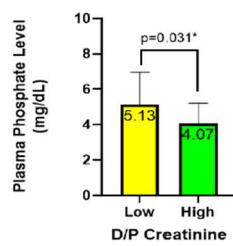
**Keywords :** peritoneal dialysis, peritoneal equilibrium test, phosphate levels, hyperphosphatemia

Table 1. Association between hyperphosphatemia and low grade D/P creatinine

	Subjects by D/P creatinine		Exp(B) (95% CI)	P
	Low (n=30)	High (n=12)		
Hyperphosphatemia, n (%)				
Yes	18 (60.0)	3 (25.0)	4.500	0.049*
No	12 (40.0)	9 (75.0)	(1.007-20.106)	

Table 2. Linear regression factor affecting level of plasma phosphate

	B	Sig.	95% Confidence Interval for B		R <sup>2</sup>
			Lower Bound	Upper Bound	
(Constant)	8.324	<0.001	5.255	11.429	
D/P creatinine	-5.377	0.025	-10.033	-0.721	0.120



Picture 1. Differences between low and high grade D/P creatinine based on plasma phosphate level

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0818

Abstract Submission No. : APCN20250645

### Remote monitoring in automated peritoneal dialysis improves compliance and reduces hospitalization duration: A prospective multi-center cohort study

Gang-Jee Ko<sup>1</sup>; Ji Eun Kim<sup>1</sup>; Jin Joo Cha<sup>2</sup>; Young Sun Kang<sup>2</sup>; Dae Ryong Cha<sup>2</sup>; Myung Gyu Kim<sup>3</sup>; Sang Kyung Jo<sup>3</sup>; Se Won Oh<sup>3</sup>; Young Joo Kwon<sup>1</sup>

<sup>1</sup> Korea University Guro Hospital

<sup>2</sup> Korea University Ansan Hospital

<sup>3</sup> Korea University Anam Hospital

#### Abstract

**Introduction:** Remote monitoring in peritoneal dialysis (PD) has the potential to improve adherence and clinical outcomes, yet comparative data among PD modalities are limited. This study aimed to compare PD compliance, hospitalization, fluid status, and medical costs among patients undergoing continuous ambulatory PD (CAPD), automated PD (APD), and remote monitoring-assisted APD (RM-APD).

**Methods:** In this prospective cohort study, 73 patients maintained on a single PD modality for  $\geq 1$  year were enrolled (CAPD: n=26; APD: n=23; RM-APD: n=24). PD compliance was calculated from supply usage records. Fluid status was evaluated using the overhydration to extracellular water ratio (OH/ECW%). Hospitalization days, emergency visits, medical costs, and clinical parameters were assessed over one year.

**Results:** The RM-APD group showed the highest compliance (median 63.7% [IQR 56.6–74.1],  $p=0.002$ ). Adjusted analysis confirmed superior compliance in RM-APD compared to APD (difference: 22.48%, 95% CI: 8.12–36.84,  $p=0.003$ ). RM-APD patients had significantly fewer hospitalization days (adjusted IRR: 0.34, 95% CI: 0.23–0.49,  $p<0.001$ ) and lower inpatient costs ( $p=0.037$ ). OH/ECW% reduction was greater in RM-APD than CAPD ( $p=0.042$ ), while nutritional markers, Kt/V, and ejection fraction were comparable across groups.

**Conclusions:** RM-APD was associated with improved PD compliance, reduced hospitalization burden, and better fluid management compared to CAPD and APD. These findings support the utility of RM-APD in optimizing patient outcomes and healthcare efficiency in PD.

**Keywords :** peritoneal dialysis; remote monitoring; automated peritoneal dialysis; continuous ambulatory peritoneal dialysis

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0819

Abstract Submission No. : APCN20250676

### Fluconazole Prophylaxis to Prevent Fungal Peritonitis in Peritoneal Dialysis: An Evidence-Based Case Report

Rizki Trismimanda<sup>1</sup>; Fhathia Avisha<sup>2</sup>; Crisdina Suseno<sup>3</sup>; Nadia Puspita Dewi<sup>4</sup>; Masyfuk Zuhdi Jamhur<sup>5</sup>; Arizki Nuzulardi Fumasa<sup>5</sup>

<sup>1</sup> General Practitioner, Kudungga District Hospital, Indonesia

<sup>2</sup> Departement of Internal Medicine, Ciptomangunkusumo Hospital, Jakarta, Indonesia

<sup>3</sup> General Practitioner, Mentawai Island District Hospital, Indonesia

<sup>4</sup> General Practitioner, Tualang District Hospital, Indonesia

<sup>5</sup> General Practitioner, Medical Faculty of Andalas University, Indonesia

#### Abstract

**Introduction:** Fungal peritonitis is a rare but potentially serious complication in patients undergoing chronic peritoneal dialysis, and is associated with high rates of morbidity and mortality. This evidence-based case report aims to assess the effectiveness of fluconazole in preventing fungal peritonitis in peritoneal dialysis patients.

**Methods:** This evidence-based case report was conducted by searching Scopus, PubMed, and the Cochrane Library from 2020 to 2025, using the terms ("Fluconazole"[Mesh] OR fluconazole[Title/Abstract]) AND ("Peritoneal Dialysis"[Mesh] OR "peritoneal dialysis"[Title/Abstract] OR "continuous ambulatory peritoneal dialysis"[Title/Abstract] OR CAPD[Title/Abstract]) AND ("Peritonitis"[Mesh] OR peritonitis[Title/Abstract] OR "peritoneal dialysis-associated peritonitis"[Title/Abstract]) AND ("Prevention and Control"[Mesh] OR prophylaxis[Title/Abstract] OR prevention[Title/Abstract]). Two studies were included. Critical reviews were conducted using the Oxford Centre for Evidence-Based Medicine for systematic reviews and retrospective cohort studies.

**Results:** Two studies that were included showed different results. In a cohort study by Luchana et al., 101 peritoneal dialysis patients were observed, of whom 33 (32.7%) received antifungal prophylaxis—primarily fluconazole 100 mg daily (used in 84.8% of cases). Over a 1-year period, fungal peritonitis occurred in 6.1% (2/33) of patients who received prophylaxis and in 1.5% (1/68) of those who did not, suggesting no significant protective effect. Moreover, among 28 patients on fluconazole, ECG monitoring revealed QTc prolongation (>460 ms) in 70% and markedly prolonged QTc (>500 ms) in 30%, raising concerns about potential cardiac risk. However, a meta-analysis conducted by Motta Guimarães et al. demonstrated that fluconazole prophylaxis was significantly associated with a lower incidence of fungal peritonitis (OR 0.22; 95% CI: 0.12–0.41;  $p < 0.001$ ;  $I^2 = 0\%$ ). Subgroup analysis focusing on studies administering daily fluconazole also showed a protective association (OR 0.31; 95% CI: 0.14–0.69;  $p = 0.004$ ;  $I^2 = 0\%$ ). Fluconazole dosages in the included studies ranged from 50 mg to 200 mg daily or 100–200 mg on alternate days, indicating variability in clinical practice.

**Conclusion:** Preliminary evidence suggests that fluconazole as antifungal prophylaxis in peritoneal dialysis patients receiving antibiotics for previous episodes of peritonitis may significantly reduce the incidence of fungal peritonitis. However, other retrospective cohort studies have reported different results, and concerns regarding QTc prolongation require caution. The lack of large multicenter RCTs and long-term resistance data necessitates further study before routine prophylaxis can be recommended.

**Keywords :** Fluconazole, Prophylaxis, Fungal peritonitis, Peritoneal Dialysis

**Table 1. Study Characteristic**

Author (Year)	Study Design	Sample Size	Intervention	Comparator	Outcome Measure	Key Findings
Luchana et al. (2025)[1]	Retrospective Cohort	101	Fluconazole 100 mg daily	No prophylaxis	Among the 101 patients, 33 (32.7%) were co-prescribed with antifungal prophylaxis, while 68 (67.3%) were not. Fluconazole 100 mg daily was the most common antifungal agent used (84.8%). Over 1 year, two patients developed secondary fungal peritonitis in patients with concomitant antifungal prophylaxis (6.1%; 95% CI: 0.74% to 20.23%), compared to 1 patient (1.5%; 95% CI: 0.037% to 7.92%) in patients without antifungal prophylaxis. Among 28 patients on fluconazole, 10 had repeat ECGs. Of these, 7 patients had a QTc greater than 460 ms (70%; 95% CI: 34.8% to 93.3%), and 3 were greater than 500 ms (30%; 95% CI: 6.7% to 65.2%).	Antifungal prophylaxis in the setting of PD-associated peritonitis does not correlate with fewer episodes of secondary fungal peritonitis. Increased QTc with azole use is a potential risk factor for cardiac arrhythmia
Motta Guimarães et al. (2024) [2]	Systematic Review and Meta-analysis	Six studies (1 RCT, 5 observational)	4515 occurrences of peritonitis of which 1098 (24.8%) received fluconazole prophylaxis in variable doses, whereas 3417 (75.6%) did not receive prophylaxis during peritonitis episodes.  The fluconazole dose varied, ranging from 50 mg to 200 mg daily, and from 100 mg to 200 mg every other day (EOD).	No prophylaxis	Fluconazole prophylaxis was associated with a lower incidence of FP (OR 0.22; 95% CI 0.12-0.41; p<0.001; I2=0%). Subgroup analysis of studies that administered daily doses of fluconazole also demonstrated a reduced incidence of FP in patients who received antifungal prophylaxis (OR 0.31; CI 0.14-0.69; p=0.004; I2=0%).	Prophylaxis with fluconazole significantly reduced episodes of FP as compared with no antifungal prophylaxis.

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0820**

**Abstract Submission No. : APCN20250685**

### **The Association Between the Ratio of Intracellular to Extracellular Water and Five-Year Survival Risk in Peritoneal Dialysis Patients**

HSIU-YEN LIN<sup>1</sup>

<sup>1</sup> Division of Nephrology and Peritoneal dialysis room, Changhua Christian Hospital, Changhua City, Taiwan

#### **Abstract**

##### **Objective:**

In clinical practice, bioelectrical impedance spectroscopy (BIS) can assist nephrologists in assessing the hydration status of peritoneal dialysis (PD) patients. When patients experience overhydration, blood volume increases, thereby raising the risk of cardiovascular mortality. In addition, body composition is not only related to hydration status but also to malnutrition, both of which are factors that increase mortality risk.

##### **Method:**

This study retrospectively collected data from adult PD patients at a single medical center. Body composition was assessed using BIS (Body Composition Monitor; Fresenius Medical Care, Bad Homburg, Germany). EIR was categorized into four groups based on its quartiles. For statistical analysis, categorical data were analyzed using the Chi-square test. For continuous data, one-way ANOVA was used if the data were normally distributed, while the Kruskal-Wallis test was used for non-normally distributed data to compare differences among the four EIR (intracellular-to-extracellular water ratio) groups.

##### **Result:**

A total of 468 PD patients were retrospectively collected in this study. During the five-year follow-up period, the Q4 group had the lowest survival probability, while the Q1 group had the highest (log-rank test  $p < 0.001$ ).

##### **Conclusion:**

EIR is one of the important indicators for predicting the five-year all-cause mortality risk in PD patients. After adjusting for factors with  $p$ -values  $< 0.05$  in the univariate Cox analysis using a multivariate Cox PH model, the results showed that for every 0.1 increase in EIR, the risk of death increased by 18.5% ( $p = 0.017$ ). When patients were grouped by EIR quartiles, each increase in quartile group was associated with a 54.9% increase in mortality risk ( $p = 0.001$ ).

**Keywords :** Peritoneal Dialysis 、 bioelectrical impedance spectroscopy 、 Ratio of Intracellular to Extracellular Water 、 Survival Risk

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0821**

**Abstract Submission No. : APCN20250688**

### **Experience sharing in peritoneal dialysis patient support group**

Chin-Huei Hsu<sup>1</sup>; Yan Chih-Chuan<sup>1</sup>; Chen Wei-Chen<sup>1</sup>; Hsu Hsin-Wen<sup>1</sup>; Ho-Shin-Yi<sup>1</sup>; Huang Yu-Ying<sup>1</sup>; Kuo Mei-Chuan<sup>1</sup>

<sup>1</sup>高雄醫學大學附設中和紀念醫院腹膜透析室

#### **Abstract**

##### **Background:**

This peritoneal dialysis (PD) patient support group is composed of peritoneal dialysis patients and their families, aiming to create a platform for sharing experiences and offering mutual support. We believe peritoneal dialysis should not be a limitation, but rather be an empowering step towards a better life. By building this platform, we strive to integrate "treatment" and "living" together and help patients toward a healthier and more empowered future.

##### **Method:**

To ensure the success of each event, the organizing team follows a structured approach before each activity:

1. Identify goals and themes: Survey patients' needs and clarify the focus of the upcoming event.
2. Assemble a planning team: Include physicians, nurses, and patient volunteers to design the event together.
3. Survey patients' interest: Use questionnaires to gather suggestions.
4. Plan content: Begin with small informal discussion
5. Promote and recruit: Announcements in clinics to invite patients and families
6. Pilot and adjust: collect feedback from each activity and refine future activities.
7. Stabilize operations and feedback loop: Establish a regular meeting schedule, brief documentation, and member feedback mechanisms to ensure continuity and improvement.

##### **Results:**

Since inception of PD Patient Support Group, it has hosted multiple activities. The recent two events focused on kidney transplant and travel sharing. Through share experiences and preparation for kidney transplantation to help patients understand the transplant process, postoperative care, and psychological adjustment. By sharing travel experiences help patients plan safe and enjoyable trips. These 2 activities attracted consistent participation. The satisfaction survey was 93.5%. By roundtable discussions and involvement of healthcare professionals, patients not only acquired practical knowledge but also developed a community of trust and mutual support. Many participants actively shared their personal stories, boosting confidence and inspiring engagement.

##### **Conclusions:**

The establishment of the PD patient support group has significantly promoted experience sharing and emotional support, enhanced patients' confidence and quality of life. Medical team involvement provides professional and safety advices. Through these activities foster a sense of community, alleviate the isolation and anxiety of treatment, and encourage a positive mindset. We recommend further expansion of the group's scale, enriched content, and strengthened patient participation to improve overall care quality and patient well-being. This support group will continue to accompany every patient and family toward a healthier, more hopeful future.

**Keywords :** Peritoneal Dialysis, Patient Support Group

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0822

Abstract Submission No. : APCN20250693

### Peritoneal Dialysis Treatment Experience in Liver Cirrhosis with Ascites Complicated by End-Stage Renal Disease

Ho, Shin-YI<sup>1</sup>; Chen Wei-Chen<sup>1</sup>; Yan Chih-Chuan<sup>1</sup>; Hsu Chin-Huei<sup>1</sup>; Hsu Hsin-Wen<sup>1</sup>; Huang Yu-Ying<sup>1</sup>; Kuo Mei-Chuan<sup>1</sup>

<sup>1</sup>高雄醫學大學附設中和醫院腎臟內科暨腹膜透析室

#### Abstract

##### Background:

In patients with liver cirrhosis and ascites who require renal replacement therapy, peritoneal dialysis (PD) presents increased care complexity. This includes managing ascites accumulation, hypoalbuminemia, coagulopathy, and heightened infection risk. In this case, the patient opted for PD to remove uremic toxins and excess fluid while effectively controlling ascites. Compared to repeated percutaneous paracentesis, PD provides a more physiological, non-invasive, and sustainable method for fluid management, which can be integrated into daily care.

##### Methods

A tailored, gradual initiation strategy of peritoneal dialysis (PD) was adopted based on the patient's individual physiological status and clinical needs. Initiating dialysis with a standard prescription—such as a 2000 mL fill volume per exchange—may result in complications including abdominal distension, gastrointestinal discomfort, dyspnea, dialysate leakage, and, in some cases, abdominal wall hernia or scrotal edema. To minimize these risks, Continuous Ambulatory Peritoneal Dialysis (CAPD) was initiated with a reduced fill volume of 1000–1500 mL per exchange. When the drainage volume was observed to be inadequate (<1500 mL), the fill volume was gradually increased to 1500–1700 mL, and ultimately adjusted to reach the standard 2000 mL prescription. This stepwise titration approach helped to lower intra-abdominal pressure, reduce patient discomfort, and enhance both dialysis efficiency and ascites clearance.

##### Results:

After initiating the gradual PD protocol, the patient's clinical status improved significantly. The volume of ascites progressively declined, abdominal distension eased, and abdominal girth reduced from 106 cm to 75 cm. Lower intra-abdominal pressure also enhanced respiratory function and improved oral intake. Bilateral lower limb pitting edema, initially assessed as 4+, resolved completely. The patient's weight steadily decreased from 60 kg to 48.2 kg. Daily effluent volume remained stable without large fluctuations or signs of overfiltration, with average ultrafiltration ranging from 280 to 900 mL. Laboratory data further confirmed improvement in metabolic clearance, with BUN/Cr decreasing from 112.2/6.83 mg/dL (Feb 26) to 50.95/5.60 mg/dL (June 2).

##### Conclusion:

This case highlights that PD can be a feasible and effective renal replacement option for patients with concurrent liver cirrhosis and ascites. PD not only supports toxin and fluid clearance, but also helps maintain fluid balance and reduces the frequency of invasive procedures such as paracentesis. It provides a physiologically favorable, patient-centered approach that may improve quality of life while minimizing complications and healthcare burden.

**Keywords :** Peritoneal Dialysis, Ascites, End-Stage Renal Disease (ESRD)

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0823

Abstract Submission No. : APCN20250721

### A Prospective Study of Processed Food Refusal Self-Efficacy and Phosphorus Control in Peritoneal Dialysis Patients

Ying-Wen Chi<sup>1</sup>

<sup>1</sup> Division of Nephrology, Tri-Service General Hospital, Taipei City, Taiwan

#### Abstract

##### Background:

Excessive dietary phosphorus intake, especially from processed foods, is a major contributor to poor serum phosphorus control in peritoneal dialysis (PD) patients. Identifying behavioral predictors of phosphorus management is clinically essential, yet few studies have evaluated refusal-related self-regulation in this context. Refusing processed foods requires not only nutritional knowledge but also the confidence to enact difficult dietary choices. Social Cognitive Theory highlights self-efficacy as a key determinant of health behavior change, yet its predictive utility in dialysis-specific dietary behaviors remains underexplored. This prospective longitudinal study investigated whether processed food refusal self-efficacy predicts serum phosphorus levels over time in PD patients.

##### Methods:

A total of 86 PD patients in Taiwan completed a 10-item processed food refusal self-efficacy scale (Cronbach's  $\alpha = .88$ ). Serum phosphorus levels were collected at five time points: 6 months prior to assessment (T0), and at 3 (T1), 6 (T2), 9 (T3), and 12 (T4) months after assessment. Eight physiological and demographic covariates were included: total Kt/V, peritoneal equilibration test (PET), standardized total creatinine clearance, gender, age, marital status, dialysis vintage, and education level. Power analysis ( $f^2 = 0.35$ ,  $\alpha = .05$ , power = .95) indicated a minimum sample size of 77; the final sample ( $n = 86$ ) exceeded this threshold.

##### Results:

Pearson correlations revealed significant negative associations between processed food refusal self-efficacy and phosphorus levels at T1–T4 ( $r = -.22$  to  $-.27$ , all  $p < .05$ ). After controlling for covariates, hierarchical regression analyses showed that self-efficacy significantly predicted improved phosphorus levels at T2 ( $\beta = -.23$ ,  $p < .05$ ) and T3 ( $\beta = -.22$ ,  $p < .05$ ). Moderation analysis using PROCESS Macro further indicated that the predictive effect at T2 was significant only among patients with the highest baseline phosphorus levels (Effect =  $-0.58$ ,  $p < .05$ , 95% CI [ $-1.02$ ,  $-0.14$ ]).

##### Conclusion:

This study extends Social Cognitive Theory by identifying processed food refusal self-efficacy as a behavior-specific predictor of mid-term biochemical outcomes. Clinically, this scale offers a practical tool for identifying high-risk patients and informing targeted dietary interventions. Strengthening refusal self-efficacy—especially in patients with poorly controlled phosphorus—may enhance adherence and improve long-term phosphorus management in dialysis care.

**Keywords :** processed food 、 Phosphorus 、 self-efficacy 、 peritoneal dialysis

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0824

Abstract Submission No. : APCN20250743

### Exploring the Quality of Life and Its Associated Factors in Patients Undergoing Peritoneal Dialysis

Chia-Hsiang Hsiao<sup>1</sup>; Hao-Ping Wang <sup>2</sup>; Chieh-Wei Chang<sup>1</sup>

<sup>1</sup>Department of Nursing, Kaohsiung Municipal Siaogang Hospital, Kaohsiung Medical University, Kaohsiung Medical University Hospital, Taiwan

<sup>2</sup>Division of Nephrology, Department of Internal Medicine, Kaohsiung Municipal Siaogang Hospital, Kaohsiung Medical University, Taiwan

#### Abstract

**Introduction:** This study aims to explore the quality of life and its associated factors among patients undergoing peritoneal dialysis.

**Methods:** Seventeen patients undergoing peritoneal dialysis at a regional hospital participated in the study. Data were collected through the WHOQOL-BREF (World Health Organization Quality of Life – BREF) questionnaire and structured interviews.

**Results:** The average age of participants was 53 years, with a mean dialysis duration of 54.5 months. Of these participants, 41.18% performed self-exchange dialysis and were employed full-time. The average quality of life score decreased from 4.26 in 2022 to 3.65 in 2024, suggesting that prolonged dialysis may lead to declining physical health. Many patients required additional care from specialists or support from family due to reduced physical capacity. Among the four WHOQOL-BREF domains, the environmental domain had the highest scores, reflecting satisfaction with food options, dialysis flexibility, and minimal impact on employment. In contrast, the psychological domain scored lowest, with patients expressing concerns about transitioning to hemodialysis, aging, and dialysis-related complications. Employed patients reported better quality of life, possibly due to enhanced self-care, physical health, and workplace social interaction. In terms of education, 53% completed high school or vocational high school, and 35.3% held a college degree or higher. Participants with higher education levels generally reported better overall quality of life, potentially due to greater financial independence.

**Conclusion:** Patients who perform self-exchange dialysis, are free of complications, remain employed, and are younger, tend to experience a better quality of life. To address concerns about transitioning to hemodialysis, we recommend that the National Health Insurance Administration actively promote home hemodialysis. Nursing staff should also provide personalized care that takes into account patients' physical, psychological, and social needs. Empathetic communication and tailored education could further enhance patient well-being.

**Keywords :** Quality of life; Peritoneal dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0825**

**Abstract Submission No. : APCN20250744**

### **A Systematic Review of Evidence on Whether Urgent-Start Peritoneal Dialysis Increases the Risk of Catheter Leakage**

CHEN PEI YIN<sup>1</sup>; Yi-Chun Chen<sup>1</sup>; Li-Fen Lien<sup>1</sup>; Jui-Tsung Ting<sup>1</sup>

<sup>1</sup> Department of Nephrology, Taoyuan General Hospital, Ministry of Health and Welfare

#### **Abstract**

##### **Background:**

Conventional peritoneal dialysis (PD) protocols recommend a minimum 14-day interval between catheter insertion and initiation to reduce dialysate leakage risk. However, patients with rapidly deteriorating renal function may require urgent-start PD (USPD), defined as initiation within 14 days post-insertion. While USPD offers timely intervention, concerns regarding increased complication risks, particularly leakage, have prompted further investigation. The occurrence of three leakage cases within three months post-operation at our institution since 2022 catalyzed a systematic evidence-based review to guide clinical improvements.

##### **Methods:**

A PICO-based search strategy was developed, incorporating keywords such as “Peritoneal Dialysis,” “Early Start,” and “Dialysate Leak,” combined with MeSH terms and relevant synonyms. Searches were conducted across PubMed, Embase, Cochrane Library, and CEPS databases using Boolean operators (AND/OR). Studies published within the past ten years in English or Chinese were screened. Inclusion criteria focused on systematic reviews and meta-analyses examining the association between catheter initiation timing and the risk of dialysate leakage. Two representative studies—Zang (2019) and He (2024)—met the eligibility criteria and were selected for comparative analysis using the CASP appraisal tool.

##### **Results:**

Zang synthesized 10 observational studies (n=1,947), while He updated and expanded to 17 studies (n=5,094) through 2023. Both compared USPD with planned-start PD and found significantly increased leakage risk with USPD (Zang OR  $\approx$  2.3; He RR = 2.13, 95% CI [1.58–2.88]). No significant differences were observed in peritonitis, catheter failure, or mortality rates. He's analysis demonstrated higher methodological rigor, particularly in heterogeneity management and quality assessment. GRADE-rated evidence quality was moderate; both reviews qualify as Level 2a per OCEBM standards. Leakage risk was notably higher when dialysis began within 3 days post-insertion or when percutaneous catheter placement techniques were used. Conversely, laparoscopic or open-surgical placement with visual fixation lowered leakage rates.

##### **Conclusion:**

Evidence indicates that early PD initiation, especially within 3 days post-surgery or with percutaneous catheterization, significantly increases leakage risk. For safer USPD implementation, delaying initiation to post-op day 3–5 and employing low-volume exchanges, bed rest, and early activity restriction are recommended. With appropriate precautions, USPD remains a viable and safe treatment for patients who cannot wait for conventional initiation.

**Keywords :** urgent-start PD/leakage

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0826

Abstract Submission No. : APCN20250759

### Trichosporon Asahii Peritonitis in Continuous Ambulatory Peritoneal Dialysis Patients

Eva Julita<sup>1</sup>; Suhaimi N<sup>1</sup>; Rivani E<sup>1</sup>; Ali Z<sup>1</sup>; Suprapti<sup>1</sup>; Effendi I<sup>1</sup>; Amanda N<sup>1</sup>; Aryaningrum E<sup>1</sup>; Maya PS<sup>1</sup>; Makky C<sup>1</sup>

<sup>1</sup> Mohammad Hoesin Hospital Palembang

#### Abstract

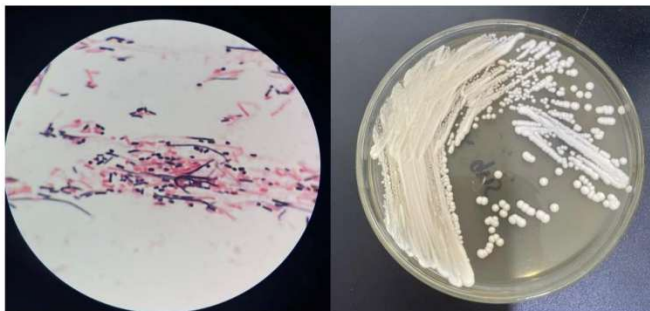
**Background:** Fungal peritonitis occurs in approximately 1-23% of adult patients with higher rates of morbidity, mortality, and catheter removal of CAPD (Continuous Ambulatory Peritoneal Dialysis) compared to bacterial peritonitis. The fungus penetrates the peritoneal cavity through intraluminal contamination of the catheter or by direct expansion of the infection from the catheter exit site. Trichosporonosis is a rare opportunistic infection found in patients with immune disorders.

**Case:** A 39-year-old male undergoing CAPD for six months, with a medical history of diabetes mellitus and hypertension, was admitted to the hospital with complaints of lower abdominal pain and exit-site pain, accompanied by nausea and intermittent fever. Blood laboratory results obtained: hemoglobin 7.5 g/dl, leukocytes 12,770/mm<sup>3</sup>, neutrophils 85, platelets 172x10<sup>3</sup>/μL, albumin 1.6 g/dl, urea 99 mg/dl, creatinine 12.95 mg/dl, sodium 131 mEq/l, potassium 3.0 mEq/l. As a result of gram staining, a dialysate liquid culture was found *Trichosporon asahii*. The patient passed away before the culture results were available.

**Discussion:** Fungal peritonitis should have been suspected and diagnosed earlier in this case. The most common symptom is abdominal pain accompanied by fever and cloudiness of dialysate fluid, Culture confirmed the presence of *Trichosporon asahii*. Weak immune system factors in CAPD patients with diabetes mellitus accompanied by poor laboratory results will worsen the patient's condition and increase the risk of mortality.

**Conclusion:** *T. asahii* was confirmed as the causative pathogen and is associated with a high risk of mortality. The diagnosis of trichosporosis was confirmed from the results of dialysate cultures. Rapid diagnosis, appropriate antifungal therapy, and prompt removal of the peritoneal dialysis catheter are crucial strategies to improve survival in CAPD patients.

**Keywords :** Continous Ambulatory Peritoneal Dialysis (CAPD), fungal peritonitis, *Trichosporon Asahii*



Gram Staining (microscopic).

Picture of *T. Asahii* Colony

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0827**

**Abstract Submission No. : APCN20250808**

### **A Case Report on Early Detection of Subcutaneous Leakage in a Peritoneal Dialysis Patient Using a Cloud-Based Management System**

Hsu Shin-Wen<sup>1</sup>; Chen Wei-Chen<sup>1</sup>; Yan Chih-Chuan<sup>1</sup>; Hsu Chin-Huei<sup>1</sup>; Ho Shin-Yi Ho<sup>1</sup>; Huang Yu-Ying<sup>1</sup>

<sup>1</sup> Peritoneal Dialysis Unit, Nursing Department, Chung Ho Memorial Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

#### **Abstract**

##### **Background:**

The cloud-based patient management system is primarily used in home-based automated peritoneal dialysis (APD). It allows healthcare professionals to remotely monitor treatment data, adjust prescriptions, assess adherence, and detect abnormalities early to reduce complications.

This patient had been on APD for over a year. Daily system monitoring showed a 300 mL reduction in cycle 0 drainage, decreased daily ultrafiltration (from 1200 to 600 mL), and weight gain (104.4 to 108.3 kg). After straining during defecation, the patient noted a firm bulge near the umbilicus. A 10×10 cm subcutaneous mass was found, indicating subcutaneous leakage.

##### **Method:**

To reduce intra-abdominal pressure and leakage, the APD prescription was adjusted from 2200 mL × 4 cycles (plus 2000 mL fill and manual exchange) to 1800 mL × 4 cycles (plus 1500 mL fill and manual exchange). The patient was instructed to avoid low chairs, straining, and pressure-increasing activities. Nurses monitored the system daily for abnormal indicators: blood pressure, body weight, shortened treatment/dwell times, drainage discrepancies, and skipped fills.

##### **Result:**

Despite adjustments, drainage and ultrafiltration continued to decline, and weight increased. Leakage persisted. Due to large body size and inadequate clearance, the patient was switched to hemodialysis after shared decision-making.

##### **Conclusion:**

Cloud-based systems support early detection of peritoneal dialysis complications like subcutaneous leakage. Combined with clinical judgment, they enhance patient safety and care quality.

**Keywords :** Peritoneal Dialysis, Subcutaneous Leakage, Cloud-Based Management

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0828

Abstract Submission No. : APCN20250818

### Effect of body mass index on clinical outcomes stratified by age in maintenance hemodialysis patients.

Seok Hui Kang<sup>1</sup>; Jun Young Do<sup>1</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, Yeungnam University Hospital, Daegu, Republic of Korea

#### Abstract

**Introduction:** Due to the unique characteristics of hemodialysis (HD) patients, traditional risk factors for mortality often present differently compared to the general population. In elderly HD patients in particular, the association between these conventional risk factors and mortality tends to be more complex. Body mass index (BMI) is a well-established risk factor for mortality and cardiovascular disease in the general population, but its association with outcomes in HD patients—especially among the elderly—has not been sufficiently investigated. We aim to evaluate the association between BMI and clinical outcomes based on age in maintenance hemodialysis patients.

**Methods:** We analyzed the dataset from the HD quality assessment programs and claims data of the Republic of Korea. We included adult patients ( $\geq 18$  years) who had been undergoing maintenance HD ( $n = 71,382$ ). We divided patients into four age groups ( $<65$ ,  $65-74$ ,  $75-84$ , and  $\geq 85$  years). Each group was divided into four subgroups according to BMI: underweight ( $<18.5$  kg/m<sup>2</sup>), normal ( $18.5-24.9$  kg/m<sup>2</sup>), overweight ( $25-29.9$  kg/m<sup>2</sup>), and obese ( $\geq 30$  kg/m<sup>2</sup>). We evaluated patient survival and cardiovascular events.

**Results:** The underweight, normal, overweight, and obese groups included 3775, 28073, 7851, and 1696 ( $< 65$  years); 1417, 13104, 3382, and 426 ( $65-74$  years); 1056, 7436, 1690, and 172 ( $75-84$  years); 182, 940, 169, and 13 ( $\geq 85$  years) patients, respectively. The underweight group had higher mortality rates than the normal group irrespective of age [adjusted hazard ratio (aHR), 95% confidence interval (CI): 1.30, 1.22–1.38; 1.33, 1.24–1.42; 1.37, 1.27–1.48; and 1.42, 1.19–1.70, in patients aged  $<65$ ,  $65-74$ ,  $75-84$ , and  $\geq 85$  years, respectively]. The underweight group had higher incident CVE risk than the normal group irrespective of age (aHR, 95% confidence interval: 1.08, 0.99–1.18; 1.11, 0.99–1.26; 1.13, 0.96–1.33; and 0.76, 0.46–1.25, in patients aged  $<65$ ,  $65-74$ ,  $75-84$ , and  $\geq 85$  years, respectively). However, overweight or obese patients showed modestly lower or comparable risks of all-cause mortality and cardiovascular events compared to the normal group across most age groups.

**Conclusion:** Patients with underweight group showed a generally higher risk of all-cause mortality and CVE compared to those with normal group across most age groups. In contrast, patients with overweight or obese groups tended to have modestly lower or comparable outcomes relative to those with normal group in most age groups. These findings suggest that, even in elderly HD populations, clinical efforts may need to focus more on addressing the risks associated with underweight status rather than those of overweight or obesity.

**Keywords :** Hemodialysis, Body mass index, Survival, Cardiovascular disease

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0829

Abstract Submission No. : APCN20250838

### A Case of Wernicke Encephalopathy in a Patient Undergoing Peritoneal Dialysis

Jingyuan Gao<sup>1</sup>; Nan Zhang<sup>1</sup>; Xiaoyuan Liu<sup>1</sup>; Yafeng Zhao<sup>1</sup>; Xiancheng Li<sup>1</sup>; Yu Wang<sup>1</sup>; Ping Fan<sup>1</sup>; Wei Xu<sup>1</sup>; Zhongxin Jin<sup>1</sup>; Pei Yan<sup>1</sup>; Xiaoyong Yu<sup>1</sup>

<sup>1</sup> Nephrology Department, Shaanxi Provincial Hospital of Traditional Chinese Medicine, Xi 'an City, Shaanxi Province, China

#### Abstract

**Introduction:** Wernicke Encephalopathy (WE) is an acute neuropsychiatric syndrome caused by thiamine deficiency, classically presenting with the triad of ophthalmoplegia, ataxia, and altered mental status. Patients receiving peritoneal dialysis (PD) are at increased risk due to dialysis-related vitamin loss, restrictive diets, and malnutrition. We report a case of WE occurring in a patient undergoing maintenance peritoneal dialysis.

**Methods:** A 60-year-old male with end-stage renal disease on continuous ambulatory peritoneal dialysis for 24 months presented with acute onset of diplopia, facial twitching, intermittent limb convulsions, truncal ataxia. The patient had type 2 diabetes mellitus and hypertension and was pursuing kidney transplantation but was obese, prompting strict caloric restriction for weight loss. Upon admission, neurological examination and brain MRI were performed, leading to suspicion of WE. Empirical high-dose thiamine was initiated immediately: intramuscular vitamin B<sub>1</sub> 100 mg twice daily for 3 days, then reduced to 100 mg once daily, parallel with nutritional support and continued **dialysis**.

**Results:** Brain MRI showed multiple scattered punctate slightly long T1 and slightly long T2 signal shadows in the bilateral basal ganglia, periventricular areas, semioval centers and subcortical regions of the frontal and parietal lobes, which presented as high signal changes on T2-FLAIR sequence, consistent with the manifestations of WE. The patient's recent significant weight loss, accompanied by strict dietary restriction, suggested a state of nutritional deficiency. Clinically, presentation with facial twitching and truncal ataxia further fulfilled diagnostic criteria for WE. Following the initiation of high-dose thiamine therapy, neurological signs improved rapidly, supporting the effectiveness of empirical treatment. Within 1 day, facial twitching substantially resolved, and by 3 days, facial and limb twitching as well as gait instability had completely disappeared. Thiamine maintenance dose was adjusted to 100 mg intramuscularly once daily thereafter. After 10 days of therapy, neurological symptoms had not recurred, and the patient was discharged in a stable condition. At one-month follow-up, no relapse was noted.

**Conclusion:** This case underscores the necessity for heightened clinical vigilance for WE in peritoneal dialysis patients, particularly those on restricted diets or with malnutrition. Early recognition and administration of high-dose thiamine therapy can result in rapid and complete neurological recovery, preventing irreversible sequelae. Nephrologists and dialysis care teams should proactively monitor nutritional status and consider prophylactic thiamine supplementation in at-risk patients.

**Keywords :** Peritoneal dialysis; Wernicke's encephalopathy; Complications of peritoneal dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0830**

**Abstract Submission No. : APCN20250860**

### **Deep learning applied to non-invasive detection of peritoneal dialysis drainage fluid turbidity for early diagnosis of peritonitis**

jin-xun Zhang<sup>1</sup>; Yi-Ting Chen<sup>2,3</sup>; Shuei-Liong Lin<sup>3</sup>; Yen-Wen Lu<sup>1</sup>; Yu-Siang Chou<sup>3</sup>

<sup>1</sup> Department of Biomechatronics Engineering, National Taiwan University, Taipei, 10617, Taiwan

<sup>2</sup> Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, 100225, Taiwan

<sup>3</sup> Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, 100225, Taiwan

#### **Abstract**

Peritonitis is a common and severe complication of peritoneal dialysis, often leading to hospitalization and treatment disruption. Current diagnostic methods rely on white blood cell (WBC) counts and bacterial cultures from dialysate samples, which are time-consuming and unsuitable for rapid preliminary screening in clinical or home settings. This study proposes a smartphone-based image classification pipeline using convolutional neural networks (CNNs) to enable rapid, early-stage, and noninvasive detection of infection-related turbidity in peritoneal dialysate. We collected 40 clinical dialysate samples and evaluated four pre-trained CNN models—AlexNet, VGG16, GoogLeNet, and ResNet-50—on smartphone-captured images. The preprocessing pipeline included standardized lighting, fixed camera distance and exposure, patch extraction, Otsu thresholding, and histogram equalization to ensure consistency. AlexNet50 achieved the highest performance, with 88% accuracy and 86% sensitivity, while ResNet-50 reached 85% specificity while maintaining 86% sensitivity, making both suitable for mobile deployment. This work demonstrates the feasibility of using smartphone imaging and deep learning for early warning and preliminary peritonitis screening outside the hospital. Future work will focus on expanding the sample size, integrating a user interface, and further optimizing model performance for clinical application.

**Keywords :** Peritoneal Dialysis; Peritonitis Detection; Deep Learning; Convolutional Neural Network; Dialysate Turbidity; Mobile Health; Image-Based Diagnosis; Point-of-Care System; Clinical Validation

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0831

Abstract Submission No. : APCN20250872

### Peritoneal dialysis combined with novel biologic in the treatment of chronic renal failure complicated with psoriasis: a case report and literature review

庄震<sup>1</sup>; Li YueHong<sup>1</sup>; Wen Wen<sup>1</sup>; Wu XiangLan<sup>1</sup>; Cao MinXia<sup>1</sup>

<sup>1</sup>Department of Nephrology, Beijing Tsinghua Changgung Hospital, School of Clinical Medicine, Tsinghua University, Beijing 102218, China

#### Abstract

##### Objective

To investigate the efficacy and safety of peritoneal dialysis (PD) combined with a novel biologic (Ixekizumab) in the treatment of patients with chronic renal failure (CKD) complicated with severe plaque psoriasis, and to analyze the synergistic effect of inflammatory factor clearance and immune regulation, so as to provide a new comprehensive treatment plan reference for clinical practice.

##### Method

A retrospective analysis was performed for the diagnosis and treatment of a 60-year-old male patient. He was admitted to our hospital in April 2024 due to proteinuria for 28 years, elevated serum creatinine for 4 years, and wheezing for more than 1 month. Cr 714.0  $\mu\text{mol/L}$ , HGB 92  $\text{g/L}$ , iPTH 235  $\text{ng/L}$ , Pi 2.39  $\text{mmol/L}$ , NT-proBNP 2500 $\text{ng/ml}$ . Before: history of hypertension, Diabetes mellitus, myocardial infarction (after PCI and CABG), cerebral infarction; Smoking. The patient had a history of psoriasis for 2 years, and the skin lesions gradually worsened, and traditional treatment was ineffective. The admission psoriasis area and severity index (PASI) were 14.4 points, and the body surface involvement area (BSA) was 32%. 2024.4 CAPD, daily dialysis volume 8 L, 2024.7 combined with the biologic Ixekizumab (160 mg subcutaneous injection initially, 80 mg maintenance every 2 weeks thereafter). Efficacy and safety were assessed by monitoring PASI, BSA, renal function, inflammatory markers (CRP, IL-6), and risk of infection (peritonitis, surgical site infection).

##### Results

- 1.Psoriasis improvement: 3.6 points of score (75% improvement of skin lesions) after 3 months of peritoneal dialysis treatment, PASI 100 (complete regression of skin lesions) and BSA decreased from 32% to 0% after 2 months of PD combined with Ixekizumab. (Fig 1)
- 2.Control of inflammatory markers: psoriasis-associated squamous cell carcinoma antigen SCCAg decreased from 49.6 to 26.7, CRP 15.65-0.8  $\text{mg/L}$ ; ESR 85-54  $\text{mm/h}$ . (Fig 2)
- 3.Safety: Individualized treatment plan (surgical site selection, avoidance of skin lesions, wearing gloves during peritoneal dialysis operation, etc.) did not occur during treatment, no peritonitis, catheter infection, or immunosuppression-related serious infection. (Fig 3)
- 4.Long-term efficacy: no recurrence of skin lesions after 1 year of follow-up, the dialysis regimen was well tolerated, and the quality of life of patients was improved.

##### Conclusion

Peritoneal dialysis combined with Ixekizumab can significantly improve the degree of skin lesions and quality of life in patients with chronic renal failure and psoriasis, which may involve molecular inflammatory mediators (such as IL-6 and TNF- $\alpha$ ) in the continuous clearance of PD, while biologic target and inhibit the IL-17A pathway, dually regulating the immune inflammatory response.

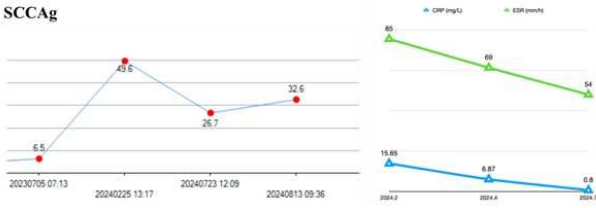
**Keywords** : Peritoneal dialysis · Psoriasis · Ixekizumab · new treatment plan

**Graphs & Tables**

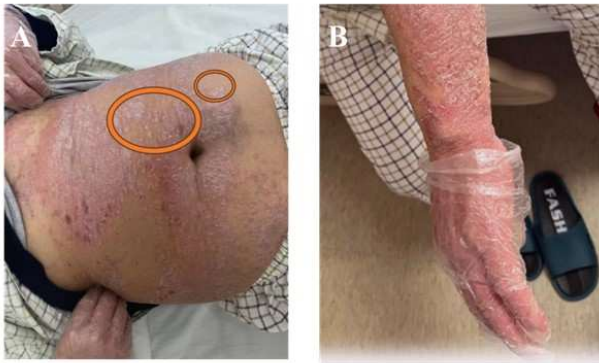


**Fig 1** PD combined with Ixekizumab in the treatment of patients ESKD complicated with severe plaque psoriasis. A. 2024.4 Traditional treatments, BSA 32%; B. 2024.7 PD for 3months BSA 5%; C. 2024.9 PD + Ixekizumab, BSA 0%

**SCCAg**



**Fig 2** Control of inflammatory markers in treatment PD combined with Ixekizumab.



**Fig 3** PD combined with Ixekizumab Control of inflammatory markers. A. surgical site selection; B. wearing gloves during peritoneal dialysis operation

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0832

Abstract Submission No. : APCN20250877

### Mapping Peritoneal Dialysis Patient Journey to Reveal Satisfaction, Pain Points, and Care Gaps

Wang Wei<sup>1</sup>; Felice Leong Fangie<sup>1</sup>; Ng Li Choo<sup>1</sup>; Marjorie Foo Wan Yin<sup>2</sup>; Chua Yan Ting<sup>3</sup>; Zhang Li Jun<sup>1</sup>; Xia Xue<sup>1</sup>; Badrun Bin Zulkafri<sup>1</sup>; Pung Li Xin<sup>1</sup>; Wong Min Jia<sup>4</sup>; Fazila Aloweni<sup>1</sup>; Ang Shin Yuh<sup>1</sup>

<sup>1</sup> Nursing Division, Singapore General Hospital, Singapore

<sup>2</sup> Department of Renal Medicine, Singapore General Hospital, Singapore

<sup>3</sup> Medicine, National University Hospital, Singapore

<sup>4</sup> Clinical Trials and Research Center, Singapore General Hospital, Singapore

#### Abstract

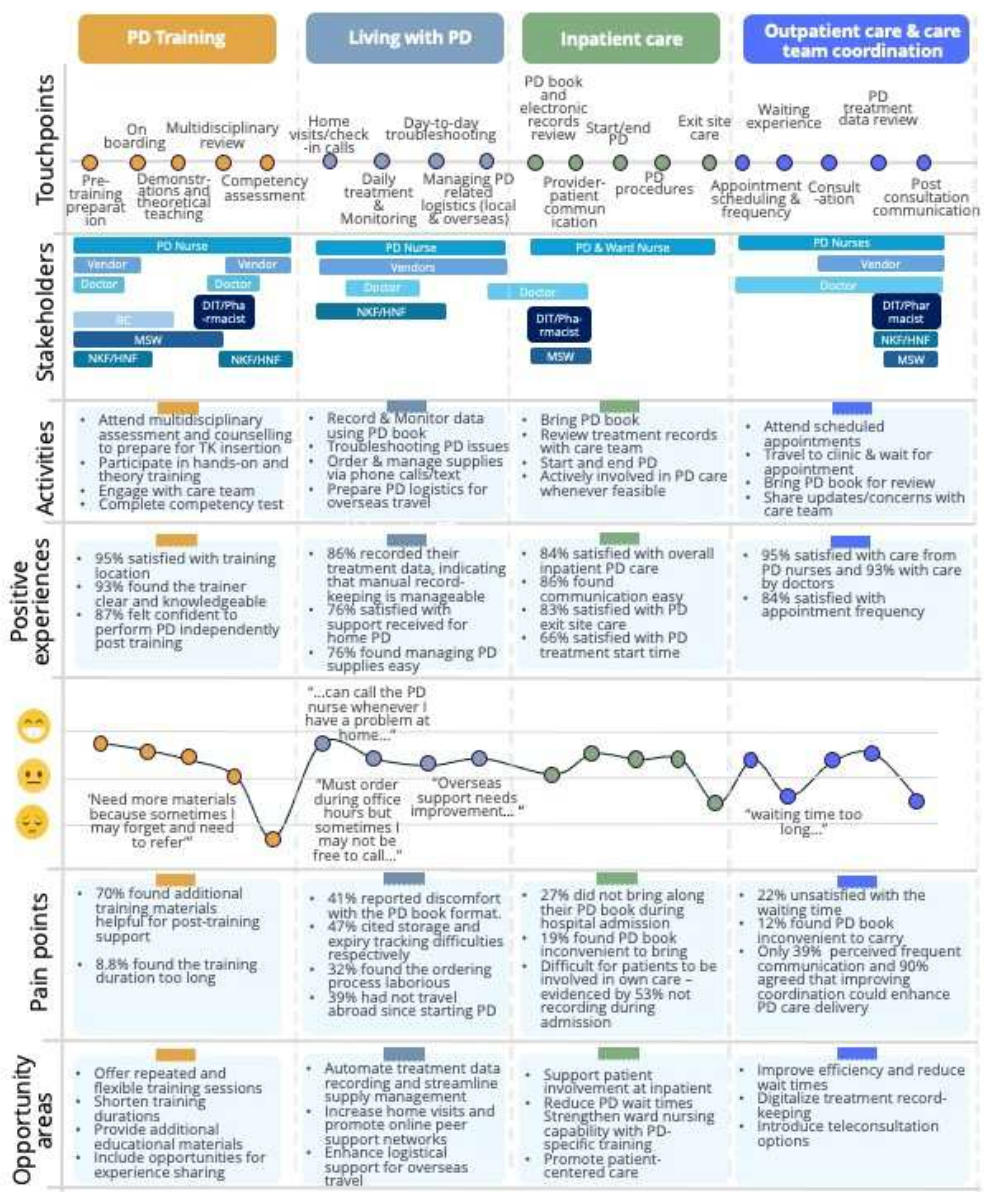
**Background:** Peritoneal dialysis (PD) is a home-dialysis treatment that requires self-management and coordination across multiple stakeholders. While prior studies have explored individual aspects of PD patient experience, none mapped the full treatment journey. Given the complexity and shared responsibilities involved, understanding the entire care continuum is critical to pinpoint recurring pain points and guide improvements to PD care. This study aimed to examine PD patients' satisfaction and experience across PD journey and construct a Patient Experience Journey Map (PEJM).

**Methods:** A single-centre cross-sectional survey was conducted among 125 PD patients from May to October 2024 at a PD outpatient clinic and renal inpatient ward of an acute teaching hospital. The questionnaire was developed to capture (i) demographic data, (ii) overall treatment satisfaction and life impact, and (iii) phase-specific satisfaction and experiences across four author-justified predefined PD journey phases: PD training, living with PD, inpatient care, and outpatient care with care team coordination. Questionnaire were adapted from existing literature and content validated by experts. Descriptive statistics and summative content analysis were used. Data from section 3 specifically guided the development of the PEJM.

**Results:** PD patients reported moderately high overall satisfaction (mean score = 7.52) and a positive impact on life (mean score = 6.42). Each phase of the PEJM (Figure 1) outlined key touch-points, patient activities and stakeholder, informed by clinical pathways, literature and author consensus. It also captured positive experiences, pain points, and improvement opportunities guided by the questionnaire. PD training was rated highly (95% satisfied), though patients expressed a desire for more flexible formats and additional learning materials. During the living with PD phase, 93% were satisfied with PD treatment and 76% with support received, but manual data recording, supply management burdens, and challenges with overseas travel emerged as common concerns. 84% of patients were satisfied with inpatient care, though 19% found bringing the PD book inconvenient. Satisfaction with outpatient care was high (93%), but 22% reported long wait times. 39% perceived frequent care team communication, while 90% expressed a desire for improvement. Identified opportunities included offering flexible PD training, digitalizing treatment data and supply management, introducing teleconsultation, and enhancing communication among stakeholders though no specific solutions were proposed.

**Conclusion:** Both the study findings and the PEJM provided a structured patient-informed perspective of the PD care continuum. These insights support the advancement of patient-centered care and could guide targeted interventions, personalized support, and system-level improvements that align with real-world patient needs.

**Keywords :** Home-based dialysis, Patient Journey mapping, Barrier to care, Patient-reported experiences, Treatment satisfaction, Peritoneal dialysis experience, Care experience



## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0833**

**Abstract Submission No. : APCN20250881**

### **Case Report in Managing Peritoneal Dialysis Effluent Leakage with Remote Patient Monitoring Assistance**

Mei-Hsien Wu<sup>1</sup>; Hui-Ying Lin<sup>1</sup>; Hsueh-Chi Chou<sup>1</sup>; Pei-Jung Wu<sup>1</sup>; Hsin-Chun Tsai<sup>1</sup>; Yung-Chu Yang<sup>1</sup>; Hsiu-Lien Hsu<sup>1</sup>; Jing-Wen Wang<sup>1</sup>; Shli-Chen Su<sup>1</sup>; Jo-Yen Chao<sup>2</sup>; Chin-Chung Tseng<sup>2</sup>; Chia-Chun Lee<sup>2</sup>

<sup>1</sup> 1Department of Nursing; Department of Internal Medicine; National Cheng Kung University Hospital, Tainan, Taiwan

<sup>2</sup> 2Division of Nephrology, Department of Internal Medicine; National Cheng Kung University Hospital, Tainan, Taiwan

#### **Abstract**

##### **Background:**

Effluent leakage is a common mechanical complication of peritoneal dialysis (PD) that can compromise treatment efficacy and increase the likelihood of transitioning to hemodialysis. Early recognition of ultrafiltration abnormalities through Remote Patient Monitoring (RPM) allows timely identification and management. We report a case of dialysate leakage in a patient who declined peritoneal rest and hemodialysis shift, successfully managed with conservative treatment guided by RPM, personalized prescription adjustments, and strategies to reduce intra-abdominal pressure.

##### **Methods:**

A 56-year-old male with diabetes mellitus and hypertension initiated PD on June 28, 2021. The RPM-assisted automated peritoneal dialysis (APD) program began on August 3, 2021, with initially uneventful treatment. On April 5, 2024, RPM detected decreased drainage volume (from 2103 mL to 1393 mL). Clinical evaluation revealed lower abdominal wall and scrotal edema, later confirmed as peri-catheter dialysate leakage by CT peritoneography on April 17, 2024. The patient refused peritoneal rest, hemodialysis conversion, and surgical intervention. Conservative management included reduced exchange volumes, frequent RPM monitoring, a 3-hour dry abdomen period during the day, avoidance of activities increasing intra-abdominal pressure, and external compression with a hernia belt.

##### **Results:**

With this approach, the patient maintained stable body weight (97–98 kg) and daily ultrafiltration volumes ranging from 1550 ml to 1950 mL, without further RPM alarms throughout the treatment period. During weekly in-person evaluations, progressive reduction of lower abdominal and scrotal edema was observed, with notable improvement after two weeks and complete resolution within one month. The patient reported relief of discomfort and improved mobility. After confirming resolution by clinical examination and stable RPM parameters, the PD prescription was gradually titrated back to the original regimen over two weeks without recurrence of leakage.

##### **Conclusion:**

RPM provides effective real-time monitoring and individualized care for home-based PD patients. It enables early detection and intervention for complications such as effluent leakage, reducing the need for modality change or hospitalization and enhancing the safety and continuity of PD therapy.

**Keywords :** Peritoneal dialysis, Effluent leakage, Remote patient monitoring, Ultrafiltration abnormality

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0834

Abstract Submission No. : APCN20250899

### Factors Associated With Cognitive Impairment Among Patients Undergoing Hemodialysis And Continuous Ambulatory Peritoneal Dialysis: A Cross-Sectional Analysis

Mala Hayati<sup>1</sup>; Achmad Rifa'i<sup>2</sup>; Atma Gunawan<sup>2</sup>; Ida Meita Sagala<sup>1</sup>

<sup>1</sup> Department of Internal Medicine, Brawijaya University, dr.Saiful Anwar Hospital Malang, Indonesia

<sup>2</sup> Nephrology and hypertension Division, Department of Internal Medicine, Brawijaya University, dr.Saiful Anwar Hospital Malang, Indonesia

#### Abstract

**Introduction:** Cognitive impairment (CI) in Maintenance Hemodialysis (MHD) and Continuous Ambulatory Peritoneal Dialysis (CAPD) patients has become the major concerns recently. There are many factors related to the presence of CI in patients undergoing MHD and CAPD. This study aims to analyze the association between demographic factors and clinical parameters and the presence of CI in patients receiving MHD and CAPD, as well as in the total patient population (dialysis).

**Methods:** This study employed a cross-sectional design utilizing observational methods conducted at Dr. Saiful Anwar Hospital from August 2024 to January 2025, involving 139 patients on dialysis, comprising 50 patients on CAPD and 89 patients on MHD. Cognitive function was assessed using the Montreal Cognitive Assessment-Indonesian version (MoCA-INA). The association of patient demographic factors and clinical parameters with CI were examined by Chi-Square Test.

**Results:** The prevalence of CI was 28.1% in patients on MHD and 40% in patients on CAPD. In the CAPD group, younger age (18–60) is associated with CI with  $p=0.029$ , but there is no odds ratio (OR) given because there are no patients on CAPD over 60 years old without CI. In the dialysis group, older age is significantly associated with CI ( $p=0.020$ ), with an OR of 2.929, indicating that patients aged above 60 years old are over 2 times more likely to have CI. In the MHD and dialysis groups, diabetes is significantly associated with CI (MHD:  $p=0.044$ , dialysis:  $p=0.011$ ), with an OR of 3.29 in the dialysis group, indicating that DM increases the risk of CI by over 3-fold. Abnormal serum albumin levels show a statistically significant association with CI in the dialysis group ( $p=0.020$ ). The OR of 2.462 indicates patients with abnormal serum albumin levels are over 2x more likely to have CI.

**Conclusion:** Older age, diabetes, and abnormal serum albumin levels were significantly associated with an increased risk of CI in patients undergoing dialysis, while younger age was associated with CI in CAPD groups, and diabetes was associated with CI in MHD groups.

**Keywords :** Maintenance Hemodialysis, Continuous Ambulatory Peritoneal Dialysis, Cognitive Impairment

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0835**

**Abstract Submission No. : APCN20250904**

### **A 10-Year Retrospective Analysis of Fungal Peritonitis in Peritoneal Dialysis Patients: Impact of Mixed Fungal-Bacterial Infections on Clinical Outcomes**

Hsueh-Chi Chou<sup>1</sup>; Pei-Jung Wu<sup>1</sup>; Mei-Hsien Wu<sup>1</sup>; Hui-Ying Lin<sup>1</sup>; Hsin-Chun Tsai<sup>1</sup>; Yung-Chu Yang<sup>1</sup>; Hsiu-Lien Hsu<sup>1</sup>; Wang-Jing Wen<sup>1</sup>; Shu-chen Su<sup>1</sup>; Jo-Yen Chao<sup>2</sup>; Chin-Chung Tseng<sup>2</sup>

<sup>1</sup> Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan

<sup>2</sup> Division of Nephrology, Department of Internal medicine, National Cheng Kung University Hospital, Tainan, Taiwan

#### **Abstract**

##### **Introduction**

Fungal peritonitis is a rare but serious complication in peritoneal dialysis (PD) patients, often leading to poor outcomes. This study aimed to investigate the differences in clinical outcomes between patients with mixed fungal-bacterial infections and those with pure fungal infections, to identify potential prognostic indicators and improve patient management strategies.

##### **Methods**

This retrospective study analyzed medical records of PD patients diagnosed with fungal peritonitis at a medical center in southern Taiwan from January 1, 2014, to December 31, 2024. A total of 17 patients were identified and divided into two groups: the mixed fungal-bacterial infection group and the pure fungal infection group. Clinical data, serum biochemical parameters, history of PD-related infections, and final outcomes were compared between groups using the Mann-Whitney U test and Fisher's exact test. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated to assess the risk associated with mixed infections.

##### **Results**

In the six months preceding fungal peritonitis onset, significant differences were observed between the groups: patients in the mixed infection group had higher average white blood cell counts ( $10.39 \pm 3.24$  vs.  $7.62 \pm 1.40$ ,  $p = 0.027$ ) and lower serum potassium levels ( $3.29 \pm 0.22$  vs.  $3.57 \pm 0.25$ ,  $p = 0.027$ ) compared with the pure fungal infection group, suggesting these may serve as potential risk indicators for mixed infections. Other biochemical parameters showed no significant differences. The average number of previous PD-related infection episodes was similar between groups ( $1.67 \pm 1.21$  vs.  $1.82 \pm 1.66$ ,  $p > 0.05$ ). However, the mortality rate was significantly higher in the mixed infection group compared to the pure fungal infection group (66.7% vs. 9.1%,  $p = 0.028$ ), with an estimated 20-fold increased risk of death (OR = 20.0, 95% CI: 1.39–287.60), though the wide CI likely reflects the small sample size.

##### **Conclusions**

Despite the limited sample size, this study suggests that mixed fungal-bacterial infections are associated with significantly worse outcomes in PD patients with fungal peritonitis. Further large-scale, multi-center studies are needed to validate these findings and clarify their clinical implications.

**Keywords :** Fungal peritonitis, peritoneal dialysis, mixed infection, mortality, odds ratio

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0836

Abstract Submission No. : APCN20250909

### Implementing the IPOS-Renal Questionnaire as a PROM-Based Care Model for Peritoneal Dialysis Patients

Chia-Wei Lin<sup>1</sup>; Tzu-En Lee<sup>2</sup>; Juliana Tze-Wah Kao<sup>1,3,4</sup>; Chia-Te Liao<sup>1,3,4</sup>; Mei-Yi Wu<sup>1,3,4</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, Shuang Ho Hospital, Taipei Medical University, New Taipei city, Taiwan

<sup>2</sup> Department of Medical Quality, Shuang Ho Hospital, Taipei Medical University, New Taipei city, Taiwan

<sup>3</sup> Division of Nephrology, Department of Internal Medicine, School of Medicine, College of Medicine, Taipei Medical University, Taipei, Taiwan

<sup>4</sup> TMU-Research Center of Urology and Kidney (TMU-RCUK), Taipei Medical University, Taipei, Taiwan

#### Abstract

**Introduction:** Patient-Reported Outcome Measures (PROMs) are valuable tools for assessing patients' health status, symptom burden, and quality of life. By identifying key concerns from the patient's perspective, PROMs can guide clinical decision-making and improve care outcomes. In March 2024, our hospital introduced PROMs into routine care for patients with end-stage renal disease (ESRD) receiving peritoneal dialysis (PD), using the IPOS-Renal questionnaire as the primary assessment tool.

**Methods:** The project began with structured training for PD nurses to ensure understanding of the IPOS-Renal tool and its integration into patient care. A multidisciplinary team finalized the questionnaire format and developed a digital version for efficient data collection. Inclusion criteria were PD patients aged  $\geq 18$  years, on dialysis for at least one month. Patients with cognitive impairment or inability to complete the survey were excluded.

From March 2024, 61 eligible patients completed the IPOS-Renal questionnaire during monthly outpatient visits. Nurses assisted patients to ensure accurate responses. Of the respondents, 38% reported taste changes, which were significantly associated with upper GI symptoms (e.g., nausea, anorexia, dry mouth) and malnutrition. Based on the findings, patients received individualized nutrition education, and their biochemical data were monitored for six months. The same questionnaire was repeated in October 2024 to assess the impact of the intervention.

**Results:** After excluding incomplete or invalid surveys, 61 valid responses were analyzed. Patients' dialysis duration ranged from  $< 1$  year (24.6%) to  $> 5$  years (14.8%), with 41% on CAPD and 59% on APD. The questionnaire assessed four domains: physical symptoms, psychological well-being, social support, and treatment-related needs.

Initial results (March 2024) showed a high symptom burden, with a mean total score of 62.74 and a physical symptom score of 53.13. Common complaints included nausea, poor appetite, and dry mouth. Following nutrition interventions, the second survey (October 2024) revealed significant improvements: the total score dropped to 21.25, and physical symptom scores to 31.88—a 40% reduction. Electrolyte levels remained within normal ranges, confirming both subjective and clinical improvements.

**Conclusion:** Integrating the IPOS-Renal questionnaire into PD care effectively improved symptom management and supported patient-centered care. PROMs helped identify unmet needs, tailor interventions, and enhance quality of life. This model demonstrates the value of structured PROMs use and suggests potential for broader application across other chronic disease settings.

**Keywords :** PROM, Peritoneal dialysis, IPOS-Renal Questionnaire, Nutrition intervention

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0837

Abstract Submission No. : APCN20250935

### Analysis of Causes and Quality Improvement Recommendations for Peritoneal Dialysis-Related Peritonitis

Wen Wen<sup>1</sup>; Zhen Zhuang<sup>1</sup>; Xianglan Wu<sup>1</sup>; Mingxia Cao<sup>1</sup>; Yuehong Li<sup>1</sup>; Wei Wang<sup>1</sup>

<sup>1</sup> Department of Nephrology, Beijing Tsinghua Changgung Hospital, Tsinghua Medicine, Tsinghua University, Beijing, China

#### Abstract

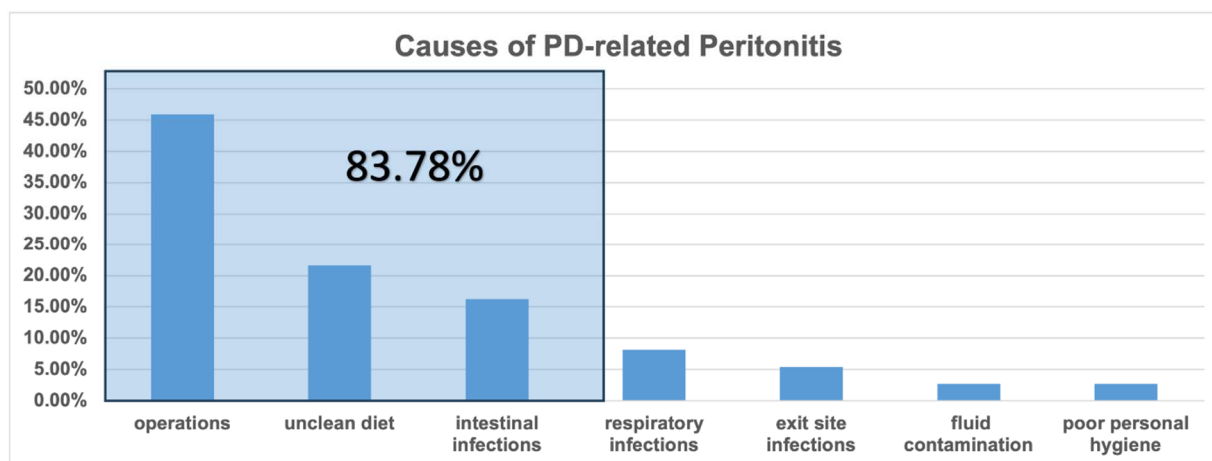
**Purpose:** Peritoneal dialysis-related peritonitis seriously threatens the survival and quality of life of patients undergoing peritoneal dialysis. To reduce the incidence of peritonitis in our center, we conducted a retrospective analysis of the characteristics and causes of past peritonitis events and discussed constructive improvement recommendations.

**Methods:** A retrospective analysis was conducted on the clinical data of patients with peritoneal dialysis-related peritonitis at our center from 2020 to the present. The causes and distribution of pathogens were summarized and listed in a fishbone diagram. The 2/8 rule was applied to identify the main causes of peritonitis and the primary time of occurrence. A fault tree was constructed to conduct an in-depth analysis of the issues, and constructive improvement recommendations were proposed for key populations and identified problems.

**Results:** A total of 37 episodes of peritonitis were recorded, with 28 types of pathogens cultured, including 13 positive cocci, 12 negative bacilli, and 3 fungi. The main causes identified were related to operations (17 cases, 40.48%), unclean diet (8 cases, 19.05%), intestinal infections (6 cases, 14.29%), respiratory infections (3 cases, 7.14%), exit site infections (2 cases, 4.76%), fluid contamination (1 case, 2.38%), and poor personal hygiene (1 case, 2.38%). Among these, operational reasons primarily included not wearing masks (14 cases) and loose connections causing leaks (3 cases). Patients who developed peritonitis within 3 years of initiating peritoneal dialysis accounted for 81%, and those within 1 year accounted for 32.4%. According to the 2/8 rule, we should primarily address operational issues (especially the failure to wear masks) and factors related to dietary-induced intestinal infections, while also paying attention to patients with shorter dialysis durations, particularly those with less than 1 year. Quality improvement recommendations include increasing the assessment frequency for patients within 1 year of dialysis, educating about the main causes and consequences of peritonitis, and placing mask-wearing reminder labels on peritoneal dialysis fluid bags.

**Conclusion:** Understanding the occurrence patterns of peritonitis contributes to continuous quality improvement, and the results of these quality improvement efforts await further evaluation.

**Keywords :** Peritoneal dialysis; peritonitis; quality improvement; mask



## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0838

Abstract Submission No. : APCN20250958

### Peritoneal Dialysis Initiation After Bariatric Surgery: A Case Report and Discussion

Tsai Hsin Chun<sup>1</sup>; An-Bang Wu<sup>1</sup>; Jing-Wen Wang<sup>1</sup>; Hsueh-Chi Chou<sup>1</sup>; Hsiu-Lien Hsu<sup>1</sup>; Shu-Chen Su<sup>1</sup>; Chin-Chung Tseng<sup>2</sup>; Jo-Yen Chao<sup>2</sup>, An-Bang Wu<sup>2</sup>

<sup>1</sup> Division of Peritoneal Dialysis Room , Department of Nursing, Department of Nephrology, National Cheng Kung University Hospital, Tainan City, Taiwan

<sup>2</sup> Division of Nephrology, Department of Internal Medicine; National Cheng Kung University Hospital, Tainan, Taiwan

#### Abstract

##### Background:

Laparoscopic Mini Gastric Bypass (LMGB) is a minimally invasive bariatric procedure that creates a small gastric pouch anastomosed to the jejunum, bypassing the distal stomach and duodenum to restrict intake and reduce calorie absorption. Intraabdominal adhesions reported in 70–90% of patients with prior abdominal surgery reduce the peritoneal surface area and may increase the postoperative morbidity. This report explores whether end stage kidney disease (ESKD) patients can successfully initiate peritoneal dialysis (PD) after prior bariatric surgery without severe peritoneal adhesions or major complications.

##### Method:

This 47-year-old woman has a history of type 2 diabetes for over 20 years, hypertension, and morbid obesity. She underwent bariatric surgery on 2016/11/17, resulting in weight loss from 120 kg to 80 kg. Unfortunately, the patient experienced worsening kidney function in this March and, after a shared decision-making process, she chose PD. A catheter was implanted on April 2, and PD was initiated on April 17 with four daily exchanges using 1000 mL of dextrose-based dialysate.

##### Result:

Peritoneal leakage occurred on April 21, requiring a temporary switch to hemodialysis on April 22. After rest, PD resumed on May 23 with low-volume exchanges four times daily. Since then, the patient has experienced no complications and continues successful treatment.

##### Conclusion:

Through shared decision-making, the young and autonomous patient chose PD, enabling home-based treatment, continued employment, and a good quality of life. We believe that our case will help convince surgeons and nephrologists to initiate PD in such patients, as is already being reported in other types of abdominal surgeries.

Keywords : bariatric surgery 、 laparoscopic mini gastric bypass 、 peritoneal dialysis

**Keywords** : bariatric surgery 、 laparoscopic mini gastric bypass 、 peritoneal dialysis

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0839

Abstract Submission No. : APCN20250986

### Optimal Blood Pressure Targets in Patients on Continuous Ambulatory Peritoneal Dialysis: A Systematic Review

Rizki Trismimanda<sup>1</sup>; Fhathia Avisha<sup>2</sup>; Crisdina Suseno<sup>3</sup>; Nadia Puspita Dewi<sup>4</sup>; Masyfuk Zuhdi Jamhur<sup>5</sup>; Arizki Nuzulardi Fumasa<sup>5</sup>

<sup>1</sup> General Practitioner, Kudungga District Hospital, Indonesia

<sup>2</sup> Departement of Internal Medicine, Ciptomangunkusumo Hospital, Jakarta, Indonesia

<sup>3</sup> General Practitioner, Mentawai Island District Hospital, Indonesia

<sup>4</sup> General Practitioner, Tualang District Hospital, Indonesia

<sup>5</sup> General Practitioner, Medical Faculty of Andalas University, Indonesia

#### Abstract

**Introduction:** Hypertension is a major risk factor for cardiovascular disease, a leading cause of morbidity and mortality in patients undergoing continuous ambulatory peritoneal dialysis (CAPD). However, the optimal blood pressure (BP) targets for CAPD patients remain unclear. This systematic review aims to determine BP thresholds that are associated with all-cause mortality and cardiovascular events.

**Methods:** This systematic review was conducted by searching PubMed, Scopus, and Web of Science from January 1, 2020, to January 1, 2025, using the terms ("Peritoneal Dialysis, Continuous Ambulatory"[MeSH] OR "Peritoneal Dialysis"[MeSH] OR CAPD OR "peritoneal dialys\*") AND ("Blood Pressure"[MeSH] OR "blood pressure" OR "systolic pressure" OR "diastolic pressure" OR hypertension OR "blood pressure control" OR "optimal blood pressure" OR "blood pressure target\*" OR "target blood pressure" OR "BP target" OR "blood pressure goal"). The references of included studies were also manually screened, and two studies met the inclusion criteria. The inclusion criteria encompassed studies involving adult CAPD patients reporting baseline BP and mortality outcomes. Quality was assessed using the Oxford Centre for Evidence-Based Medicine for cohort studies.

**Results:** Two studies reported a U-shaped association between blood pressure and mortality in CAPD patients. In the cohort study by Zheng et al. (2020), both elevated (SBP >141 mmHg, DBP >85 mmHg, or MAP >102 mmHg) and reduced blood pressure values (SBP <119 mmHg, DBP <67 mmHg, or MAP <88 mmHg) were significantly associated with higher all-cause and cardiovascular mortality risk. Similarly, Jhee et al. (2022) observed that blood pressure levels—SBP <110 mmHg and SBP ≥170 mmHg—were associated with increased mortality risks. Notably, systolic pressures ranging from 110 to 169 mmHg might have decreased risk without significance.

**Conclusion:** Preliminary evidence suggests a potential U-shaped association between blood pressure and mortality outcomes, indicating that both hypotension and hypertension are associated with adverse outcomes. These studies indicate that an optimal blood pressure range, approximately systolic blood pressure (SBP) of 110–140 mmHg and diastolic blood pressure (DBP) of 67–85 mmHg, is associated with a reduced risk of all-cause and cardiovascular mortality. Further study is needed to validate blood pressure targets and guide individualized therapy in this population.

**Keywords :** Blood Pressure, Continuous Ambulatory Peritoneal Dialysis (CAPD), Mortality, Cardiovascular Risk, Blood Pressure Target

**Table 1. Study Characteristic**

Author (Year)	Design	Sample Size	BP Target	Outcome	Conclusion
Zheng et al. (2020) [1]/ China	Cohort Study	7.335	<140/90 mmHg	All-cause & CV mortality	Lower mortality in the <140/90 mmHg group SBP, DBP, and MAP follow a U-shaped pattern of both all-cause and cardiovascular mortality.  A higher (SBP >141, DBP >85 or MAP >102 mmHg) or lower (SBP <119, DBP <67 or MAP <88 mmHg) BP tends to have a significantly higher all-cause and cardiovascular mortality risk.
Jhee et al. (2022) [2]/ Korea	Cohort	2.299	Various SBP levels	Mortality	U-shaped SBP vs mortality The lowest (<110 mmHg) and highest ( $\geq$ 170 mmHg) SBPs are associated with risk for mortality, whereas SBP ranging 110 to 169 mmHg might have decreased risk without significance.

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0840

Abstract Submission No. : APCN20251001

### **Biomarkers and Clinical Characteristics Associated with Surgical Outcomes in Encapsulating Peritoneal Sclerosis: A Pilot Study from a Medical center in Southern Taiwan**

I-HSIANG SU<sup>1</sup>; Jo-Yen Chao<sup>1</sup>; Kuan-Hung Liu<sup>1</sup>; Te-Hui Kuo<sup>1</sup>; Yu-Tzu Chang<sup>1</sup>; An-Bang Wu<sup>1</sup>; Junne-Ming Sung<sup>1</sup>; Ming-Cheng Wang<sup>1</sup>; Chia-Chun Lee<sup>1\*</sup>; Chin-Chung Tseng<sup>1\*</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

#### **Abstract**

**Background:** Encapsulating Peritoneal Sclerosis (EPS) is a severe, life-threatening complication of long-term peritoneal dialysis (PD). In advanced cases requiring surgery, EPS is associated with high rates of morbidity and mortality. Identifying clinical and biomarker-based factors associated with surgical outcomes may improve risk stratification and management. This pilot study evaluated clinical characteristics and ascitic fluid biomarkers in EPS patients and their associations with postoperative outcomes.

**Methods:** We analyzed 16 patients with stage 4 EPS who underwent surgical peritonectomy (adhesiolysis ± enterolysis or bowel resection) between 2016 and 2020 at our center. Ascitic fluid samples collected during surgery were analyzed for vascular endothelial growth factor (VEGF), plasminogen activator inhibitor-1 (PAI-1), matrix metalloproteinase-2 (MMP-2), and transforming growth factor-β (TGF-β) using ELISA. Clinical data, including PD duration and laboratory parameters, were recorded. Peritoneal biopsies were scored for fibrosis, inflammation, and angiogenesis. Postoperative outcomes, including mortality and major morbidity (e.g., bowel perforation, fistula, sepsis, intra-abdominal bleeding during index hospitalization), were assessed. Associations between biomarkers, histological scores, and outcomes were analyzed using non-parametric tests and logistic regression.

**Results:** The cohort had a mean age of  $51.5 \pm 10.5$  years, and 62.5% were female. The median PD duration was 13 years (IQR 11–15). Despite surgical intervention, 5 of 16 patients (31%) died, and 5 of the 11 survivors (45%) experienced major complications. Patients with poor outcomes had higher median ascitic VEGF levels (698.8 pg/mL, IQR 525.7–849.9) compared to those with good outcomes (364.8 pg/mL, IQR 15.6–737.2). Mean histological angiogenesis scores were also higher in the poor outcome group (2.4 vs. 1.4). No significant differences were found in preoperative CT findings. Although elevated white blood cell counts and C-reactive protein levels suggested greater systemic inflammation in patients with poor outcome, these did not reach statistical significance.

**Conclusion:** Our pilot study demonstrated that EPS patients with poor surgical outcomes had higher ascitic VEGF levels and increased histological angiogenesis scores. These findings highlight potential biomarkers for surgical risk assessment and support the need for validation in larger studies to guide management strategies for EPS.

**Keywords :** Peritoneal dialysis, Encapsulating Peritoneal Sclerosis , Biomarkers, Surgical outcomes, Risk factors

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0841**

**Abstract Submission No. : APCN20251020**

### **Analyzing the Risks of Early Withdrawal from Peritoneal Dialysis**

MING-TSO YAN<sup>1</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, Cathay General Hospital, Taipei, Taiwan (R.O.C.)

#### **Abstract**

##### **Introduction**

Peritoneal dialysis (PD) is a flexible, cost-effective renal replacement therapy with better early outcomes comparing to hemodialysis. Early withdrawal from PD affects 5–6.5% or more of patients but the causes of early PD discontinuation were rarely examined.

##### **Methods**

Patients (aged 18 years and over) commenced PD from January 2015 to December 2024 were recruited retrospectively and divided into two groups based on the duration from initiation to termination of PD: very early withdrawal of PD ( $\leq 3$  months) and early withdrawal of PD ( $> 3$  months to  $\leq 1$  year).

##### **Results**

Drop-out from PD was found in 158 patients undergoing PD with 23 (14.5 %) patients undergoing PD for less than one year being recruited. Their mean age at initiation of PD was  $67.74 \pm 16.08$  years with a mean dialysis duration of  $5.91 \pm 3.89$  months. The most common cause of underlying kidney disease was diabetic kidney disease (60.9 %). The leading cause of early PD withdrawal was switch to hemodialysis accounting for 47.8 %, followed by death (43.5%) and kidney transplantation (8.7 %). The main reason of PD switching to hemodialysis was burnout (36.4 % of those with transferring to hemodialysis). The most predominant risk of death was age and causes of death in very early group was cardiovascular diseases, different from sepsis in early group.

##### **Conclusion**

Elderly patients choosing PD should be carefully cared. Shared decision making may help reducing the risk of burnout. Cardiovascular diseases may be screened and treated promptly to improved early outcome of PD patients.

**Keywords :** Early Withdrawal, Elderly, Peritoneal Dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0842**

**Abstract Submission No. : APCN20251040**

### **Analysis of Clinical Manifestations, Risk Factors, and Prognostic Factors of Peritonitis in Peritoneal Dialysis Patients at a Medical Center in Southern Taiwan**

Pei-Jung Wu<sup>1</sup>; Hsueh-Chi Chou<sup>1</sup>; Mei-Hsien Wu<sup>1</sup>; Hui-Ying Lin<sup>1</sup>; Hsin-Chun Tsai<sup>1</sup>; Yung-chu Yang<sup>1</sup>; Hsiu-Lien Hsu<sup>1</sup>; Jing-Wen Wang<sup>1</sup>; Shu-Chen Su<sup>1</sup>; Jo-Yen Chao<sup>2</sup>; Chin-Chung Tseng<sup>2</sup>

<sup>1</sup> Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan

<sup>2</sup> Division of Nephrology, Department of Internal medicine, National Cheng Kung University Hospital, Tainan

#### **Abstract**

##### **Background**

Peritonitis is a major complication in peritoneal dialysis (PD) patients. Severe cases can lead to catheter removal, termination of PD therapy, or even death. This study aimed to identify the risk and prognostic factors of peritonitis in order to reduce its incidence and improve the quality of care for PD patients.

##### **Methods**

This retrospective study analyzed data from 370 PD patients treated at a medical center in southern Taiwan between January 1, 2020, and December 31, 2024. Among these patients, 111 experienced a total of 161 episodes of peritonitis. Collected variables included age, sex, duration of dialysis, PD modality, medical history, and biochemical parameters. Patients were categorized into three groups based on treatment outcomes: cured, catheter removal, or death. Statistical analyses were performed to identify significant factors.

##### **Results**

Among the 111 patients, there were 161 episodes of peritonitis. The incidence was higher in males, and patients aged 61 years or older were the most affected group. The most common cause of peritonitis was improper technique during exchanges or medication administration 36.65% (n = 59), followed by intra-abdominal infections or diarrhea 31.06% (n = 50). Bacterial cultures showed that Gram-positive organisms accounted 34.78%(n=56) of cases, and Gram-negative organisms accounted for 27.32% (n = 44). Regarding treatment outcomes 70.18% (n = 113) of episodes resulted in cure 26.71%(n =43) required catheter removal 3.11% (n =3) resulted in death. ANOVA analysis among the three outcome groups revealed that patients who died had significantly lower serum albumin and potassium levels.

##### **Conclusions**

The results indicate that hypokalemia and hypoalbuminemia are significant factors associated with poor prognosis in PD-related peritonitis. Clinicians should proactively correct low potassium and albumin levels and enhance patient education on proper technique and self-care, aiming to prevent peritonitis, reduce its incidence, and improve treatment outcomes.

**Keywords** : Peritoneal dialysis, peritonitis, risk factors, prognostic factors, potassium, albumin

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0843

Abstract Submission No. : APCN20251043

### Characteristics Associated with Residual Kidney Function in Patients Initiating Peritoneal Dialysis

SHAO-HSUAN WANG<sup>1</sup>; Chien-Hsiu Liu<sup>1</sup>; Pei-Ling Liang<sup>1</sup>; Ben-Chung Cheng<sup>1</sup>; Wen-Chin Lee<sup>1</sup>; Ting-Yu Chiou<sup>1</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung City, Taiwan

#### Abstract

##### Background

Residual kidney function (RKF) plays a critical role in the outcomes of patients receiving peritoneal dialysis (PD). Preserved RKF is associated with improved quality of life and potentially enhanced survival. This study aims to identify baseline characteristics associated with better RKF in PD patients.

##### Methods

We conducted a retrospective analysis of patients who initiated PD between September 2019 and June 2023 at a single medical center in Southern Taiwan. Exclusion criteria included:

- Patients transferred from other hospitals who began PD prior to September 2019
- Patients under 18 years of age at PD initiation
- Patients with missing data

RKF was assessed using three parameters:

- 24-hour urine volume
- Kidney Kt/V
- Kidney weekly creatinine clearance rate (CCR)

Patients were stratified into two groups by the median level in each of these three parameters.

##### Results

A total of 258 patients were included for analysis. Their average age was 54.7, and 53.1% were male. 71 patients (27.5%) had DM and 42 (16.3%) had cardiovascular disease. The three RKF indicators were significantly correlated with each other.

Patients with higher initial urine volume ( $\geq 1.0$ L) had:

- Lower dialysate exchange volume (5.62 L vs. 7.18 L,  $p < 0.001$ )
- Higher serum albumin (3.87 g/dL vs. 3.66 g/dL,  $p < 0.001$ )
- Higher hemoglobin (10.45 g/dL vs. 9.95 g/dL,  $p = 0.002$ )
- Lower prevalence of cardiovascular disease (10.4% vs. 21.8%,  $p = 0.01$ )

Patients with higher kidney Kt/V ( $\geq 0.68$ ) had:

- Lower dialysate exchange volume (5.55 L vs. 7.18 L,  $p < 0.001$ )
- Higher serum albumin (3.87 g/dL vs. 3.67 g/dL,  $p < 0.001$ )
- Lower serum creatinine (8.05 mg/dL vs. 11.42 mg/dL,  $p < 0.001$ )

Patients with higher weekly CCR ( $\geq 34.67$  L/week/1.73m<sup>2</sup>) had:

- Lower dialysate exchange volume (5.74 L vs. 6.98 L,  $p < 0.001$ )
- Higher age (57.8 vs. 51.8 years,  $p = 0.001$ )
- Higher body weight (66.2 kg vs. 60.9 kg,  $p = 0.001$ )
- Higher serum albumin (3.86 g/dL vs. 3.68 g/dL,  $p < 0.001$ )
- Higher hemoglobin (10.44 g/dL vs. 9.98 g/dL,  $p = 0.004$ )

Logistic regression analysis demonstrated that dialysate exchange volume, albumin, hemoglobin

and CVD are independent factors associated with RKF.

### **Conclusion**

In our incident PD patients, all three RKF parameters—urine volume, kidney Kt/V, and weekly CCR—are strongly interrelated. Patients with better RKF tend to require lower dialysate volumes and exhibit more favorable clinical profiles, including higher serum albumin and hemoglobin, lower serum creatinine and uric acid, and reduced cardiovascular disease prevalence.

**Keywords :** Peritoneal Dialysis, Residual Kidney Function

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0844**

**Abstract Submission No. : APCN20251044**

### **Early Mortality and Infection-Driven Technique Failure in Incident Peritoneal Dialysis: A Real-World Call to Action**

Tang Chu Hong<sup>1</sup>; Yew Cheng Keow<sup>1</sup>; Ng Khin Szen<sup>1</sup>; Nge Chee Seng<sup>1</sup>; Mohammad Faisal Asmee<sup>1</sup>; Ching Chen Hua<sup>1</sup>

<sup>1</sup> Nephrology Unit, Department of Internal Medicine, Hospital Sultanah Bahiyah, Alor Setar, Kedah, Malaysia

#### **Abstract**

##### **Background:**

Incident peritoneal dialysis (PD) patients face disproportionately high early complication rates, yet real-world data—particularly among assisted PD (aPD) populations—remain scarce in Southeast Asia. This study provides the first comprehensive Malaysian cohort analysis of one-year outcomes in incident PD patients, aiming to identify modifiable predictors of infection, dropout, and mortality.

##### **Methods:**

In this retrospective cohort study, we analyzed 130 consecutive patients who underwent peritoneoscopic PD catheter insertion at Hospital Sultanah Bahiyah between January–December 2023. All commenced continuous ambulatory peritoneal dialysis (CAPD). Demographics, comorbidities, and outcomes were extracted from the Electronic Hospital Information System. Outcomes over one year included hospitalisation, PD-related infections (exit-site, tunnel tract, peritonitis), catheter removal, dropout, and all-cause mortality. Multivariate logistic regression was performed to identify predictors of mortality and technique failure.

##### **Results:**

Patients had a mean age of  $53 \pm 15$  years; 52% were female, and 95% Malay. Hypertension (86%) and diabetes (66%) were the most prevalent comorbidities. Notably, 67% were newly diagnosed with end-stage kidney disease at PD initiation, and 46% required caregiver assistance.

Infection affected 47% of patients, with peritonitis in 38%, contributing to 6% of all deaths. Hospitalisation occurred in 72%, largely due to infections and fluid overload. PD dropout reached 39%, while one-year all-cause mortality was 23%. Among assisted PD patients, mortality was significantly higher ( $p = 0.031$ ), despite similar infection and hospitalisation rates. Caregiver support was primarily informal (97% family members), with low socioeconomic stability.

Multivariate analysis identified infection-related complications and assisted PD status as independent predictors of mortality and dropout ( $p < 0.05$ ).

##### **Conclusion:**

This study highlights the substantial early burden faced by incident PD patients, particularly those requiring assistance, who represent a clinically and socially vulnerable subgroup. Infection-related complications remain the leading cause of technique failure and early mortality. These real-world findings underscore the urgent need for standardized infection prevention, formal caregiver training, and structured post-initiation follow-up protocols. The dataset forms a critical foundation for developing targeted interventions to improve survival and technique retention in PD programs across the region.

**Keywords :** Incident Peritoneal Dialysis

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0845

Abstract Submission No. : APCN20251047

### Low Penetrance of Peritoneal Dialysis in Current Era: An Insight from Opt-in and Drop-out Data

Manas Ranjan Behera<sup>1</sup>; Anupma Kaul<sup>1</sup>; Narayan Prasad<sup>1</sup>; Amit Gupta<sup>2</sup>; Raj Kumar Sharma<sup>3</sup>; D S Bhadauria<sup>3</sup>; Manas Ranjan Patel<sup>1</sup>

<sup>1</sup> Department of Nephrology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, Uttar Pradesh, India

<sup>2</sup> Department of Nephrology, Apollomedics Hospital, Lucknow, India

<sup>3</sup> Department of Nephrology, Medanta Hospital, Lucknow, India

#### Abstract

**Introduction:** Peritoneal dialysis (PD) as an effective modality of renal replacement therapy that is being provided at door step. Compared to haemodialysis (HD), it is more physiological. Since the inception, there is significant improvement techniques to prevent PD drop out. Despite of having several advantages such as domiciliary care, wider availability, excellent survival benefit and improved quality of life; the PD prevalence remains low in many countries. Understanding the landscape of opt-in and drop-out can better delineate the cause of low penetration of PD and hence the prevention

**Methodology:** Patients initiated on PD between July 2015 to June 2023 were included in the study. Patients reinitiated on PD or loss to follow up were excluded. All study patients were analysed for reasons for opt-in or drop-out. The Kaplan Mayer plot was used for death censored technique survival. All patients were followed up till patient is on PD or death or 31st May 2025, whichever is earlier.

**Results:** The cohort includes total 388 patient with significant male predominance (n=250: 64.43%). The Mean age of the cohort was 52.13±17.18 that includes 21.1% elderly (age ≥65 years) and 7.2% paediatric (Age ≤ 18) population. About 43.3% of patient were diabetic. Mean duration patient survival on PD was 23.84±24.06 (Range 0-126) months. Reasons to opting PD were failed vascular access (24%), patient preferences (18%), reimbursement by employer (16.8%) and extreme age group (19.9). PD first was observed in 56.4% of patients. Reason for PD drop-out were death (47.2%), PD infection (21.6%) and mechanical complications (7.5%). Excluding death (52.5%), mechanical complication (19.8%), PD infections (17.8%) and surgical cause (5%) were important causes of early drop out. Similarly, causes of late drop out were death (57%), PD infection (28.9%), mechanical (3.9%) and dialysis inadequacy (1.3%). Death censored PD technique survival at 1, 3, 5 and 10 years were 77.5%, 54.8, 44.3 and 21.5% respectively. No difference in death censored technique survival between PD first or PD second (P=0.217)

**Conclusion:** Vascular access, age and financial support are important factors influence opting for PD. Other than death, mechanical complications are leading cause of early dropout. PD infections are important cause of overall and late dropout. Financial support, better catheter insertion techniques and prevention of PD infection can improve PD penetration.

**Keywords :** Peritoneal Dialysis, Opt-in, Drop-out

<b>Table-1: Factors Influence Opting for PD</b>
Failed Vascular Access – 24%
Extreme Age Group – 19.9% (Paediatric – 7%; Elderly 12.9%)
Patient Preferences - 18%
Financial Support by Employer – 16.8%
Cardiac Cause - 8.5%
Logistic Issue - 5.9%
Sero-positive Status - 4.4%
intolerant to HD - 1.5%
Ascites - 1%.

<b>Table-2: Causes for Peritoneal Dialysis Drop-Out</b>		
Early ( $\leq$ 6 months; n1=101)	Late ( $>$ 6 months; n2=228)	Overall (n1+n2)329
Death - 52.5%	Death - 57%	Death - 47.2%
PD infections - 17.8%	PD infection - 28.9%	PD related infection - 21.6%
Mechanical Complication- 19.8% (Catheter Related - 15.8%; dialysate leak – 4 %)	Mechanical Complication- 3.9% (Catheter Related – 2.6%; Dialysate Leak – 0.9%, Hernia – 0.4%)	Mechanical Complications– 7.5% (Catheter Related - 5.7%; dialysate leak - 1.5%, Hernia – 0.3%)
Surgical Cause – 5%	Dialysis inadequacy (1.3%).	Transplant - 3.4%
High Transporter UFF (2%)	Transplant – 4.8%	COVID Related - 1.8%
Transplant – 2%	COVID Related – 2.6%	Surgical Cause - 1.5%
COVID Related – 1%	Surgical Cause – 0.4%	Dialysis Inadequacy - 0.8%
		High Transporter UFF - 0.5%

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0846

Abstract Submission No. : APCN20251064

### Reduction of exit site infection in peritoneal dialysis patients

Lin Tsai-Feng<sup>1</sup>; I-Kuan Wang<sup>1</sup>

<sup>1</sup> Home Dialysis Room, Nephrology Department, China Medical University Hospital, Taichung City, Taiwan

#### Abstract

**Background:** Catheter exit site infection is one of the main complications of peritoneal dialysis patients. The causes of catheter exit site infection include moisture, pulling, improper catheter fixation, and poor hygiene. The incidence of catheter exit site infection is about once per 100 person-months. 15-20% of infected patients will require catheter removal and withdraw from peritoneal dialysis treatment. Therefore, we hope to explore the causes of catheter exit site infection in peritoneal dialysis patients by using the quality control circle method. By improving patients' awareness of infection symptoms, we can analyze the status of the catheter exit site, and detect and prevent infection early.

**Methods:** A total of 898 patient-months undergoing peritoneal dialysis in our unit were collected from January to March 2024. During the routine monthly follow-up visits, 14 episodes of exit site infection (redness, swelling, heat, and pain) was detected with the incidence of 1.56% . This activity from Jun 2024 to Sep 2024) used tools such as characteristic factor diagrams to analyze the possible causes of catheter exit site infection, including moisture, pulling, and felt exposure, and formulated corresponding improvement measures, revised the "Standard Nursing Procedures for catheter exit site and tunnel" and added multi-media and audio-visual health education methods , and we also developed an " artificial intelligence-assisted detection of peritoneal dialysis catheter exit site infection " cloud platform, where patients or their families can upload exit site photos to identify infection problems and deal with them early. A cloud platform for artificial intelligence-assisted detection and remote monitoring of peritoneal dialysis catheter exit site infection was established.

**Results:** After implementation of these measures, the catheter exit infection rate decreased from 1.56% (Jan 2024-Mar 2024), to 0.34% (Oct 1, 2024-Oct 31, 2024) and further to 0.68% (Nov 2024-Apr 2025), the target achievement rate was 184.8%, the improvement rate was 78.2%, and the correct recognition rate of catheter exit infection for patients increased from 86.4% to 95% .

**Conclusion:** Educate patients to observe the signs of infection early, and continue to provide re-education and telephone follow-up during monthly follow-up visits. Through cloud platform artificial intelligence-assisted detection and remote monitoring of exit site infection, so that patients can have better care of the exit site at home, detect problems, intervene earlier, enhance patients' self-care ability and communication between nurses and patients, and hope to improve the quality of care.

**Keywords :** exit site infection, peritoneal dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0847**

**Abstract Submission No. : APCN20251068**

### **Exploring Patient Satisfaction with Automated Peritoneal Dialysis in End-Stage Renal Disease**

KUO YI CHUN<sup>1</sup>; Liu Chiu Fen <sup>1</sup>

<sup>1</sup> 台灣台北市台北市立萬芳醫院

#### **Abstract**

##### **Introduction:**

Peritoneal dialysis is a common renal replacement therapy for patients with end-stage renal disease (ESRD). It is classified into Continuous Ambulatory Peritoneal Dialysis (CAPD) and Automated Peritoneal Dialysis (APD). APD can be performed overnight during sleep, eliminating the need for daytime exchanges. This greatly enhances patients' flexibility and autonomy, allowing them to maintain normal social and work activities while ensuring both quality of life and treatment outcomes.

By integrating automation with telemedicine technologies, APD not only reduces the burden on caregivers but also provides a more patient-friendly option for elderly individuals. Our hospital actively promotes a patient-centered, holistic care model. Through interdisciplinary collaboration and the use of cloud-based systems, we have implemented remote dialysis monitoring and real-time intervention mechanisms. This allows the medical team to synchronize and track patient data, improving the quality of home care, patient safety, and satisfaction.

To further understand the current status of patients' quality of life, our team conducted a satisfaction survey on APD treatment.

##### **Methods:**

1. Public awareness of peritoneal dialysis was enhanced through community outreach seminars and online social media platforms.
2. Of the 68 patients undergoing peritoneal dialysis at our hospital, 62 (91.2%) were receiving APD. A satisfaction survey was conducted using Google Forms and one-on-one interviews. All 68 questionnaires were successfully collected, achieving a 100% response rate.

##### **Results:**

1. Since 2020, the APD usage rate increased from 93% to 95%, reflecting the medical team's successful promotion and high patient acceptance.
2. Demographics: 41.2% of patients were over 60 years old; 67% had a junior or senior high school education.
3. Overall, 97% of patients reported being satisfied with APD, citing less frequent hospital visits and flexible treatment schedules as major advantages. However, 53% reported that machine noise and alarms affected sleep, and that the interface was somewhat complicated.

##### **Conclusion:**

APD offers convenience and automatic nighttime operation, making it especially suitable for elderly, bedridden patients, or those balancing work and family responsibilities. It effectively improves quality of life, enhances treatment adherence, and reduces caregiving burdens at both family and societal levels. APD can also be tailored to meet individual patient needs, thereby increasing treatment efficiency and outcomes while significantly reducing the need for daily assistance.

**Keywords :** Automated Peritoneal Dialysis, healthy lifestyle, self-care efficacy

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0848**

**Abstract Submission No. : APCN20251079**

### **Prognosis of Peritoneal Dialysis Patients Complicated with Relapsing Peritonitis in a Southern Medical Center: Statistical Results Over a Ten-Year Period**

Yung-Chu Yang<sup>1</sup>; Hsueh-Chi Chou<sup>1</sup>; Pei-Jung Wu<sup>1</sup>; Mei-Hsien Wu<sup>1</sup>; Hui-Ying Lin; Hsin-Chun Tsai<sup>1</sup>; Hsiu-Lien Hsu<sup>1</sup>; Jing-Wen Wang<sup>1</sup>; Shu-Chen Su<sup>1</sup>; Jo-Yen Chao<sup>2</sup>; Chin-Chung Tseng<sup>2</sup>

<sup>1</sup> Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan

<sup>2</sup> Division of Nephrology, Department of Internal medicine, National Cheng Kung University Hospital, Tainan

#### **Abstract**

##### **Background**

Peritonitis is a common infectious complication in peritoneal dialysis (PD) patients, which can damage the peritoneal membrane, compromise dialysis efficacy, and lead to serious outcomes such as encapsulating peritoneal sclerosis. Recurrent infections increase patients' anxiety about their ability to continue PD and negatively impact their quality of life. This study aimed to investigate the causes and prognosis of relapsing peritonitis episodes in PD patients treated at a southern medical center over a ten-year period, focusing on the common causative organisms, potential infection sources, and the impact on patients' ability to continue PD therapy.

##### **Methods**

This retrospective study reviewed the electronic medical records of 501 PD patients treated at a medical center in southern Taiwan between January 1, 2014, and December 31, 2024. During this period, a total of 273 peritonitis episodes were recorded, of which 13 patients experienced relapsing peritonitis. Data collected included causative organisms, potential causes of infection, treatment outcomes, and continuation of PD therapy.

##### **Results**

Among the 13 patients with relapsing peritonitis, causative organisms were identified as Gram-positive bacteria in 53.85% (n = 7) of cases; Gram-negative bacteria in 30.77% (n = 4); and cultures with no growth in 15.38% (n = 2). Regarding outcomes, 6 patients (46.15%) recovered and continued PD therapy; while 7 patients (53.85%) experienced treatment failure, requiring catheter removal and conversion to hemodialysis. Of these 7 patients, only 1 patient (14.29%) successfully resumed PD after reinsertion of a new catheter following peritonitis resolution.

##### **Conclusions**

For patients with relapsing peritonitis in whom treatment is expected to fail or who show no improvement after appropriate antibiotic therapy, early catheter removal should be considered. This approach may prevent progression to recurrent peritonitis, preserve peritoneal membrane function, and reduce the risk of severe complications such as peritoneal sclerosis or sepsis.

**Keywords :** Peritoneal dialysis, peritonitis, relapsing infection

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0849**

**Abstract Submission No. : APCN20251083**

### **Assessment of Ankle-Brachial Index (ABI) and Pulse Wave Velocity (PWV) in Patients Receiving Regular Peritoneal Dialysis –Experience from a Medical Center in Southern Taiwan**

JO-YEN CHAO<sup>1</sup>; Chin-Chung Tseng<sup>1</sup>; Chia-Chun Lee<sup>1</sup>; Kuan-Hung Liu<sup>1</sup>; Yu-Tzu Chang<sup>1</sup>; Te-Hui Kuo<sup>1</sup>; An-Bang Wu<sup>1</sup>; Tsai-Chieh Ling<sup>1</sup>; Chih-Hen Yu<sup>1</sup>; Wei-Ren Lin<sup>1</sup>; Junne-Ming Sung<sup>1</sup>; Ming-Cheng Wang<sup>1</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

#### **Abstract**

##### **Introduction**

Arterial stiffness is a recognized risk factor for cardiovascular mortality. The brachial-ankle pulse wave velocity (PWV) is a non-invasive method for assessing arterial stiffness. The ankle brachial index (ABI), commonly used to screen for peripheral arterial disease, is also a surrogate marker for both atherosclerosis and arterial stiffness. Advanced age, high blood pressure, diabetes, chronic kidney disease (CKD), and dialysis, all contribute to increased arterial stiffness and may lead to abnormal ABI and PWV measurements. This study aims to investigate the degree of arterial stiffness and associated outcome in peritoneal dialysis (PD) patients at our hospital.

##### **Methods**

A total of 232 patients receiving regular PD treatment in the National Cheng Kung University Hospital (NCKUH) were enrolled in the study and underwent measurements of ABI and PWV in December 2020. Demographic data including age, sex, routine laboratory results, and comorbidities, were collected. An abnormal PWV was defined as > 14 m/s, while an abnormal ABI was defined as < 0.9 or > 1.30.

##### **Results**

The median age (IQR) of the cohort was 51.0 (41-60) years, and male accounted for 51.3 % of the PD population in our hospital. Among the participants, 154 patients (66.4%) were identified as having abnormal PWV values (median 17.0 m/s) while 78 patients (33.6%) had normal PWV values (median 12.4 m/s). Patients with abnormal PWV were older (53.3 vs. 44.5 years), had a higher prevalence of diabetes (35.7% vs. 20.5%) compared to patients with normal PWV. They were also noted to have significantly higher levels of triglycerides, ferritin and fasting glucose. There was no significant difference observed between the two groups regarding cardio-thoracic ratio, hemoglobin, albumin, calcium, phosphorus, or parathyroid hormone levels. Interestingly, patients with abnormal PWV had a lower proportion of abnormal ABI measurements (24.7% vs. 51.3%), compared to those with normal PWV. We did not observe an increasing incidence of complications such as myocardial infarction, cerebrovascular disease, left ventricular hypertrophy in abnormal PWV group; However, these findings may have been underestimated in our dataset.

##### **Conclusion**

The PWV values in our PD cohort were significantly higher than those observed in healthy individuals or patients with isolated hypertension or diabetes. Further research is needed to examine the related clinical outcomes, such as cardiovascular mortality or withdrawal from PD treatments.

**Keywords :** ankle brachial index, pulse wave velocity, peritoneal dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0850**

**Abstract Submission No. : APCN20251099**

### **From Policy to Practice: Advancing Automated Peritoneal Dialysis Care through Telehealth and Digital Technology**

Lin Hsiu-Ying<sup>1</sup>; Hsieh Su-I<sup>1</sup>; Kuo Yi-Chun <sup>1</sup>; Liu Chiu-Fen <sup>1</sup>

<sup>1</sup> Hemodialysis Center, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan

#### **Abstract**

##### **Introduction:**

Automated Peritoneal Dialysis (APD) is a home dialysis modality that addresses the inconvenience and infection risks of traditional manual dialysis. With features like ease of use and nighttime automation, APD is especially suitable for elderly patients, working individuals, and family caregivers. It enhances quality of life and treatment adherence while easing family and societal care burdens. In response to the National Health Insurance Administration's initiative to promote peritoneal dialysis and improve care quality, our center launched the "APD Comprehensive Integration Project." Through the introduction of smart healthcare technologies, remote care mechanisms, interdisciplinary collaboration, and personalized care strategies, we aim to build an APD care model that delivers clinical effectiveness, economic benefits, and patient-centered compassion — improving dialysis care quality and safety for patients with kidney disease.

##### **Methods:**

###### Smart Healthcare Integration:

Using IoT-connected APD machines, treatment data is automatically uploaded to the cloud. Medical staff monitor data in real time and intervene when necessary, realizing the vision of "care at home, support on hand."

###### Remote Monitoring and Health Strategy:

Nephrology teams, PD nurses, and IT staff co-developed a dedicated online tracking platform integrated with the hospital's EMR, enabling real-time data flow and case management. Video consultations offer education, device training, and psychological support, creating a seamless remote care process to enhance treatment adherence and reduce complications.

###### Interdisciplinary Collaboration:

Nephrologists, nurses, dietitians, social workers, and IT specialists jointly manage care, covering education, mental health, and nutrition planning. This strengthens case management and continuously improves care quality and efficiency.

###### Personalized Care Strategies:

Based on patient age, cognitive ability, clinical condition, and training capacity, we developed a structured, patient-oriented training module. Using a multimodal teaching method, patients are grouped into "Quick Start," "Efficient Learner," and "Standard Training," with tailored learning paths. The approach enhances digital health literacy, patient autonomy, and home care quality.

##### **Results:**

After implementing APD integrated care, peritonitis rate reached 1.33 episodes per 100 patient-months, outperforming the national average.

The proportion of new patients choosing APD reached 95.0%.

Patient satisfaction with the home-based APD care model was 97.0%.

##### **Conclusion:**

APD is more than a technological improvement—it is a shift toward human-centered care.

Supported by sustainable policy and smart technology, APD addresses the limitations of traditional dialysis and builds a safer, more efficient, and humane home care model. With scalability and institutional potential, this model deserves long-term promotion and policy support, offering new solutions for Taiwan's aging society.

**Keywords :** Automated Peritoneal Dialysis, Telehealth, Digital Technology

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0851

Abstract Submission No. : APCN20251112

### Eosinophilic Peritonitis in a CAPD Patient: An Unexpected Presentation of Refractory Peritonitis

Czarina Jean B. De Jesus<sup>1</sup>; Marika Ilysha Lapidario<sup>1</sup>; Gabriel Louise Seña<sup>1</sup>; Stephen R. Roberts<sup>1</sup>

<sup>1</sup> Department of Internal Medicine, Section of Nephrology, East Avenue Medical Center, Quezon City, Philippines

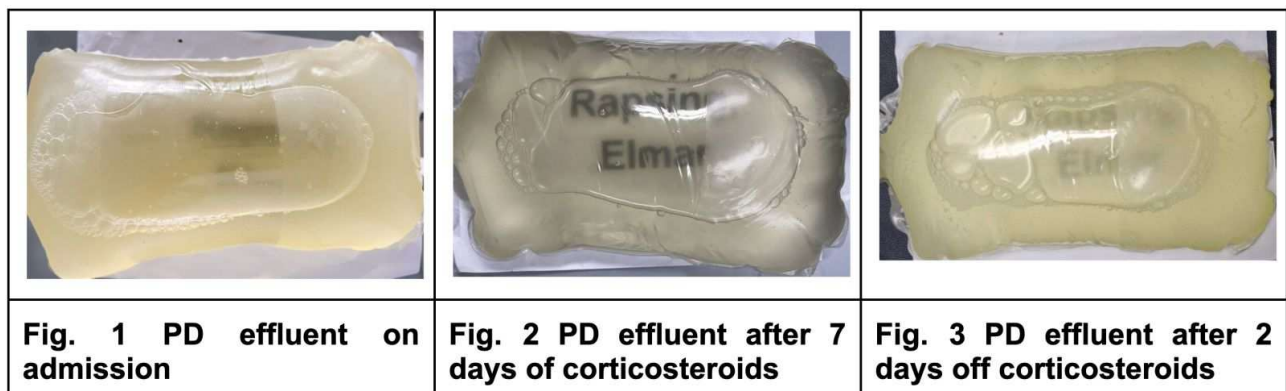
#### Abstract

**Background:** Eosinophilic peritonitis is a rare, non-infectious complication of peritoneal dialysis (PD), characterized by the presence of eosinophils in the peritoneal effluent. It is often underrecognized due to its non-specific presentation and may be mistaken for infectious peritonitis. Although frequently self-limiting, it can occasionally necessitate alteration of dialysis modality if persistent or recurrent. This case highlights the diagnostic complexity, management challenges and therapeutic limitations in a patient presenting with cloudy dialysate but no systemic signs of infection diagnosed as eosinophilic peritonitis, a rare but recognized complication during the early phase of CAPD.

**Case Presentation:** A 30-year-old Filipino male newly diagnosed chronic kidney disease (CKD) Stage 5, initiated on continuous ambulatory peritoneal dialysis (CAPD) presented with cloudy peritoneal effluent after one month with no associated fever, abdominal pain, or gastrointestinal symptoms. Physical exam and exit site evaluation were unremarkable. Complete blood count revealed no leukocytosis but with peripheral eosinophilia (10%). Peritoneal fluid was turbid with fluid analysis showing elevated WBC count ( $889 \times 10^6/L$ ) and neutrophilic predominance (86.7%). The cultures were negative for bacterial, fungal, and mycobacterial organisms. Empiric intraperitoneal antibiotics were initiated, but no improvement after 72 hours. Eosinophilic peritonitis (EP) was suspected given the persistent peripheral eosinophilia and absence of evidence of infection. A repeat peritoneal fluid analysis was subsequently performed, revealing an eosinophil count of 49%, confirming the diagnosis. Intravenous hydrocortisone for seven days led to transient resolution of effluent cloudiness accompanied by persistent eosinophilia. However, recurrence occurred shortly after steroid discontinuation. As extraneal PD solution (icodextrin) was unavailable in our setting, the patient was subsequently transitioned to hemodialysis.

**Conclusion:** Eosinophilic peritonitis should be considered in CAPD patients presenting with cloudy effluent in the absence of infection or systemic signs of peritonitis. Early recognition and differentiation from infectious causes are crucial to avoid unnecessary antibiotics. While corticosteroids can be effective, persistent or recurrent cases may require transition to other modes of dialysis.

**Keywords :** Keywords: Eosinophilic peritonitis [EP], peritoneal dialysis [PD], cloudy effluent, chronic kidney disease [CKD], non-infectious peritonitis, corticosteroids, hemodialysis [HD]



## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0852**

**Abstract Submission No. : APCN20251136**

### **Peritoneal Dialysis Catheter Malfunction Due To Uterine Myoma Rare Case Presentation**

Munkhjavkhlan Dorjsuren<sup>1</sup>

<sup>1</sup> Division of Dialysis access surgery, Department of Surgery, Mungunguur hospital, Ulaanbaatar city, Mongolia

#### **Abstract**

##### **Introduction:**

There are multiple causes of peritoneal dialysis catheter obstruction, though it is relatively uncommon for the blockage to be related to pelvic or intra-abdominal organs.

In rare cases, catheter obstruction may occur in women due to fimbrial adhesions of the fallopian tubes. Obstruction caused by adhesions between the intestines and omentum secondary to an intra-abdominally growing uterine myoma is an uncommon complication.

##### **Case Presentation:**

Patient, 56 F Diagnosis: Polycystosis of both kidney, CKD, end stage, under Peritoneal dialysis, PDC malfunction, Secondary moderate anemia, Ischemic heart disease, Hypertension 2nd stage, high risk,

The patient presented with an obstruction of the peritoneal dialysis catheter, generalized edema, and shortness of breath, and also reported decreased urine output and elevated arterial blood pressure.

Medical History: The patient was diagnosed with polycystic kidney disease (PKD) and chronic kidney disease (CKD) in 2013, began hemodialysis in December 2018, and underwent peritoneal dialysis catheter insertion in June 2019; she also had pericardial window surgery for pericarditis on July 29, 2019, and is currently taking Equator 10/20, Clopidogrel, Erythropoietin, and Calcium acetate.

Surgical History: The patient underwent orthopedic surgery in 2006, had a double-lumen catheter placed for hemodialysis in December 2018, received a peritoneal dialysis catheter in June 2019, and underwent pericardial window surgery in July 2019, with no reported trauma history and allergies to Analgin and Diphenhydramine.

Laboratory tests revealed anemia (Hb 9.4 g/dL), elevated creatinine (624.9  $\mu$ mol/L), and urea (24.35 mmol/L). Imaging showed reduced kidney size with multiple cysts, a uterine myoma, a dermoid-like ovarian cyst, and proper catheter placement, while abdominal X-ray confirmed the catheter was located in the lower pelvis.

On September 26, the patient underwent laparoscopic revision and fixation of the PDC, adhesiolysis, myomectomy, partial omentectomy, and peritoneal lavage. Intraoperative findings confirmed catheter obstruction due to abdominal adhesions and pressure from the uterine myoma.

##### **Conclusion:**

It is important to evaluate pelvic organ pathologies preoperatively to determine whether they may contribute to postoperative complications. Additionally, addressing other intra-abdominal abnormalities that may interfere with peritoneal dialysis—through staged or concurrent surgical interventions—has significant value in ensuring the long-term continuation of dialysis therapy.

Due to female anatomical differences, there is a higher likelihood that pelvic organs may interfere with catheter function compared to males. For example, catheter obstruction may occur due to encasement by fallopian tubes, compression by an intraperitoneally projecting uterine myoma, or displacement and compression of the catheter tip behind the uterus near the pelvic floor, all of which can reduce catheter function.

**Keywords :** Peritoneal catheter malfunction, Uterine Myoma

### Surgery



PDC obstruction by omentum and Myoma



Adhesion of Myoma and omentum



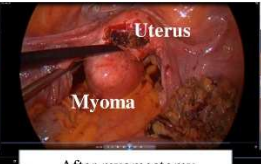
Small bowel



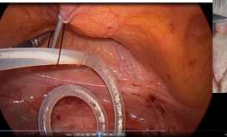
Myoma  
10\*8cm



Removing adhesions



After myomectomy  
Another myoma



Suture fixation



## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0853

Abstract Submission No. : APCN20251186

### Implementation of Peritoneal Dialysis Services in a Community Hospital

#### Setting: A Nurse-Led Value-Based Care Approach

Chua Chiou Hann<sup>1</sup>; Wang Wei<sup>4</sup>; Hou Enzhen Ruth<sup>1</sup>; Wong Kee Hoon Phyllis<sup>1</sup>; Pescadera Irma Suarez<sup>1</sup>; Culanag Auditte Misamis<sup>1</sup>; Matapaja Lyndon II Bendanillo<sup>1</sup>; Vasanti Thangaveloo<sup>1</sup>; Ng Li Choo<sup>4</sup>; Teo Chiang Wen<sup>2</sup>; Foo Wan Yin Marjorie<sup>3</sup>

<sup>1</sup> Nursing Department, Singhealth Community Hospital, Singapore

<sup>2</sup> Post Acute and Continuing Care, Singhealth Community Hospital, Singapore

<sup>3</sup> Department of Renal Medicine, Singapore General Hospital, Singapore

<sup>4</sup> Nursing Division, Singapore General Hospital, Singapore

#### Abstract

**Background and Aim:** The transition of peritoneal dialysis (PD) patients from acute to community care remains a persistent healthcare challenge in Singapore, affecting both healthcare costs and patient outcomes. This nurse-led initiative aimed to evaluate the implementation, outcomes, and value-based care metrics of a novel PD service at Outram Community Hospital, in collaboration with Singapore General Hospital. The project also sought to promote right-siting of patients and offer rehabilitation opportunities during community-based care.

**Methods:** A quality improvement project using value-based care principles was conducted from July 2022 to December 2024. The intervention involved structured implementation of PD services, including training for 16 nursing staff, development of clinical protocols, and support from Advanced Practice Nurses (APNs). Primary outcomes included the number of patients managed, infection rates (peritonitis and exit site), service capacity, healthcare resource utilization, and U-turn rates to acute hospitals. Secondary outcomes included staff competency, sustainability, patient satisfaction, and experience.

**Results:** Since its implementation in March 2023, the program has achieved positive outcomes across multiple domains. The service successfully managed 32 PD patients with zero peritonitis and exit site infection cases. Operational efficiency improved, with service capacity expanding from 2 patients concurrently managed up to 5 patients in 2025. A sustainable nurse-led workforce was established, comprising 16 trained nurses including 4 champions. The initiative led to reduced acute hospital stay, better utilization of healthcare resources, improved patient satisfaction, and significantly zero U-turns to acute hospitals related to peritoneal dialysis. Importantly, APNs played a key role in providing clinical oversight and ensuring continuity of care in the community through timely reviews, digital platforms, and coordination with hospital-based specialists. Right-siting also allowed patients to receive care closer to home while benefiting from rehabilitation services.

**Conclusion:** This project demonstrates the successful nurse-led implementation of a value-based care model for PD services in a community hospital setting. With the zero-peritonitis and exit site infection rate, reduced acute hospital readmissions, right-siting benefits, and enhanced care coordination, the program supports a sustainable and cost-effective approach to community-based dialysis care. The involvement of APNs in ongoing care reinforces the model's strength in achieving continuity, quality, and integration across care settings, with potential scalability to other community healthcare environments.

**Keywords :** Keywords: Peritoneal Dialysis, Nurse-Led Model, Value-Based Care, Community Hospital, Continuity of Care, Quality Improvement, Readmission Reduction, Resource Optimization

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0854**

**Abstract Submission No. : APCN20251189**

### **Peritoneal Dialysis-Associated Peritonitis in Elderly Patients: Clinical Presentations and Outcomes**

BEN-CHUNG CHENG<sup>1,2</sup>; Pei-Ling Liang<sup>1</sup>; Sing-Kuei Pai<sup>1</sup>; Ya-Ling Liu<sup>1</sup>; Wen-Chin Lee<sup>2</sup>

<sup>1</sup> Peritoneal Dialysis Center, Division of Nephrology, Kaohsiung Chang Gung Memorial Hospital, Taiwan

<sup>2</sup> Division of Nephrology, Kaohsiung Chang Gung Memorial Hospital, Taiwan

#### **Abstract**

##### **Introduction**

Peritoneal dialysis (PD) is a vital renal replacement therapy for end-stage kidney disease patients, including the elderly population. However, peritonitis remains a major complication, leading to technique failure and mortality. This study aims to explore the clinical presentations, causative organisms, risk factors, and outcomes of peritonitis in elderly PD patients compared to younger counterparts.

##### **Methods**

A retrospective analysis of peritonitis episodes was conducted at a single center from January 2022 to December 2024. Patients were categorized into elderly ( $\geq 65$  years) and non-elderly ( $< 65$  years) groups. Data collected included demographics, PD modality (automated PD [APD] or continuous ambulatory PD [CAPD]), caregiver involvement, causative organisms, etiology, and clinical outcomes. Statistical analyses used chi-square tests for categorical variables, Student's t-tests for continuous variables, and multivariate logistic regression to identify independent risk factors for adverse outcomes.

##### **Results**

A total of 218 peritonitis episodes were recorded, with 82 episodes (37.6%) occurring in elderly patients. Elderly patients were more likely to use CAPD than APD (65.9% vs. 46.3%,  $p=0.004$ ) and relied more on caregivers (67.1% vs. 82.4%,  $p<0.001$ ). Improper handling techniques were the predominant cause of peritonitis in both groups but were significantly more common in elderly patients (42.7% vs. 33.1%,  $p=0.032$ ). Gram-positive organisms were the most frequent isolates in both groups (45.1% vs. 45.6%,  $p=0.412$ ). Elderly patients experienced higher rates of transfer to hemodialysis (17.1% vs. 10.3%,  $p=0.047$ ) and mortality (4.9% vs. 1.5%,  $p=0.039$ ). Multivariate analysis identified age  $\geq 65$  years, non-self-care, and Gram-negative infections as independent predictors of technique failure or death.

##### **Conclusion**

Elderly PD patients face distinct challenges with peritonitis, including higher rates of adverse outcomes. The predominance of technique-related infections highlights the need for targeted education and support for elderly patients and their caregivers. Enhanced training programs, regular technique reassessment, and remote monitoring technologies may reduce peritonitis rates in this vulnerable population. Future studies should focus on age-specific preventive strategies to improve outcomes for elderly PD patients.

**Keywords :** Peritoneal Dialysis, Peritonitis, Elder, Caregiver

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0855

Abstract Submission No. : APCN20251193

### APD versus CAPD in Phosphate Removal: Clinical Significance of APD with Manual Exchange

曹明霞<sup>1</sup>; Zhen Zhuang<sup>1</sup>; Wen Wen<sup>1</sup>; Xiang-Lan Wu<sup>1</sup>; Yue-Hong Li<sup>1</sup>

<sup>1</sup> Department of Nephrology, Beijing Tsinghua Changgung Hospital, Beijing, China

#### Abstract

##### Objective

With the increasing number of peritoneal dialysis (PD) patients, automated peritoneal dialysis (APD) has been widely adopted. This study aimed to compare the dialysis efficacy between continuous ambulatory peritoneal dialysis (CAPD) and APD by analyzing demographic characteristics, biochemical parameters, dialysis metrics, and ultrafiltration profiles to optimize treatment strategies.

##### Methods

This single-center cross-sectional study included 82 PD patients with  $\geq 6$  months of dialysis duration from October 2018 to March 2025. Data collected included demographics (gender, age, dialysis vintage, weight, blood pressure, urine output), dialysis parameters (modality, total therapy volume, dwell time, ultrafiltration, Kt/V, peritoneal transport characteristics), and biochemical markers (HGB, iPTH, ALB, Urea, Scr, Ca, K, CRP, Fe,  $\beta 2$ -microglobulin, glucose, NT-proBNP, Na, Cl, CO<sub>2</sub>).

##### Results

1. Among 45 CAPD and 37 APD patients, no significant differences were observed in weight, age, total therapy volume, ultrafiltration, Kt/V, peritoneal transport characteristics, or biochemical markers (HGB, iPTH, ALB, Urea, Scr, Ca, K, CRP, Fe,  $\beta 2$ -microglobulin, NT-proBNP; all  $P > 0.05$ ). However, APD patients exhibited higher serum phosphorus ( $1.98 \pm 0.64$  vs.  $1.66 \pm 0.41$  mmol/L,  $P = 0.006$ ), greater urine output ( $581.08 \pm 505.30$  vs.  $381.11 \pm 367.31$  mL,  $P = 0.041$ ), and shorter dwell time ( $17.22 \pm 6.87$  vs.  $20.20 \pm 5.84$  h,  $P = 0.037$ ).
2. In 7 symptomatic patients receiving APD with manual exchange (diet and phosphate binders unchanged), serum phosphorus significantly decreased after 3 months ( $2.13 \pm 0.46$  to  $1.88 \pm 0.48$  mmol/L,  $P = 0.009$ ).

##### Conclusion

APD patients had higher serum phosphorus levels than CAPD patients despite comparable total therapy volume, suggesting phosphorus clearance correlates with dwell time. APD combined with manual exchange prolonged dwell time and enhanced phosphorus removal. Larger studies are needed to validate its long-term efficacy and prognostic impact.

**Keywords** : APD, CAPD, Phosphate Clearance

Statistical Analysis of Baseline Characteristics in 82 PD Patients: Comparison  
Between CAPD and APD (Single-Center Data)

Parameter	CAPD (n=45)	APD (n=37)	P-value
Sex (male)	0.36 ± 0.48	0.38 ± 0.49	0.833
Height (cm)	165.20 ± 8.62	168.35 ± 9.11	0.112
Weight (kg)	67.79 ± 13.30	72.19 ± 14.86	0.161
Urine output (ml)	381.11 ± 367.31	581.08 ± 505.30	0.041*
Ultrafiltration (ml)	631.11 ± 379.49	675.68 ± 393.46	0.604
Total Kt/V	7.52 ± 1.19	8.25 ± 2.26	0.062
Dwell time (h)	20.20 ± 5.84	17.22 ± 6.87	0.037*
SBP (mmHg)	135.49 ± 18.38	133.81 ± 22.72	0.712
DBP (mmHg)	78.00 ± 10.14	76.46 ± 11.26	0.517
Age (years)	64.91 ± 9.86	63.00 ± 14.16	0.475
Dialysis vintage (mo)	32.00 ± 17.69	26.89 ± 16.62	0.185
WBC (×10 <sup>9</sup> /L)	7.95 ± 3.07	7.44 ± 2.02	0.384
Hemoglobin (g/L)	115.84 ± 14.59	116.57 ± 13.80	0.820
iPTH (pg/ml)	227.71 ± 165.21	234.56 ± 159.73	0.850
Total protein (g/L)	65.65 ± 5.34	66.81 ± 5.12	0.322
Albumin (g/L)	37.28 ± 3.50	37.26 ± 3.64	0.974
Prealbumin (g/L)	0.31 ± 0.08	0.30 ± 0.08	0.532
BUN (mmol/L)	27.33 ± 22.86	23.85 ± 19.05	0.462
Serum creatinine (μmol/L)	854.87 ± 233.00	911.65 ± 260.84	0.301
Uric acid (μmol/L)	349.58 ± 83.96	381.92 ± 68.51	0.063
Calcium (mmol/L)	2.25 ± 0.13	2.23 ± 0.17	0.524
Phosphate (mmol/L)	1.66 ± 0.41	1.98 ± 0.64	0.006*
Potassium (mmol/L)	4.63 ± 0.99	4.52 ± 0.90	0.596
Sodium (mmol/L)	138.57 ± 3.03	138.85 ± 3.08	0.678
Bicarbonate (mmol/L)	24.03 ± 2.36	22.98 ± 2.55	0.057
Magnesium (mmol/L)	0.98 ± 0.20	1.05 ± 0.24	0.157
CRP (mg/L)	7.85 ± 13.55	13.79 ± 24.63	0.170
Iron (μmol/L)	15.58 ± 5.91	14.59 ± 5.33	0.435
Ferritin (μg/L)	290.00 ± 218.51	260.22 ± 207.61	0.532
UIBC (μmol/L)	34.96 ± 12.39	32.56 ± 11.55	0.372
β <sub>2</sub> -microglobulin (mg/L)	35.77 ± 9.27	35.22 ± 12.06	0.818
BNP (pg/ml)	11844.04 ± 4315.13	10677.14 ± 6129.59	0.803
Glucose (mmol/L)	8.04 ± 2.86	7.76 ± 2.76	0.647
PET	2.69 ± 0.70	2.59 ± 0.69	0.542
Adequacy	1.72 ± 0.38	1.84 ± 0.55	0.229

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0856

Abstract Submission No. : APCN20251199

### Impact Of Body Mass Index On Peritoneal Dialysis Patient Outcomes: A Single-Center Study

BEN-CHUNG CHENG<sup>1,2</sup>; Ya-Ling Liu<sup>1</sup>; Sing-Kuei Pai<sup>1</sup>; Pei-Ling Liang<sup>1</sup>; Wen-Chin Lee<sup>2</sup>

<sup>1</sup> Peritoneal Dialysis Center, Division of Nephrology, Kaohsiung Chang Gung Memorial Hospital, Taiwan

<sup>2</sup> Division of Nephrology, Kaohsiung Chang Gung Memorial Hospital, Taiwan

#### Abstract

##### Introduction

The relationship between body mass index (BMI) and clinical outcomes in peritoneal dialysis patients remains incompletely understood. This study aims to investigate associations between BMI categories and clinical outcomes, including technique survival, peritonitis rates, and mortality.

##### Methods

A retrospective cohort study was conducted involving 407 patients undergoing peritoneal dialysis between January 1995 and December 2021. Patients were categorized into five Asian-specific BMI groups: underweight (<18.5kg/m<sup>2</sup>), normal weight (18.5–23.9kg/m<sup>2</sup>), overweight (24.0–26.9kg/m<sup>2</sup>), obese (27.0–29.9kg/m<sup>2</sup>), and severely obese (≥30kg/m<sup>2</sup>). Primary outcomes included technique failure, peritonitis episodes, and mortality. Statistical analyses included Kaplan-Meier survival analysis, Cox proportional hazards models, and chi-square tests.

##### Results

Patient distribution included: underweight (9.6%), normal weight (57.2%), overweight (20.6%), obese (7.4%), and severely obese (5.2%), with a mean follow-up of 47.3±28.6 months. Three-year technique survival rates differed significantly across BMI categories (p=0.008): underweight (76.9%), normal weight (82.4%), overweight (71.4%), obese (63.3%), and severely obese (52.4%). After adjustment, obesity (HR 1.89, 95%CI 1.23-2.91) and severe obesity (HR 2.37, 95%CI 1.46-3.85) independently predicted technique failure. Peritonitis rates increased with BMI category (p=0.031): underweight (0.41), normal weight (0.38), overweight (0.45), obese (0.52), and severely obese (0.59) episodes per patient-year. Severe obesity is associated with higher peritonitis risk (IRR 1.63, 95%CI 1.18-2.25). All-cause mortality showed no significant unadjusted differences across BMI categories (p=0.142). After adjustment, underweight status was associated with increased mortality risk (HR 1.76, 95%CI 1.08-2.87). Automated peritoneal dialysis usage increased with BMI: underweight (33.3%), normal weight (43.8%), overweight (51.2%), obese (60.0%), and severely obese (66.7%) (p=0.020).

##### Conclusion

Obesity is associated with poorer technique survival and higher peritonitis rates in peritoneal dialysis patients, while underweight status may increase mortality risk. BMI should be considered when selecting and managing patients on peritoneal dialysis, with tailored approaches potentially benefiting those at weight extremes.

**Keywords** : Body Mass Index, Obesity, Peritoneal Dialysis, Outcomes

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0857

Abstract Submission No. : APCN20251213

### The Application of Artificial Intelligence-Enabled Electrocardiography to Detect Serum Calcium in Uremic Patients Receiving Parathyroidectomy

SHUN-NENG, HSU<sup>1</sup>; Chin-Lin<sup>2</sup>; Chih-Chien Sung<sup>1</sup>; Yu-Juei Hsu<sup>1</sup>; Chien-Chou Chen<sup>3</sup>; Shih-Hua Lin<sup>1</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan, R.O.C.

<sup>2</sup> School of Medicine, National Defense Medical Center, Taipei, Taiwan, R.O.C.

<sup>3</sup> Division of Nephrology, Department of Medicine, Tri-Service General Hospital Songshan Branch, National Defense Medical Center, Taipei, Taiwan, R.O.C.

#### Abstract

**Background:** Although bloodless artificial intelligence-enabled electrocardiography (AI-ECG) has been developed to detect severe dyscalcemia rapidly, its application to detect and monitor serum calcium (Ca) in uremic patients receiving PTX remains unexplored.

**Purpose:** This study evaluated the utility of AI-ECG-derived calcium levels (ECG-Ca) to detect and monitor hyper- and hypocalcemia associated hungry bone syndrome following parathyroidectomy (PTX-HBS) in uremic patients with severe secondary hyperparathyroidism (SHPT). **Methods:** In this retrospective study, we included uremic patients with SHPT who had at least one concurrent recording of AI-ECG-derived Ca (ECG-Ca) and laboratory-measured calcium levels (Lab-Ca) before and after PTX over a 3-year period. Severe hypocalcemia associated with HBS post-PTX was defined as having a serum Ca level (Lab-Ca <7.5 mg/dL). The ECG-Ca was quantified by ECG 12Net analysis. Clinical characteristics and relevant laboratory data were analyzed.

**Results:** Thirty-nine dialysis patients undergoing PTX met the criteria, characterized by higher preoperative levels of intact parathyroid hormone (iPTH), phosphate (P), and alkaline phosphatase (ALP). A total of 113 matched pairs of ECG-Ca and Lab-Ca consisted of 77 preoperative and 36 postoperative, within 3 days, available for analysis. A significant positive correlation was observed between ECG-Ca and the Lab-Ca levels, with a Pearson correlation coefficient (r) of 0.664. Furthermore, the AI-ECG model demonstrated good performance in predicting post-PTX severe hypocalcemia, achieving an area under the curve (AUC) of 0.885.

**Conclusions:** AI-ECG may facilitate the rapid detection of pre-PTX hypercalcemia and post-PTX severe hypocalcemia (HBS) in uremic patients with SHPT, allowing for timely interventions to avoid neuromuscular and cardiac complications.

**Keywords :** Artificial intelligence, electrocardiography, calcium, parathyroidectomy, ungary bone syndrome, dialysis

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0858**

**Abstract Submission No. : APCN20251225**

### **Body Composition with Nutrition-associated Parameters Correlated with Serum Albumin Levels in Peritoneal Dialysis Patients**

CHANG-CHIANG CHEN<sup>1</sup>; Chung-Wei Yang<sup>1,2</sup>; Chieh-Kai Chan<sup>1</sup>; Cheng-Han Chao<sup>1</sup>; Wei-Shun Yang<sup>1</sup>; Hui-Teng Cheng<sup>2</sup>

<sup>1</sup> Division of Nephrology, Department of Internal Medicine, National Taiwan University Hsin-Chu Hospital, Hsinchu City, Taiwan

<sup>2</sup> Division of Nephrology, Department of Internal Medicine, National Taiwan University BioMedical Park Hospital, Zhubei City, Hsinchu County, Taiwan

#### **Abstract**

##### **Introduction**

Most peritoneal dialysis (PD) patients are malnourished at the initiation of PD. However, this is closely related to poor prognosis. Additionally, fluid overload is significantly associated with malnutrition and inflammation in PD patients. Therefore, the nutritional status and body fluid volume of PD patients should be regularly monitored in order to detect malnutrition and fluid overload in the PD patients.

##### **Methods**

The aim was to elucidate the correlation between the body composition and nutritional status in PD patients. Body composition monitor (BCM-Fresenius Medical Care) was used to measure the body composition of PD patients. PD patients were divided into two groups based on serum albumin levels:  $\leq 3.5$  and  $> 3.5$ . The correlations between nutrition-associated biochemical parameters, body composition and serum albumin levels were analyzed.

##### **Results**

A total of 80 PD patients were recruited. The results show that the albumin  $\leq 3.5$  group had significantly lower levels of transferrin ( $p = 0.011$ ), total iron binding capacity (TIBC) ( $p = 0.01$ ), and prealbumin ( $p = 0.006$ ) than those in the albumin  $> 3.5$  group. There was a higher high sensitivity C-reactive protein (hs-CRP) level ( $p = 0.018$ ), overhydration (OH) / extracellular water (ECW) ratio ( $p = 0.004$ ), and ECW/intracellular water (ICW) ratio ( $p = 0.013$ ) in the albumin  $\leq 3.5$  group. The TIBC, Transferrin, and prealbumin were significantly positively correlated with albumin ( $r, p$ : 0.410,  $< 0.001$ ; 0.369, 0.001; 0.417,  $< 0.001$ , respectively). The hs-CRP, OH/ECW, and ECW/ICW showed significant negative correlations with albumin ( $r, p$ : 0.330, 0.003; 0.296, 0.008; 0.387,  $< 0.001$ , respectively). The hs-CRP, TIBC, transferrin, prealbumin, OH/ECW, and ECW/ICW model showed a strong correlation with serum albumin levels in PD patients ( $r = 0.595$ ,  $p < 0.001$ ).

##### **Conclusion**

The levels of hs-CRP, TIBC, transferrin, prealbumin, OH/ECW, and ECW/ICW ratio were correlated to serum albumin levels, respectively. These parameters can be considered for evaluating the nutritional status in PD patients. However, a further prospective cohort study is needed to validate the result.

**Keywords :** malnutrition, peritoneal dialysis, body composition

**Table 1. Demographic and clinical characteristics of the participants**

	albumin < 3.5, n=20	albumin > 3.5, n=60	p
Sex(F, %)	35	43	0.518
Age(year)	55.94±14.30	50.40±11.60	0.085
PD duration(year)	2.62±2.19	3.83±3.31	0.132
BMI(kg/m <sup>2</sup> )	24.19±3.65	24.57±4.65	0.745
Albumin(g/dL)	3.29±0.23	3.90±0.20	<0.001*
FBG(mg/dL)	147.25±60.22	123.20±43.13	0.055
Triglyceride(mg/dL)	176.50±103.38	210.65±157.51	0.368
Cholesterol(mg/dL)	182.20±42.71	172.03±47.45	0.398
GPI(U/L)	21.80±9.17	18.47±11.93	0.258
Creatinine(mg/dL)	11.79±3.28	13.13±3.28	0.115
P(mg/dL)	5.27±1.57	6.00±1.40	0.053
Hgb(g/dL)	9.58±1.22	10.32±1.69	0.075
WBC(×10 <sup>9</sup> /L)	8.10±3.80	8.57±2.13	0.842

PD: peritoneal dialysis; BMI: body mass index; FBG: fasting blood glucose; GPI: alanine aminotransferase; P: phosphate; Hgb: hemoglobin; WBC: white blood cell count.

**Table 2. Body composition and nutrition-associated parameters of the participants**

	Albumin < 3.5, n=20	Albumin > 3.5, n=60	p
hs-CRP(mg/dL)	1.96±3.90	0.60±0.90	0.018*
Transferrin(μg/dL)	186.11±23.87	214.96±35.51	0.011*
TIBC(μg/dL)	242.05±45.59	278.97±44.64	0.01*
Prealbumin(mg/dL)	34.52±5.38	38.80±5.63	0.066*
OH(kg)	2.17±0.98	1.38±1.84	0.108
OH/ECW	0.18±0.19	0.08±0.10	0.004*
TBW(kg)	33.73±8.57	33.55±7.62	0.929
ECW(kg)	15.82±3.85	15.50±3.95	0.791
ECW/TBW	16.82±5.44	17.82±4.12	0.389
ECW/ICW	0.98±0.16	0.89±0.12	0.013*
LTI	12.84±3.94	13.57±3.03	0.393
FTI	10.50±3.05	10.72±3.18	0.869
LTM(kg)	34.05±13.69	36.79±10.19	0.468
LTM(kg)	0.54±0.17	0.50±0.14	0.493
FatM(kg)	19.74±9.07	20.81±10.16	0.678
Fat%	0.32±0.11	0.31±0.11	0.551
ATM(kg)	26.80±12.33	28.07±13.47	0.725
BCM(kg)	19.04±5.96	20.80±6.57	0.481

hs-CRP: high sensitivity C-reactive protein; TIBC: total iron binding capacity; OH: overhydration; ECW: extracellular water; TBW: total body water; ICW: intracellular water; LTI: lean tissue index; FTI: fat tissue index; LTM: lean tissue mass; FatM: fat mass; ATM: adipose tissue mass; BCM: body cell mass.

**Table 3. Correlation between body composition, nutrition-associated parameters and serum albumin levels**

	β	95% CI	r	p
hs-CRP	-0.052	-0.088, -0.019	0.330	0.003*
TIBC	0.003	0.001, 0.004	0.410	<0.001*
Transferrin	0.003	0.001, 0.005	0.349	0.001*
Prealbumin	0.023	0.012, 0.035	0.417	<0.001*
OH	-0.032	-0.072, 0.008	0.178	0.113
OH/ECW	-0.746	-1.288, -0.204	0.296	0.008*
TBW	-0.004	-0.014, 0.006	0.088	0.437
ECW	-0.004	-0.024, 0.015	0.051	0.656
ECW/ICW	0.007	-0.010, 0.024	0.093	0.412
ECW/ICW	-0.972	-1.495, -0.450	0.387	<0.001*
LTI	0.014	-0.009, 0.037	0.154	0.238
FTI	-0.008	-0.023, 0.007	0.119	0.295
LTM	0.003	-0.004, 0.010	0.109	0.337
LTM%	0.461	-0.049, 0.972	0.200	0.076
FatM	-0.003	-0.011, 0.005	0.069	0.434
Fat%	-0.566	-1.276, 0.143	0.177	0.116
ATM	-0.003	-0.008, 0.003	0.098	0.589
BCM	0.005	-0.005, 0.015	0.109	0.336

hs-CRP: high sensitivity C-reactive protein; TIBC: total iron binding capacity; OH: overhydration; ECW: extracellular water; TBW: total body water; ICW: intracellular water; LTI: lean tissue index; FTI: fat tissue index; LTM: lean tissue mass; FatM: fat mass; ATM: adipose tissue mass; BCM: body cell mass; r: Pearson's correlation coefficient.

**Table 4. Association between serum albumin levels and the different independent variables models**

Model	r	p
Model 1: OH/ECW, ECW/ICW	0.415	0.001
Model 2: hs-CRP, TIBC, Transferrin, Prealbumin	0.558	<0.001
Model 3: hs-CRP, TIBC, Transferrin, Prealbumin, ECW/ICW	0.571	<0.001
Model 4: hs-CRP, TIBC, Transferrin, Prealbumin, OH/ECW	0.592	<0.001
Model 5: hs-CRP, TIBC, Transferrin, Prealbumin, OH/ECW, ECW/ICW	0.595	<0.001

hs-CRP: high sensitivity C-reactive protein; TIBC: total iron binding capacity; OH: overhydration; ECW: extracellular water; TBW: total body water; ICW: intracellular water; LTI: lean tissue index; FTI: fat tissue index; LTM: lean tissue mass; FatM: fat mass; ATM: adipose tissue mass; BCM: body cell mass; r: Pearson's correlation coefficient.

## Poster Presentation : Peritoneal Dialysis and Telehealth

Poster No. : C0859

Abstract Submission No. : APCN20251252

### Retrospective Analysis of Clinical Characteristics and Etiological Differences in Peritonitis Complicating Two Peritoneal Dialysis Modes (CAPD vs. APD )

武向兰<sup>1</sup>; 曹明霞<sup>1</sup>; 庄震<sup>1</sup>; 李月红<sup>1</sup>

<sup>1</sup> Department of Nephrology, Beijing Tsinghua Changgung Hospital, Beijing, China

#### Abstract

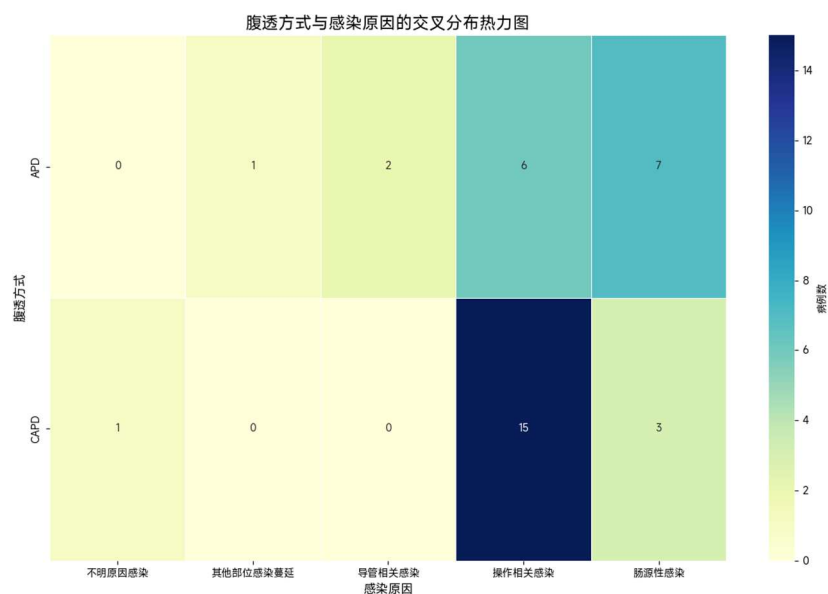
**Objective :** To Compare Clinical Features And Peritonitis Outcomes Between CAPD And APD Patients For Infection Prevention Strategies.

**Methods :** A Retrospective Study Included 19 CAPD And 16 APD Patients. Demographics, Dialysis Duration, Biochemical Indicators, And Peritonitis Parameters Were Collected. Chi-Square And T-Tests Were Used ( $P < 0.05$ ).

**Results :** Baseline : CAPD Patients Were Younger ( $54.09 \pm 17.04$  Vs.  $70.08 \pm 13.83$  Years,  $P = 0.0051$ ) With Longer Dialysis ( $49.73 \pm 17.54$  Vs.  $27.69 \pm 20.54$  Months,  $P = 0.02$ ). No Differences In Gender Or Biochemical Indicators (Table 1). Peritonitis : APD Had Earlier Onset ( $14.81 \pm 10.23$  Vs.  $23.47 \pm 12.65$  Months,  $P = 0.0348$ ). CAPD Had More Operation-Related Infections (78.95% Vs. 37.5%,  $P = 0.0304$ ); APD Had More Intestinal Infections (50% Vs. 21.05%, Figure 1). APD Had More Gram-Negative Bacteria (68.75% Vs. 10.5%,  $P = 0.002$ , Table 2). Outcomes Showed No Differences.

**Conclusion :** CAPD And APD Differ In Age, Dialysis Duration, Peritonitis Causes And Bacteria. Targeted Interventions May Reduce Risk. Small Sample Size Limits The Study. Table 1 Baseline Data Comparison Variables CAPD (N=19) APD (N=16) Value P Value Age (Years)  $54.09 \pm 17.04$   $70.08 \pm 13.83$  -3.026 0.0051 Dialysis Duration (Months)  $49.73 \pm 17.54$   $27.69 \pm 20.54$  3.370 0.02 Figure 1 Distribution Of Peritonitis Etiologies Note: Etiologies Include Operation-Related, Intestinal, Catheter-Related Infections And Unknown Causes.

**Keywords :** Key Words : Peritoneal Dialysis; Continuous Ambulatory Peritoneal Dialysis; Automated Peritoneal Dialysis;



## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0860**

**Abstract Submission No. : E\_APCN20251261**

### **Machine Learning For Predicting Risk Factors Of Cardiocerebrovascular Events In Peritoneal Dialysis Patients**

Anning Xu, Linlin Yuan, Xinyi Fu, Chenyu Lei, Wenjing Cai, Xinling Liang, Zhiming Ye, Zhilian Li

Guangdong Provincial People's Hospital

#### **Background**

Peritoneal dialysis (PD) is a critical renal replacement therapy for end-stage renal disease (ESRD) patients; however, this population faces a disproportionately high burden of cardiocerebrovascular events, accounting for over 50% of mortality. Notably, the incidence of cardiovascular complications in PD patients significantly exceeds that of the general population, with the first year of dialysis being a particularly vulnerable period. Accurate prediction models are essential for early risk stratification and timely clinical interventions to mitigate this burden. Traditional statistical models (e.g., Cox regression) are limited in capturing complex nonlinear interactions among clinical variables such as inflammation markers, nutritional status, and hemodynamic parameters. While machine learning (ML) has demonstrated potential in risk prediction for hemodialysis cohorts, its application to PD patients—especially for short-term (1-year) cardiocerebrovascular event stratification—remains underexplored. This study aims to establish an ML-based predictive model to identify PD patients at high risk of cardiocerebrovascular events early, enabling personalized interventions to improve survival and clinical outcomes.

#### **Methods**

This study was a single-center, retrospective cohort study. A total of 531 patients undergoing maintenance peritoneal dialysis at Guangdong Provincial People's Hospital between January 2019 and December 2022 were included. Inclusion criteria were age  $\geq 18$  years and having received maintenance peritoneal dialysis for  $\geq 3$  months, while exclusion criteria included missing baseline data  $>30\%$  or loss to follow-up. Clinical data encompassed demographics, comorbidities, laboratory parameters, and medication history. The least absolute shrinkage and selection operator (LASSO) model was applied to identify the most significant variables among candidate variables. Prediction models were constructed using logistic regression, k-nearest neighbors, support vector machine, random forest, gradient boosting machine (GBM), and LightGBM. Grid search and 5-fold cross-validation were combined to optimize parameters. AUC, sensitivity, specificity, PPV, and NPV were used to evaluate model performance.

#### **Results**

A total of 531 PD patients were included, with 125 developing cardiocerebrovascular events within 1 year of follow-up. Through LASSO regression, seven critical predictors were identified: diabetes, albumin, age, reduced residual renal function, lactate dehydrogenase (LDH), pulse pressure, and use of four antihypertensive medications. Among six machine learning models evaluated, the random forest algorithm demonstrated superior predictive performance, achieving an AUC of 0.863 (95% CI: 0.832–0.897) in the training cohort and 0.831 (95% CI: 0.809–0.863) in the validation cohort.

#### **Conclusion**

This study establishes the random forest model as a robust tool for predicting 1-year cardiocerebrovascular event risk in PD patients, outperforming traditional statistical methods. The model may serve as a valuable clinical tool for early risk assessment and personalized intervention.

**Key words:** Peritoneal dialysis; Machine learning; Cardiocerebrovascular events; Risk prediction; Random forest

## Poster Presentation: Peritoneal Dialysis and Telehealth

Poster No.: C0861

Abstract Submission No.: E\_APCN20251264

### Improvement of Blood Pressure, Anemia, and CKD-MBD Management in Peritoneal Dialysis Patients: Insights from the Smart Peritoneal Dialysis Care Program (SPDC) at a Single Center

Zeng Yilin\*, Li Hongyu\*, Jiang Zongpei, Fan Li, Deng Lili, Deng jia, Jian Jinlian, #, Liang Huaban#, Ye Zhiming #

Department of Nephrology, Guangdong-Hong Kong Joint Laboratory on Immunological and Genetic Kidney Diseases, Guangdong Provincial People's Hospital (Guangdong Academy of Medical Sciences), Southern Medical University, Guangzhou, China.

\*These two authors contribute equal to this study

#Corresponding authors

**Background:** A patient-centered follow-up system is crucial for maintain physiologic homeostasis undergoing peritoneal dialysis (PD). This study evaluates the *Smart PD Care* (SPDC) program—a novel digital follow-up strategy integrating cloud-based remote monitoring, multidisciplinary team engagement, and patient collaboration—by comparing laboratory and clinical outcomes before and after its implementation.

**Methods:** In this single-center, pre-post retrospective cohort study, 125 PD patients at Guangdong Provincial People's Hospital were enrolled from March 2021 to July 2024. We assessed changes in blood pressure, anemia, calcium, phosphate and iPTH levels, alongside medication usage, following SPDC initiation. Statistical analysis (t-tests, chi-square) compared pre-SPDC baseline data with post-SPDC outcomes.

**Results:** Post-SPDC, systolic blood pressure decreased from  $141.1 \pm 18.4$  mmHg to  $134.3 \pm 16.0$  mmHg ( $P < 0.05$ ), with 65% attaining target SBP ( $<140$  mmHg) versus 51% pre-SPDC, alongside increased antihypertensive use. Hemoglobin ( $Hb \geq 110$  g/L) improved from 38% to 53% ( $P < 0.05$ ), linked to expanded roxadustat use and reduced erythropoiesis-stimulating agent reliance. Calcium, phosphate, and iPTH levels remained stable (pre- vs. post-SPDC: 65% vs. 61%, 60% vs. 53%, 53% vs. 55%, respectively;  $P < 0.05$ ), reflecting optimized mineral metabolism management via sevelamer, calcimimetics, and low-calcium dialysate.

**Conclusion:** The SPDC program improved anemia management, and metabolic outcomes in PD patients through structured remote monitoring and multidisciplinary care. Its success highlights the potential of digital health integration to enhance home-based dialysis management, particularly in resource-limited settings.

**Keywords:** Peritoneal dialysis, Smart Peritoneal Dialysis Care Program (SPDC), remote monitoring, chronic kidney disease-mineral and bone disorder (CKD-MBD), anemia.

## **Poster Presentation : Peritoneal Dialysis and Telehealth**

**Poster No. : C0862**

**Abstract Submission No. : E\_APCN20251281**

### **Telehealth in Peritoneal Dialysis: A Critical Link for Managing Hypertensive Crises and Volume Overload**

Jeremi Malee<sup>1</sup>, Ryan Christopher Harliman<sup>1</sup>, Abimanyu Sakh<sup>1</sup>, Jeffano Davinka<sup>1</sup>, Fadhlan Muhammad Al Faza<sup>1</sup>, Jonathan Kho<sup>1</sup>, Amos Immanuel Chandra<sup>1</sup>, Andree Kurniawan<sup>2</sup>

Faculty of Medicine, University of Pelita Harapan, Indonesia<sup>1</sup>, Department of Medicine, University of Pelita Harapan, Indonesia<sup>2</sup>

#### **Background**

Hypertension and volume overload remain two of the most common causes of hospitalization in peritoneal dialysis (PD) patients. While telehealth has expanded during the past decade, its application in addressing acute cardiovascular complications in PD remains limited. This study explores the potential of integrating remote monitoring tools into PD care, specifically to preempt hypertensive crises and fluid imbalance through early detection and proactive intervention.

#### **Method**

A review was conducted analyzing research from the past 10 years on telehealth enabled peritoneal dialysis care, focusing on outcomes related to blood pressure control, volume status, and hospitalization. Based on identified gaps, a structured telehealth framework was designed incorporating home blood pressure monitoring, daily weight tracking, symptom logging, and optional bioimpedance analysis. Using synthetic patient profiles derived from published data, we conducted a simulation to evaluate early detection rates and potential reductions in adverse events.

#### **Result**

Less than one fifth of existing telehealth systems in PD care incorporate proactive cardiovascular or volume overload monitoring. The simulation predicted that a structured protocol using daily vitals and remote alerts could detect hypertensive instability or volume overload approximately 2 to 3 days earlier than conventional monthly follow up. This earlier detection could reduce crisis related hospital admissions by an estimated 20%, while improving care team responsiveness and individualized adjustments to therapy.

#### **Conclusion**

Telehealth enabled peritoneal dialysis can extend beyond general follow up to become a critical tool in preventing hypertension related emergencies. Integrating remote physiological monitoring offers a scalable and effective way to enhance safety and continuity of care in home dialysis populations. Future clinical trials are needed to validate this framework and guide practical implementation in diverse healthcare settings.

#### **Keywords**

Peritoneal Dialysis, Telemedicine, Hypertension, Remote Patient Monitoring