



ISPD Asia-Pacific Chapter Newsletter, April 2024

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News from the ISPD

2023 Highlights from ISPD Asia-Pacific Chapter

The **10th Asia-Pacific Chapter Meeting (APCM) of the ISPD** was successfully held in New Delhi, India, from September 22nd to 24th, 2023, with 700 attendees from the regional and local areas. The event featured 51 poster presenters, 13 oral presenters, 120 PD workshop attendees, and 70 participating pharmaceutical companies. It was confirmed during the meeting that the 11th APCM of ISPD in 2025 will be hosted by the Malaysian Society of Nephrology in Kuala Lumpur, Malaysia.

Additionally, a significant collaboration was established when the ISPD and the Korean Society of Nephrology (KSN) signed a Memorandum of Understanding on April 28th, 2023, during the KSN Annual Scientific Meeting in Seoul, Korea. This memorandum signifies a strategic partnership between the two organizations, promising advancements in the field of nephrology.



ISPD Asia-Pacific Chapter Scholarship

This is a scholarship to support up to 3 months training in clinical PD for doctors and nurses from Asia-Pacific region. The purpose is to promote PD awareness, knowledge, and expertise by visiting a center of excellence.

Deadline for application for each round: twice a year at 30 June or 31 December.

The next deadline is 30 June 2024.

Details and application procedures can be found under the Regional Chapters – Asia-Pacific Chapter, at the ISPD website.

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Membership for developing countries can be done at advantageous rates, by grouping members by institution or region geographical area. Write to admin@ispd.org for more information.

New options to stay engaged with ISPD: <https://mailchi.mp/ispd/members-2024>

- **ISPD Associate Nurse/AHP:** a new modality for engaging in ISPD activities and obtaining the most relevant membership benefits for these profiles: participation on ISPD Committees, access to information and education resources, travel grants, fellowships, and discounts for events and congresses. To be able to lower the association fee to only %15 USD per year, this modality does not include the right to participate in the ISPD elections (neither being a candidate nor voting for the candidates) and does not include access to the PDI Journal either. This new modality of engagement will allow ISPD to reach many more nurses and allied health professionals, having a positive impact on their work and improving the well-being of many more kidney patients. To join as an Associate Nurse/AHP: [CLICK HERE](#). We encourage all ISPD members to disseminate this new membership option among nurses and allied health professionals within their networks.
- **ISPD Retired Membership:** all membership benefits of a full member, while enjoying a reduced rate of only \$80 USD/year, for retired members who can prove their retired status and who have been ISPD members for at least five years. An option to retain the experience and knowledge of valuable professionals who will stay engaged in the PD Community, contributing to the ISPD work through our committees and other activities. To obtain the retired membership, please provide proof of your status as a retired doctor/professor/nurse/AHP by emailing admin@ispd.org. After validation of your status, we will provide you with instructions on how to subscribe.

Other news from ISPD: Please refer to the latest ISPD newsletter: <https://mailchi.mp/ispd/newsletter-mar24>

Upcoming Meetings

World Congress of Nephrology (WCN) 2024

13-16 April 2024

Buenos Aires Convention Center (CEC), Buenos Aires, Argentina

Website: <https://www.theisn.org/wcn/about/>

2024 Asian Pacific Congress of Nephrology (APCN) and 44th Korean Society of Nephrology (KSN) Meeting

13-16 June 2024

Coex, Seoul, Korea

Website: <https://apcn2024.org/program/glance.php>

61st ERA-EDTA Congress 2024

23-26 May 2024

Stockholm, Sweden

Website: [61st ERA Congress in Stockholm, May 23-26, 2024](#) | [ERA \(era-online.org\)](https://era-online.org)

International Society for Peritoneal Dialysis 2024 congress

26-29 September 2024

Dubai World Trade Center, Dubai, UAE

Deadline for Abstract Submissions: April 12th [Submit your abstract now](#)

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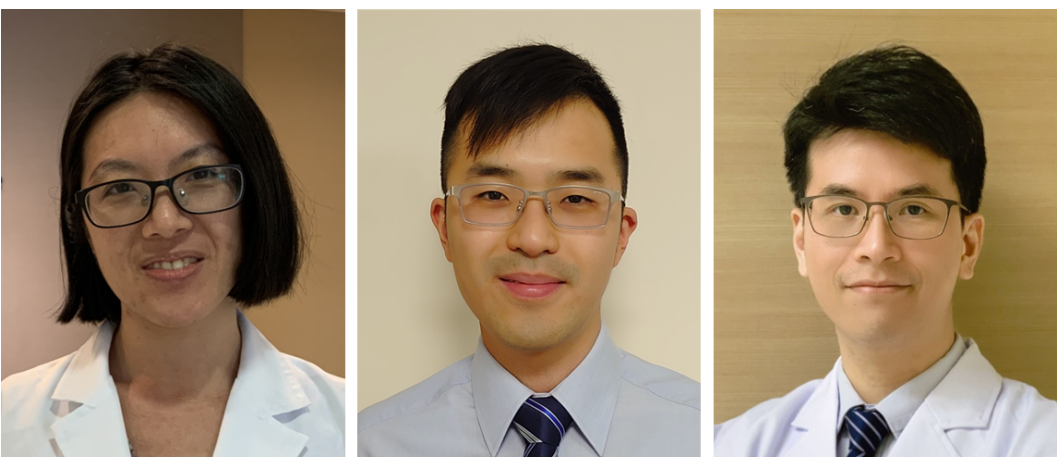
11th ISPD Asia Pacific Chapter Meeting 2025

7-9 September 2025

Kuala Lumpur, Malaysia

Research News from Asia-Pacific Region

Continuous glucose monitoring (CGM) in patients with diabetics on peritoneal dialysis



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In patients with diabetes and end-stage kidney disease (ESKD), accurate assessment of glycaemia is more challenging due to altered red cell turnover, use of iron or erythropoiesis stimulating agents (ESA) which can affect HbA1c [1]. In individuals with type 2 diabetes and chronic kidney disease (CKD), correlations between HbA1c and average interstitial glucose decrease with advancing CKD, with very poor correlation in CKD stage G4 and 5 [2]. Fructosamine and glycated albumin are no more reliable due to proteinuria which often complicates diabetic kidney disease [3]. Continuous glucose monitoring (CGM) may provide an alternative for glycemic assessment. Most CGMs are minimally-invasive and measure interstitial glucose (IG) via enzymatic electrochemical reaction through a small glucose-sensitive filament in the subcutaneous issue. These signals are transmitted to either a reader or a smartphone app. CGM can display comprehensive minute-to-minute glucose profiles throughout the day, compared with self-monitored blood glucose which provide a snapshot. Real-time CGM (rt-CGM) can be accompanied by hypoglycemic or hyperglycemic alerts and glycemic trend predictions, and combined with automated insulin delivery in closed-loop systems as an “artificial pancreas”. Intermittently-scanned CGM (also known as flash glucose monitoring) can display reading to the user only when the user scans the transmitter [1]. Both rt-CGM and is-CGM are growing in popularity to facilitate self-management of diabetes and prevention of hypoglycemia. The latest Kidney Disease Improving Global Outcome (KDIGO) guideline recommended the use of CGM-derived glucose management index as an alternative where HbA1c is less reliable in CKD stages G4-5 [4].

The performance of the CGM sensor is dependent on the enzymatic electrochemical reaction and is subject to multiple interferences. Most commercially available CGM sensor detect IG by glucose oxidase-peroxidase method. Exogenous ascorbic acid, paracetamol, and ethanol may interfere with the glucose oxidase sensor. In patients on peritoneal dialysis (PD), there are several additional, specific interferences that should be considered. Potential electrochemical interference, such due to uremia, and acidosis may occur in patients with ESKD. Extremely low hemoglobin, or pH may also affect the performance of the sensor. Furthermore, IG reading may be affected by volume status in patients on PD. With the increasing global utilization of PD, there is an emerging need to validate the accuracy and performance of CGM in patients on PD before its adoption in clinical practice [1].

To examine the accuracy of CGM in patients on peritoneal dialysis, we compared a real-time CGM sensor against a laboratory gold-standard glucose analyser in 30 patients on continuous ambulatory peritoneal dialysis (CAPD). All patients were on a glucose-containing dialysate with age (mean±SD) 64.7±5.6 years, 77% male, diabetes duration 17.6±8.0 years, HbA1c 7.1±0.9%, duration of dialysis 16.2±19.5 months, mean body mass index (BMI) 25.4±3.9 kg/m², mean hemoglobin level 10.7±1.3 g/L. Nineteen patients were on insulin and 14 were on dipeptidyl-peptidase 4 inhibitors (DPP4is). Patients wore a CGM (Medtronic Guardian Sensor 3 with Guardian Connect) on the upper arm for 14 days and took part in a frequently-sampled testing session on day 3 or 5 [5]. During the 8-hour session, venous blood glucose was analyzed using Yellow Spring Instrument (YSI) 2300 STAT glucose analyzer at 15 minute-intervals and matched with CGM glucose at the same minute. The accuracy of sensor was reflected by the mean absolute relative difference (MARD), which represented the average of relative difference between sensor glucose and the corresponding glucose value measured by reference method (venous blood glucose by YSI in our study). A lower MARD indicated a higher sensor accuracy. Blood glucose was manipulated deliberately by carbohydrate and rapid insulin dosing to achieve a target within 60 – 350 mg/dL (3.3 – 19.4 mmol/L) while on their usual CAPD regimen. Overall, 941 YSI-CGM data pairs were collected, 600 in the euglycemic (54 – 180 mg/dL), 311 in the hyperglycemic (> 180 mg/dL), and 30 in the hypoglycemic (< 54 mg/dL) range. The sensor showed good overall performance with MARD of 10.4% (95% CI 9.6, 11.2%), which was comparable to non-dialysis populations [6]. 99.9% (n = 940) of the data pairs were within the clinically acceptable zone A+B of the consensus error grid. User satisfaction was high. Additionally, we found no correlations between pH, urea, or hemoglobin levels with sensor accuracy.

We also considered the impact of body composition on CGM accuracy in CAPD patients who are prone to fluid overload [7]. It was postulated that hypervolemia may reduce sensor accuracy through dilution of interstitial glucose concentration. In this exploratory analysis, body composition was measured on day 1 of the study using a non-invasive validated multifrequency bioimpedance spectroscopy device (Body Composition Monitor, BCM). The lean tissue mass (LTM), adipose tissue mass (ATM), and volume of overhydration (OH) were calculated based on three-compartment physiological model [8]. We found no correlations between total body water, extracellular water, intercellular water, lean mass, fat mass with MARD. In addition, relative hydration index (RHI) was calculated by dividing overhydration (OH) by extracellular water (ECW) and hypervolemia was defined as RHI ≥15% [9]. Using RHI cutoff of 15%, there was no significant difference in CGM accuracy between patients with mild and severe fluid overload. MARD was similar between BMI, fat tissue index, and lean tissue index strata.

In summary, we have shown good performance of a CGM sensor in patients on CAPD against a laboratory-gold standard. A limitation of the study is the sample size and we did not include patients on icodextrin. Further studies are needed to evaluate potential sensor interferences with icodextrin. We did not perform head-to-head comparison against other commercially-available CGM sensors. Other studies report variable MARDs (from 11.3 to 22.7%) predominantly in patients on hemodialysis with other commercially-available sensors [10]. Future studies are required to evaluate whether CGM-guided glycemic management can improve clinical outcomes in patients on PD.

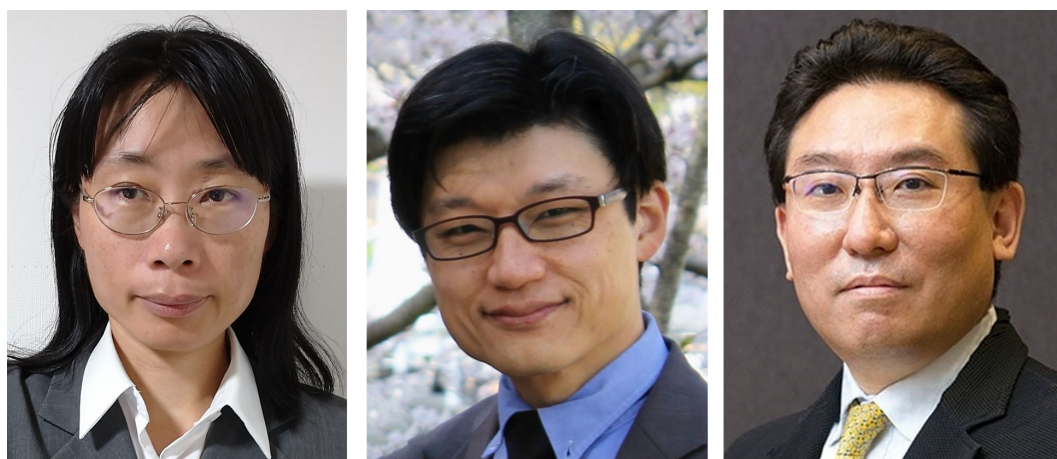
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Associations of calcium, phosphate, and intact parathyroid hormone levels with mortality, residual kidney function, and technical failure among patients on peritoneal dialysis



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Associations of calcium (Ca), phosphate, and intact parathyroid hormone (iPTH) levels with mortality have been extensively studied among hemodialysis (HD) patients [1]. However, studies limited to peritoneal dialysis (PD) patients were scarce (a study limited to incident PD patients [2] and a study lacking information on important confounders [3]).

The studies on associations of Ca, phosphate, and iPTH levels with residual kidney function have been scarce among HD patients [4], and there have been no studies among PD patients. Among PD patients, preservation of residual kidney function is especially important to prevent technical failure (transition to HD).

In this study [5], we examined the associations of Ca, phosphate, and iPTH levels with mortality, residual kidney function represented by daily urine output, and transition to HD among patients on PD based on the Japanese Society for Dialysis Therapy Renal Data Registry (JRDR).

Study Design: A prospective cohort study on the database from JRDR

Setting and participants: The inclusion criterion was adults undergoing PD at the end of 2009. The observation period terminated at the end of 2018. The exclusion criteria were withdrawal from dialysis. The data were censored at the time of transition to HD and transplantation.

Exposure of interests: Time-averaged and time-dependent albumin-corrected calcium (cCa), phosphate, and iPTH levels.

Outcomes: All-cause, cardiovascular (CV) mortality, transition to HD, and residual kidney function represented by daily urine output.

Statistical analyses

Associations of cCa, phosphate, and iPTH levels with all-cause, CV mortality, and transition to HD were examined by Cox regression analyses. All missing values were imputed by multiple imputations by chained equation. The results were shown as restricted cubic spline curves. For the analysis of the annual decline in daily urine output, the annual decline in daily urine output was predicted by linear mixed effects models. The association of time-averaged cCa, phosphate, and iPTH with annual decline in daily urine output was examined by restricted cubic spline analyses.

Main Results

Among patients in the JRDR database, 7,393 patients on PD at the end of 2009 met the criteria for this study. The mean age was 61.4 (13.5) years, 61.3% were male, and the median PD vintage was 2.4 (1.0-4.6) years.

Higher cCa and phosphate levels were associated with higher all-cause mortality both in time-averaged and time-dependent models. Higher iPTH levels were associated with higher all-cause mortality in a time-averaged model (Figure 1). Higher cCa and phosphate levels, but not iPTH levels were associated with CV mortality.

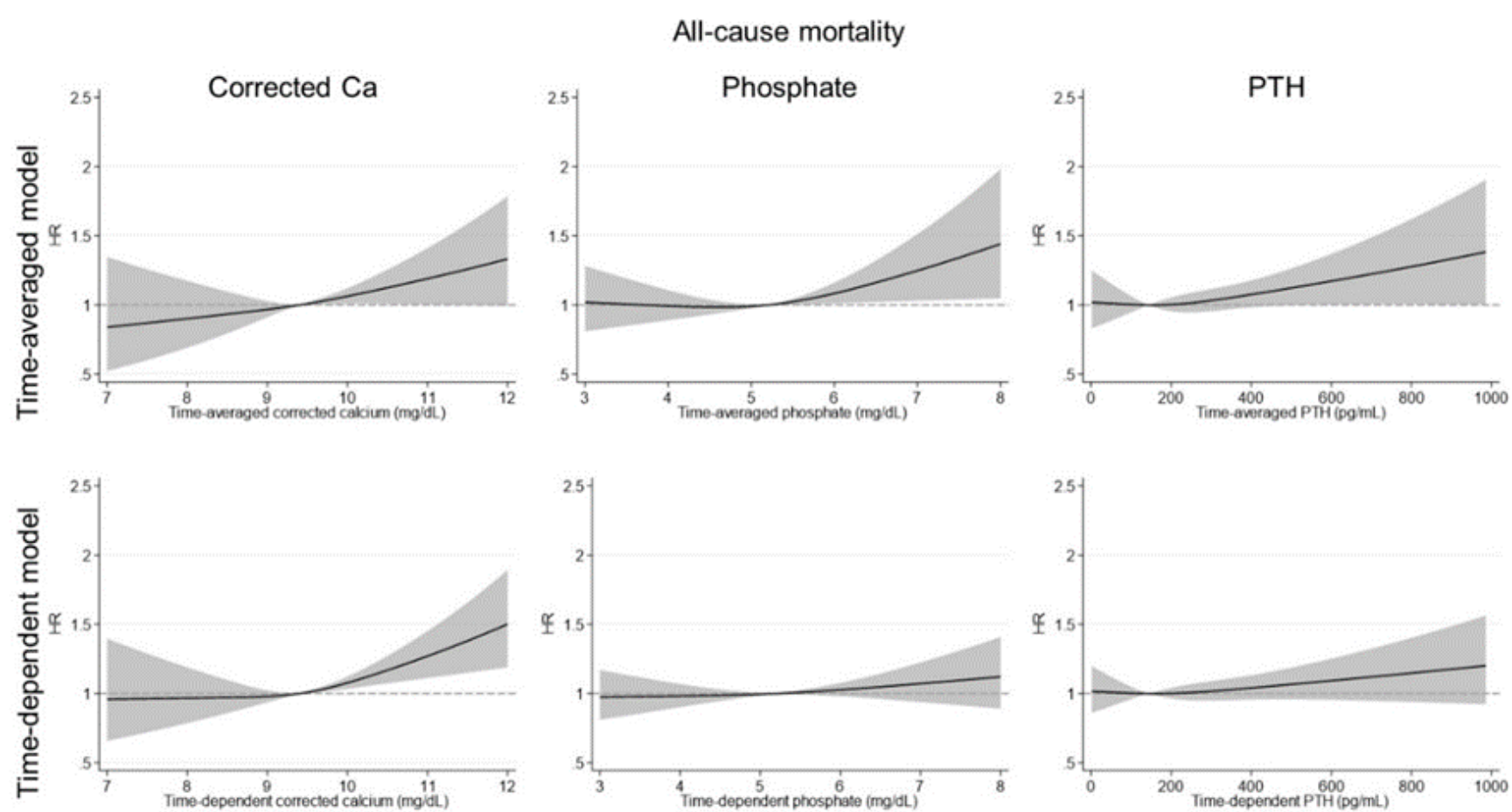


Figure 1. Associations of cCa, phosphate and iPTH levels with all-cause mortality. [5]

Lower cCa levels were associated with faster decline in urine output, whereas lower phosphate levels were associated with a slower decline in urine output. iPTH levels were not associated with a decline in urine output (Figure 2).

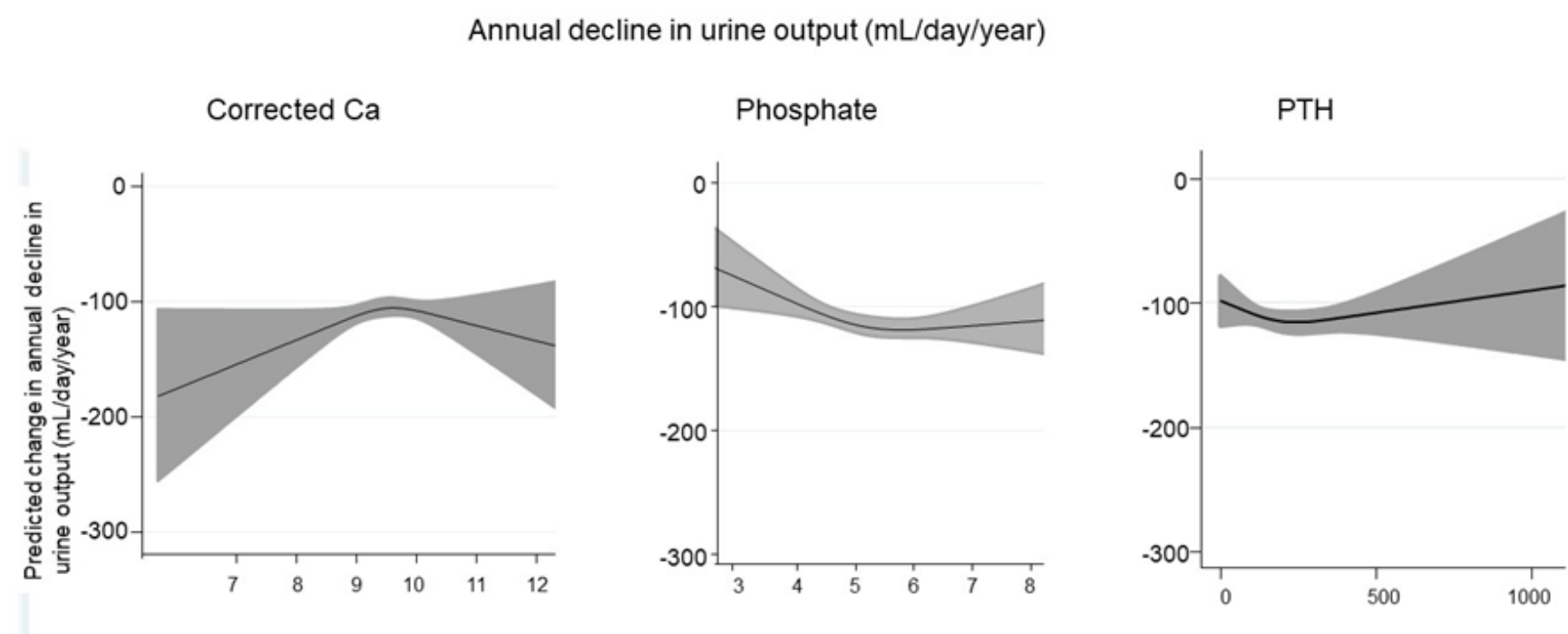


Figure 2. Association of cCa, phosphate and iPTH levels with annual decline in urine output. [5]

Lower phosphate and iPTH levels were significantly associated with a lower incidence of the transition to HD in both time-averaged and time-dependent models. The association between cCa and the transition to HD was not significant (Figure 3).

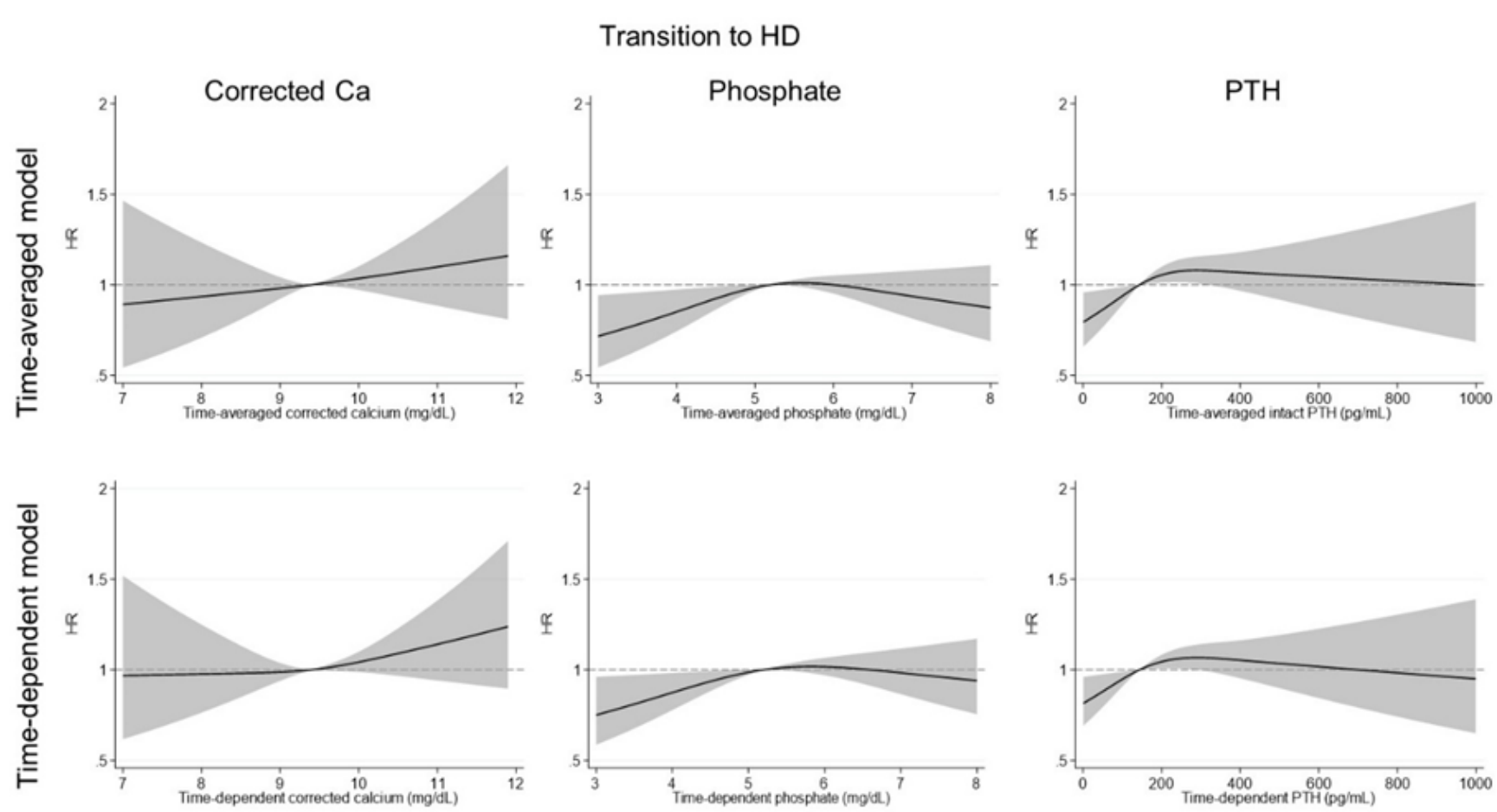


Figure 3. Associations of cCa, phosphate and iPTH levels with the transition to HD. [5]

Discussion

Associations of cCa, phosphate, and iPTH levels with mortality among PD patients were somewhat different from those among HD patients. Among HD patients, hypocalcemia was associated with higher mortality in a few studies (1). However, in this study, lower cCa levels were not associated with higher mortality among PD patients. Among HD patients, lower cCa levels were associated with a rapid shift of Ca from dialysate to serum and a rapid increase in serum Ca levels (6,7). This rapid shift of Ca might be a mediator of the association between lower serum Ca levels and higher mortality (7). Alternatively, hypocalcemia might predispose arrhythmia and sudden cardiac death. Among Japanese PD patients, the prevalence of cardiovascular comorbidities was low compared with HD patients and thus the association between hypocalcemia and mortality may not be apparent. Also, among HD patients, hypophosphatemia is consistently associated with higher mortality (1). It has been considered to be due to malnutrition. However, in this study, lower phosphate levels were associated with lower mortality among PD patients. Among PD patients, low phosphate levels might reflect higher residual kidney function. However, adjustment for daily urine output did not change the results. As many patients on PD are younger, have good performance status, and are well-nourished, low phosphate levels might reflect better adherence to dietary restriction and phosphate binders. Associations of higher Ca, phosphate, and iPTH levels with mortality were similar between PD and HD patients (1).

Associations of Ca, phosphate, and iPTH levels with a decline in residual kidney function have not been studied among the PD population. One study examined associations of Ca, phosphate, and iPTH levels with a slope of residual urea clearance among HD patients (4). They demonstrated that higher phosphate, lower calcium, and higher iPTH levels were associated with a faster decline in residual urea clearance. In our study, lower phosphate levels were associated with a slower decline in daily urine output, although the association of higher phosphate levels (phosphate > 6.5 mg/dL) with a decline in daily urine output was less clear with a wide confidence interval. These findings were in line with findings in animal models of chronic kidney disease in which a high phosphate diet exacerbates kidney damage such as tubular injuries, interstitial fibrosis, and inflammation (8,9). The association between lower Ca levels and faster decline in residual urine output was similar between their study and our study. Hypocalcemia may be a manifestation of severe tubular damage leading to lower 1,25-dihydroxy vitamin D production. Lower 1,25-dihydroxy vitamin D was reported to be associated with a faster decline in kidney function among patients with non-dialysis dependent chronic kidney disease (10). iPTH levels were not associated with a decline in residual kidney function, though lower iPTH levels were associated with a lower

incidence of transition to HD. The reasons for these associations were not clear. In conclusion, our results suggest that higher Ca, higher phosphate and higher iPTH levels should be avoided in terms of mortality, residual kidney function, and technical survival among PD patients.

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In-center automated peritoneal dialysis: clinical features, practice patterns, and patient survival



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Since the establishment of high reimbursement system for kidney failure, China has experienced an unprecedented rapid increase in PD utilization [1]. By the end of 2021, PD population was 12,6372 in mainland

China, with an overall PD prevalence rate of 87.55 per million population (<https://www.cnrds.net>). The utilization of automated peritoneal dialysis (APD) which was originally reserved for patients with high transport status has increased over recent years, paralleled by a substantial growth of accumulating studies on APD [2]. Due to its lifestyle benefits, wider range of prescription options, and the availability of convenient automated machines, APD has become a desirable peritoneal dialysis (PD) modality for individuals with other transport characteristics.

Despite the long unavailability of icodextrin in Mainland China, in-center APD has been more frequently adopted in clinical practice for maintenance PD patients, defined as the APD treatment during hospital stay, APD regimens were prescribed according to patient's clinical condition at the time of hospitalisation. Although in-center APD mostly served as a supplementary treatment (mainly to avoid modality switch) for PD patients during the past few years in China [3], APD is expected to be a popular choice for home dialysis in the near future. Whether the higher cost of APD can be justified by its clinical benefits in terms of preservation of residual kidney function, sodium and fluid removal, glucose load, infection rate, and long-term outcomes is yet to be evaluated [4]. However, in light of the coronavirus pandemic, home-based modality and APD has attracted appreciable attention in dialysis community with regard to the integration of remote monitoring system and the feasibility of telehealth solutions [5].

To our knowledge, despite the growing utilization of in-center APD, studies on survival impact of short-term APD and clinical profile of the in-center APD receivers in China are scarce. For a better understanding of its clinical uptake, in our recent study [6], with the aim of gaining more insights into the practice pattern of in-center APD, factors associated with the use of in-center APD, and related patient outcomes, we retrospectively reviewed incident PD patients for a period of 6 years and mainly focused on the incidence of hospital admissions, investigating in-center APD prescriptions, clinical features of the in-center APD receivers, and report on the patient survival compared to the non-users of APD among hospitalised PD patients.

This was a cohort study of all incident PD patients who met the inclusion criteria from 2013/01/01 to 2018/09/30, and were followed until death, cessation of PD, loss to follow-up, or 2018/12/31. Clinical characteristics, patient outcomes, and detailed data on APD sessions were recorded. We used time-dependent Cox model to estimate the variables associated with the initiation of in-center APD, and marginal structural model through inverse probability weighting to adjust for time-varying APD use on the causal pathway to all-cause mortality.

A total of 651 subjects over 17501 patient-months were enrolled. Of these, 633 (97.2%) PD patients were hospitalised at least once during follow-up, and 369 (56.7%) received in-center APD at a certain point, and the timing of APD use during the first 3 months, first year and first 2 years since PD inception were 14.8%, 45.4% and 74.8%, respectively. A total of 12553 in-center APD sessions were recorded, where 85.9% used 4 bags of 5L-exchanges per prescription. Time-dependent Cox model showed that diabetes (hazard ratio (HR), 1.39, 95% confidence interval (CI), 1.09–1.76), urine output (HR 0.80, 95% CI 0.70–0.92), serum albumin (HR 0.84, 95%CI 0.72–0.99), hemoglobin (HR 0.88, 95%CI 0.77–0.99), and Ca $\times$ P (HR 1.19, 95%CI 1.06–1.35) were significantly associated with in-center APD use. Among all hospitalised PD patients, the estimated hazard ratio corresponding to the marginal causal effect of in-center APD use on all-cause mortality was 0.13 (95% CI 0.05–0.31, P<0.001). Starting APD after the first PD year was associated with a significantly lower risk of all-cause mortality (adjusted-HR 0.56, 95%CI 0.33–0.95).

After adjusting for individual-level confounders, survival on in-center APD was generally better than that of non-users of APD. Results from the time-dependent A-G model using IPW demonstrated a significant survival benefit associated with the short-term use of APD in our study. Not surprisingly, older age, cardiovascular diseases, UOP, and serum albumin were significantly related to all-cause mortality. Of note, lower level of UOP and serum albumin were also associated with in-center APD use, suggesting cardiovascular risk, RKF loss, and malnutrition/inflammation are the main targets of struggle in the present PD cohort. In our point treatment setting, in-center APD use was not consecutive, differs from the literature comparing home-based APD and CAPD groups. Furthermore, when evaluating the effect of different timing of APD initiation, K-M survival curves suggested a better survival probability when starting in-center APD after the first PD year. However, evidence for the survival with APD versus CAPD was inconsistent, and there's paucity of data available regarding the technique survival, peritoneal membrane function, and health-related quality of life [7]. One large cohort study from mainland China demonstrated that APD was associated with a lower all-cause mortality risk compared with CAPD, and survival benefit was only observed during the first 4 dialysis years [8]. Another retrospective cohort study from Taiwan showed that mortality risk was similar between the two sub-modalities of PD, but APD demonstrated better technique survival, especially for patients who were male, aged 50–65 years, diabetic, high-average and high transporters, and without CVD [9]. Wisam Bitar et al. reported a better survival of APD and home HD over CAPD from an inception cohort study in Finland, where APD and home HD shared similar 5-year survival probability [10].

In summary, our study demonstrated that in-center APD is used intensively during the first 2 years of PD and is associated with certain clinical features. Overall, in-center APD use is associated with a lower risk of all-cause death when compared with non-use.

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News/update from New Zealand

Saving Young Lives Project – Pacific Region 2024

The SYL (Saving Young Lives) Project (a partnership between ISN, ISPD and IPNA, supported by APSN and SFNDT) will be coming to the Pacific Region in 2024. The idea is to train teams to perform Acute PD to treat AKI in resource limited settings. This endeavour has been extremely successful in Africa and has saved hundreds of young lives. A Saving Young Lives Workshop over two days is planned to be held in Fiji on 31/7/24-1/8/2024 (and linked with the Fiji Nephrology symposium which occurs directly after on 2-4/8/2024). A team (of at least one doctor and one nurse) would be invited from major Pacific Island nations to come and train, with the idea of bringing this new knowledge back to their home countries to treat patients. Invited Teams and those who are interested in setting up an acute program can contact Monica Moorthy. Email: mmoorthy@theisn.org

New Zealand Peritoneal Dialysis Registry

The New Zealand Peritoneal Dialysis Registry has appointed 2 new Co-Chairs (Thu Nguyen (Consultant Nephrologist and PD Lead, Auckland City Hospital) and Raymond Chan (Consultant Nephrologist, Wellington Hospital), as well as a new Secretary (Suzanne Joynt, PD Nurse-lead, Auckland City Hospital).