

#### FROM THE EDITORIAL OFFICE

In this issue, we are delighted to have Dr. Lily Mushhar from Malaysia to discuss her clinical study on exit site dressing. In addition, Dr. Masashi Mizuno from Japan will discuss how to prevent early withdrawal from PD, while Dr. SH Kang from Korea will discuss the issue of volume overload in PD patients.

You are most welcome to distribute this newsletter electronically or in printed form to your colleagues or other people interested. If you or your colleagues want to receive this newsletter directly from our editorial office, please send your e-mail address to: [ccszeto@cuhk.edu.hk](mailto:ccszeto@cuhk.edu.hk)

Sincerely,

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Exit site infections (ESI) have been shown to have a significant impact on peritoneal dialysis (PD) complications and is the pathway to developing subsequent tunnel infection and peritonitis [1]. This leads to high rates of catheter loss, morbidity and mortality [2]. Many different rigorous exit site dressing protocols have been proposed as a preventive measure to decrease infections by these organisms [3,4].

We conducted a prospective randomised controlled study in our prevalent PD patient to evaluate the effect of exit site dressing versus non-dressing on the rate of ESI. Secondary outcome was tunnel infection and peritonitis. Each patient was followed up at 3-monthly intervals in the clinic for 24 months.

A total of 97 patients were recruited in this study with more than half were diabetics. Patients with an exposed external cuff and those with a recent episode of ESI, tunnel infection or peritonitis in the past 30 days were excluded. Patients were allocated into two groups : dressing vs non-dressing. All patients were required to expose their exit site and perform daily washing of the exit site with antibacterial soap during a shower. This was followed by thorough drying of the exit site by patting dry with a clean towel.

In the dressing group (n=49), patients were required to clean their exit site using povidone-iodine after drying, followed by topical mupirocin antibiotic application to the exit site. The exit site was then covered with a sterile gauze dressing and the catheter immobilized with a tape. In the non-dressing group (n=48), patients were not required to do any further dressing after drying. They were only required to apply mupirocin cream to the exit site and then left the exit site uncovered. During the study period, nasal mupirocin eradication was not practiced routinely unless *S. aureus* organism was isolated from the exit site.

Our results showed 4 episodes of ESI in 4 (8.1%) patients in the dressing group vs 8 episodes of ESI in 4 (8.3%) patients in the non-dressing group. This corresponds to 1 episode per 241.3 patient-months in the dressing group versus 1 episode per 111.1 patient-months in the non-dressing group. The median time to the first ESI episode was not significantly shorter in the non-dressing group than in the dressing group (p=0.25). All the ESI episodes responded well to antibiotic therapy. There were absence of *P. aeruginosa* ESI and no increased risk of developing *S. aureus* ESI in the non-dressing group as compared to the dressing group.

#### Exit Site Dressing And Infection In Peritoneal Dialysis

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The peritonitis rate was 1 per 37.1 patient-months in the dressing group and 1 per 44.4 patient-months in the non-dressing group. Our study did not show any difference in ESI (IRR=1.94, p-value=0.39) or peritonitis (IRR=0.76, p-value=0.46) between the two groups after adjusting for age, gender diabetes and duration on PD. The median time to the first peritonitis episode was significantly shorter in the dressing group (p=0.03). There was only 1 tunnel infection during the study period which was observed in the non-dressing group.

Our study supports other smaller study that did not find any significant difference in the rate or risk of infection between groups following different exit site care protocols [5,6]. An important finding in our study was the absence of *P. aeruginosa* ESI and no increased risk of developing *S. aureus* ESI in the non-dressing group as compared to the dressing group. We can hypothesize that the covered dressing itself may actually be the pathway for organism to contaminate the exit site.

In conclusion, non-dressing of exit site did not increase the incidence of PD infection. The method is advantageous as it avoids exposure to topical skin irritants such as antiseptic liquid and dressing film, reduces unnecessary time spent and cuts the cost of disposables used.

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## Recent Analysis of Status and Outcomes of Peritoneal Dialysis in the Tokai Area of Japan: What is Required to Prevent Early Withdrawal from PD Therapy in Japan in Future?

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During recent decades, the population of peritoneal dialysis (PD) patients has represented approximately 3% of all patients with end-stage renal disease (ESRD) on renal replacement therapy in Japan. The number of PD patients has remained around 10,000 on the national registry of the Japanese Society of Dialysis Therapy, and has not increased despite the number of patients on hemodialysis (HD) growing during the same period [1,2]. We investigated the causes and factors inhibiting the increase of PD patients in Japan. We undertook the first cohort analysis (R1) related to PD therapy in our local Tokai area in Japan between 2005 and 2007, with the results reported in 2011 [3]. From the results of that R1 study, early withdrawal, defined as withdrawal from PD therapy within 3 years after starting, was the cause of over 50% of total withdrawals from PD, thus represents a crucial obstacle to long-term PD therapy and increases in the number of PD patients in our local area. Our results also suggested that an expected fear of encapsulating peritoneal sclerosis (EPS) might not be the chief reason preventing an increase in the number of PD patients. In our studies, the PD history for most patients who withdrew from PD was markedly shorter than that of patients with anxiety about progression to EPS, and one of the most frequent reasons for withdrawing from PD therapy in Japan remains peritonitis, similar to other countries [4,5]. In R1, the incidence of peritonitis was once per 42.8 months/patient, similar to or better than the average from other countries, and better than the recommendation of the 2010 International Society for Peritoneal Dialysis (ISPD) guideline.

Based on these results, we undertook efforts to improve the management of PD therapy, including management of peritonitis with increased opportunities for education, not only for PD patients, but also for physicians and other healthcare staff in our local area. However, a second cohort analysis between 2010 and 2012 (R2) failed to show any dramatic improvement in the occurrence of peritonitis and peritonitis-related withdrawal from PD to HD compared with R1, even though cases of early withdrawal were decreased and the incidence of peritonitis was slightly decreased to once per 47.3 months/patient [6]. Of note, in R2 compared with R1, withdrawals caused by social problems were significantly increased. In this recent analysis, social problems such as difficulties related to self-bag changes in PD, blindness, discomfort in movement of the extremities and cognitive impairment. Our two reports suggested that the present bag-change systems still have limitations in suppressing the incidence of peritonitis, even with the introduction of ultraviolet-ray sterilization devices and sterile tubing welder devices to suppress opportunities for contaminated peritonitis during PD bag changes. Furthermore, the increase in social problems as a reason for withdrawal from PD might be attributable to the aging of society in Japan, as seen around the world.

At present, we are still struggling with the prevention of early withdrawals from PD. For the initial problem of the incidence of peritonitis, opportunities for contamination during PD bag changes are important, as the majority causative microorganisms are gram-positive bacteria. The present two-bag change devices such as ultraviolet ray sterilization devices and sterile tubing welder devices do not act to dramatically suppress the incidence of peritonitis [6,7].

To facilitate prevention of PD-related peritonitis, development of new, sterilized connecting systems might be required for bag-change procedures, because efforts at education alone cannot eliminate the risk of peritonitis [8]. To prevent withdrawal caused by social problems, the development of support systems for PD patients experiencing difficulties in continuing PD therapy themselves, such as assisted PD programs implemented in other countries [9,10], might be warranted. Also, education for caregivers might also be important as a next step to achieving appropriate support for disabled PD patients. However, obtaining sufficient human resources in the form of caregivers and healthcare staff may become increasingly difficult given recent decreases in national population. Such demographic trends will lead to the number of caregivers and healthcare staffs not keeping pace with the continued aging of society. Further, only the family of the patient, nurses and doctors can currently assist in PD bag changes for patients at home in Japan.

In the future, we expect assistance with PD therapy to be expanded to include healthcare workers other than doctors and nurses. Similarly, total management systems seem likely to be developed for the entire process of PD therapy, such as employing automatic settings for PD fluids (PDF) as ready-to-use, bag changes and drainage of used PDF bags to assist the caregivers of disabled patients.

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## Clinical Significance of Volume Status in Peritoneal Dialysis Patients

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Volume overload is a well-known factor that is associated with morbidity and mortality in PD patients [1-4]. Monitoring and proper intervention for volume overload are important to improve survival in PD patients. Maintenance of residual renal function (RRF) is another prognostic factor in PD patients. However, the association between volume status and RRF remains an unresolved issue. Multifrequency bioimpedance analysis (MFBIA) is frequently used methods for evaluation of volume status. The edema index measured by MFBIA is a useful marker for defining volume status and it may be associated with prognosis in dialysis patients. However, there are few studies evaluating the clinical impact of the edema index in PD patients. We recently evaluated the association between the edema index and survival or RRF in incident PD patients [5].

A total of 631 incident PD patients were recruited into our study. Volume status by MFBIA was routinely measured annually for PD patients. The edema index was defined as the ratio of extracellular fluid to total body fluid. The participants were divided into 2 cohorts: the Total cohort and the FU cohort. The Total cohort included all incident PD patients with baseline MFBIA measurements. The FU cohort included incident PD patients with MFBIA measurements at both baseline and 1 year after initiation of PD. Participants with available data regarding survivorship or non-survivorship during the first year after PD initiation were included in the area under the receiver operating characteristic curve analysis. The cutoff value of the edema index for 1-year mortality was  $>0.371$  in men and  $>0.372$  in women. For the Total cohort, participants were divided into two groups according to the cutoff value of their baseline edema index: High ( $>$ cutoff value) and Low ( $\leq$ cutoff value). For the FU cohort, participants were divided into two groups according to the initial and 1-year edema index: Non-improvement (maintenance of criteria in the initial Low group during the year) and Other (all participants except those in the Non-improvement group).

Our study showed a positive association between overhydration and loss of RRF. In the Total cohort, there was no significant difference in initial RRF between the Low and High groups, but RRF at 1-year after PD initiation was higher in the Low group than in the High group. Multivariate analysis adjusted for age, the Davies risk index, initial CRP level, and high transporter status showed that RRF at 1-year after PD initiation was higher in the Low group than in the High group. In the FU cohort, there was no significant difference in initial RRF between Non-improvement and Other groups. There was a significant decrease in RRF in the Non-improvement group compared with the Other group in women ( $P = 0.013$ ), but not in men ( $P = 0.917$ ). Multivariate analysis also showed similar trends.

In our study, we also showed important evidence that high edema index is associated with mortality in PD patients. For the Total cohort, in men, the cumulative 5-year survival rates were 78.7% and 46.2% in the Low and High groups, respectively. In women, survival rates were 77.2% and 58.8% in the Low and High groups, respectively. For the FU cohort, in men, survival rates were 79.6% and 55.3% in the Other and Non-improvement groups, respectively. In women survival rates were 81.3% and 53.1% in the Other and Non-improvement groups, respectively. Multivariate cox regression analyses also showed that the Low group or the Non-improvement group was associated with mortality in PD patients for both sexes.

From these data, we could conclude that a high edema index (i.e., overhydration) is associated with high mortality in incident PD patients at baseline and at follow-up. In addition, baseline high edema index is associated with rapid decline in RRF. However, our study was retrospective and single center nature, and we used a single MFBIA measurement to evaluate the edema index. A prospective, multiethnic study, including additional parameters such as the averaged values using repeat measurements is warranted to overcome these limitations.

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### Upcoming Meetings: PD Scientia Program

26-27 August 2016

Christian Medical College, Vellore, India

Website: <http://ispd.org/event/pd-scientia-meeting-vellore-india/>

This program is organized by Christian Medical College, Vellore, India and under the aegis of the Peritoneal Dialysis Society of India. The program is endorsed by the International Society of Peritoneal Dialysis and aims to prepare the practicing nephrologist to improve his skills in the art of PD. The topics of the program include:

- Choosing the right patient for PD
- PD catheter insertion and removal
- Promotion of PD
- Intermittent PD
- Management in the pre and post catheter insertion period
- PD in children
- PD as rescue therapy in refractory CHF
- PD in diabetics, elderly and patients transferred from HD and failed transplants
- Management of culture negative peritonitis
- Advances and practical aspects of PD peritonitis
- Practical aspects of APD
- Icodextrin and newer PD solutions
- PD for acute kidney injury

## News from the ISPD

### Join the ISPD !

Membership benefits of the International Society for Peritoneal Dialysis include:

- Print and online subscription to Peritoneal Dialysis International
- Receipt of PD News
- Online access to ISPD Guidelines
- Special registration fees at ISPD Congress, Chapter Meetings and the Annual Dialysis Conference
- Application for ISPD Scholarships and Grants

Please join the ISPD membership at [www.ispd.org](http://www.ispd.org). There is a category of membership for developing countries (institutional membership) allowing 10 member from same institute to pay at one member cost.

### Asia-Pacific Chapter Scholarship

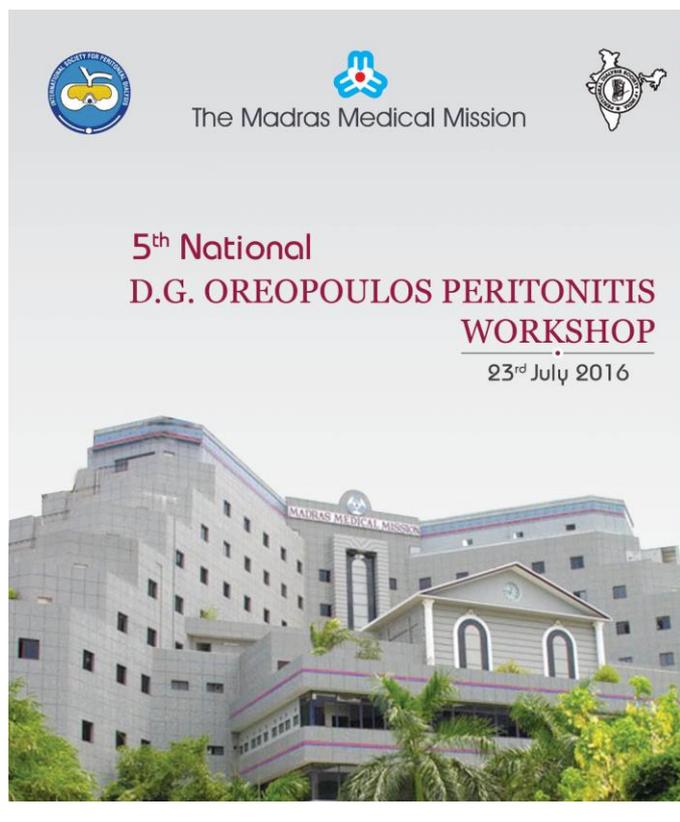
This is a scholarship to support up to 3 months training in clinical PD for doctors and nurses from Asia-Pacific region. Deadline for application for each round: twice a year at 30 June or 31 December.

**The next deadline is 30 December 2016.** Details and application procedures can be found under the Regional Chapters – Asia-Pacific Chapter, at the ISPD website.

### Recent Meeting:

#### National DG Oreopoulos Peritonitis Workshop

As a tribute to Prof. DG Oreopoulos, a group from the Madras Medical Mission, led by Dr. Georgi Abraham, started a yearly training workshop on PD related peritonitis in the past 5 years. The workshop receives endorsement from ISPD and this year took place on 23<sup>rd</sup> July.



### Other Upcoming Meetings

#### **PDSICON 2016**

16-18 September 2016

Imphal, India

Website: <http://www.pdsicon2016.org/index.aspx>

#### **Annual Dialysis Conference**

11-14 March 2017

Long Beach, California

Website: <http://annualdialysisconference.org/>

#### **The 8th ISPD Asia Pacific Chapter Meeting**

22-25 March 2017

Baiyun International Convention Center

Guangzhou, China

#### **ISN World Congress of Nephrology**

21-25 April 2017

Mexico City, Mexico

Web site: <http://www.wcn2017.org/>

#### **17th Congress of International Society for Peritoneal Dialysis**

5-9 May 2018

Vancouver, Canada

Website: <http://ispd-2018-vancouver.launchrock.com/>

### Updates from the Philippine Society of Nephrology

The rising incidence of Chronic Kidney Disease (CKD) obligates the need for renal replacement therapy. While peritoneal dialysis (PD) is as efficient as hemodialysis, it is still underutilized in the Philippines. The Philippine Society of Nephrology (PSN) through the Committee on Peritoneal Dialysis aims to promote and optimize the use of peritoneal dialysis to meet the increasing demand of renal replacement therapy. In 2015, the committee organized a refresher course and return demo workshop for nephrologists during the PSN Annual Pre-convention.

For 2016, the committee had two major projects. The Ad Hoc Committee on CKD Manual created The Chronic Kidney Disease Decision Book. This is a manual for patients that introduces the different options for renal replacement therapy and guides them on their choice of modality. This was launched and distributed during the PSN Annual Convention.

The sustainability of a peritoneal dialysis program depends on the full support of the nurses. As a follow through activity, the committee organized a PD training for nurses last April 20, 2016 during the PSN Annual Pre-convention in EDSA Shangri-la Hotel. The morning session covered the following topics: Basic Anatomy and Physiology of the Peritoneum, PD Apparatus & Modalities, PD Adequacy & PET, PD-related Infections and Troubleshooting Common PD Problems. Invited speakers were PD nurses from different PD Centers and institutions. During the afternoon session, the participants were divided into small groups for an actual demonstration on manual PD exchanges. Each participant was then asked to do a return demonstration to complete the workshop. A total of 65 nurses from Metro Manila and from the provinces participated in this basic training.