



ISPD Asian Chapter Newsletter

International Society for Peritoneal Dialysis (ISPD)

www.ISPD.org

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Asian PD Perspective

Peritoneal Dialysis in the Elderly

Dr. Wai-Kei Lo

*President Elect
International Society for Peritoneal Dialysis*

Yubara (湯原) is a small mountain village in mid-western Japan about 60 minutes drive from Okayama City. Mr. Sugitami Taiji, 88 years old, has spent his whole life in this village. His wife passed away 6 years ago and his children live and work in the city. We were welcomed with excitement when I and his attending nephrologist, Dr. Makoto Hiramatsu (平松信) visited him at his home.

Mr. Taiji greeted us with a CAPD exchange performed before us in his small bedroom. Though I could not communicate with him in English, I could see that he was confident and happy with his peritoneal dialysis therapy. Dr. Hiramatsu told me that he commenced CAPD 1 year and 3 months ago, and is receiving 1.5 L, 4 times a day.

Dr. Hiramatsu, Director of the Department of Nephrology and Medicine at the Okayama Saiseikai General Hospital, said, "Although the PD utilization rate in Japan is only 4%, it is 10% in Okayama. Many doctors are afraid of putting elderly patients on PD. However, I think it is very suitable for the elderly Japanese. As a result of their



Dr. WK Lo, Mr. Sugitami and Dr. Hiramatsu

smaller body size and usually lower protein intake, lower volume of dialysate is required daily.

Currently, 50% of my elderly patients (>70 years old) have been started on PD. More CAPD training time, however, should be allowed for the elderly. Though they often complete training in 2 weeks, some may take up to 4 weeks."

With much enthusiasm in promoting PD in the elderly, Dr. Hiramatsu has written a book 'PD for the elderly' for the lay public. "PD provides stability for the elderly so they do not need to travel frequently to the hospital", he said.

As President of the 11th Conference of the Japanese Society for Peritoneal Dialysis, 28-30 October 2005, Dr. Hiramatsu selected "PD in the elderly" as one of the main themes of the conference. The conference received a record of 330 abstract submissions and over 1,300 participants, reflecting an increasing interest in PD in Japan. Japan will also host the 3rd ISPD Asian Chapter Meeting in November 2007.



The 88-year-old Mr. Sugitami



The mountain village of Yubara in mid-western Japan

To our industry partners:

The editorial office welcomes your assistance in distributing this newsletter in electronic or printed form to the dialysis community. If you are interested in sending scientific messages through the newsletter, please contact the editor at: ccszeto@cuhk.edu.hk

ISPD Asian Chapter Scholarship: My Experience of CAPD Training

The first recipient of the ISPD Asian Chapter Scholarship



Dr. Wee-Hin Gan

Renal Unit,
Department of Medicine
University Malaya Medical Centre
Kuala Lumpur, Malaysia

In Malaysia, the incidence of renal failure is 350 patients/million population, but the penetration rate of PD is only 10%. The main form of renal replacement therapy in Malaysia is still hemodialysis and, like in most of the developing countries in South East Asia, the number of renal transplantations is low. My main task, therefore, was to gain experience from a well-established CAPD program in a developed Asian country, with the hope of improving our local CAPD services. Thanks to the ISPD Asian Chapter Scholarship, I have recently completed a 3-month CAPD training in Hong Kong, under the guidance of Dr. Wai Kei Lo of Tung Wah Hospital.

During my training, I improved my Tenckhoff catheter insertion technique and also gained a lot of experience on exit site care, prevention and treatment of peritonitis, nursing care and patient rehabilitation. I observed that the lower target of Kt/V in Hong Kong, i.e. 1.7, is probably adequate for many Chinese patients. In fact, it is the overall care of each individual patient that matters most for the treatment outcome. I am looking forward to incorporating this experience into our local program. I hope to improve our catheter service, reduce catheter-related complications, and optimize patient outcomes. We hope that the penetration rate of CAPD, as a form of renal replacement therapy, will improve with our continuous effort.

I am convinced that the integrated approach of renal replacement treatment is particularly applicable to our region where the transplantation rate is still very low. Patients could start with CAPD in order to preserve residual function, and when necessary, they may be converted later to hemodialysis.

This training experience has been very valuable to me. I would encourage nephrologists from Malaysia and other Asian countries to apply for the ISPD Asian Chapter Scholarship for better training in PD.

From the Editorial Office



Dr. Fu-Keung Li

Editor, Asian Chapter Newsletter
International Society for Peritoneal Dialysis
c/o Room 701, Tak Shing House
20 Des Voeux Road Central, Hong Kong
E-mail: fkli@kidney.org.hk

Since the establishment of the ISPD-Asian Chapter at the turn of the millennium, the once "virtual organization" has achieved enormous feats in promoting PD within the Asian communities. The Asian Chapter was established with the vision that PD has already been or will be the predominant form of renal replacement therapy in many parts of Asia. Uniting the efforts of Asian doctors and nurses can provide impetus to advance PD treatment, and improve patient care.

Research and publications in the region have been leading the pack in many aspects of PD. The multitude of investigators and the enormous efforts of Asian researchers have revolutionized some of the basic concepts in dialysis.

The Asian Chapter Newsletter was published to promulgate the activities and news of the Society and the Asian Chapter. The readership is wide and the publication has been welcomed by nephrologists, nurses and dietitians alike. This has also prompted support from various parties, including the industrial partners. Our gratitude to them is best expressed by the growing acceptance of PD in Asia.

It is, however, not without problems. In my opinion, the lack of concerted effort and the vast differences in socio-economic attributes among different Asian countries are but some of the hurdles to overcome. Cooperation is the key to success and a strong leadership is fundamental!

We need someone with the commitment and calibre to take up this "full-time" job. **Dr. CC Szeto**, Associate Professor at the Chinese University of Hong Kong, will be assuming the duty of editor of the Newsletter commencing in January 2006. He has been involved in the Newsletter since its inception through compilation of the research updates. In addition to his impressive credentials in scientific research, it is Dr. Szeto's dedication to PD that has made this appointment special. I am certain that his association with the Newsletter will bring new insights to the Society and to the Asian Chapter in the future.

News from ISPD

(details at www.ispd.org)

Institutional Membership

Specially designed for developing countries, the "Institutional Membership" allows 10 members from the same institute to join at the cost of a single member. All can then enjoy the benefit of ISPD membership, including cheaper ISPD meeting registration rates. Go to www.ispd.org to download the form. **Join Now!**

Asian Chapter Scholarship

Dr. Kongkham Vongsaiya from Vientiane, Laos was awarded a scholarship to train in PD under Dr. Dhavée Sirivongs, Khon Kaen University Hospital, Thailand. He is the third recipient of this scholarship, following recipients from Malaysia and Vietnam.

This scholarship is set up to provide financial support for training in a PD center of excellence within Asia or Australia for a period of 3 months. In addition to the centers listed in the last newsletter, the following have also expressed willingness to accept a PD trainee:

Institute	Kyungpook National University Hospital	Sanjay Gandhi Postgraduate Institute of Medical Sciences
Country/region	Daegu, Korea	Lucknow, India
No. of PD patients	220	225
Program supervisor	Dr. Yong-Lim Kim	Prof. Amit Gupta

Contact details of these training centers can be found from the ISPD website under Asian Chapter. Please note that this list is not exhaustive. Any center with more than 75 PD patients and 5 years of establishment can be an eligible training center for the scholarship. Center supervisors willing to receive Asian Chapter trainees may contact Dr. WK Lo at wkloc@hkucc.hku.hk. Individual trainees may also contact training centers outside this list.

There are 2 rounds a year. The next deadline is **31 December 2005**.

The 11th Congress of ISPD 25-29 August 2006 Hong Kong

This Congress, to be held in the Hong Kong Convention and Exhibition Centre, consists of 3 parts: 3 day congress; 1 day pre-congress course and; half day post-congress visit to a PD unit in Hong Kong or Macau.

There are 5 major themes:

1. Managing a PD Program
2. PD: general issues
3. PD practices
4. PD complications
5. Peritoneal pathophysiology

All these themes are cross-disciplinary, bringing together adult and pediatric clinicians, nurses, dietitians, psychologists, social workers and scientists to learn from each other and work to achieve PD excellence. In addition, the 'State-of-the-Art' and keynote lectures and debates will bring forth new frontiers of science and discussions in many controversial areas.

The 2 pre-congress courses will cover basic scientific research and clinical PD for clinicians and nurses. These courses, which are an integral part of the Congress, aim to provide education to those who are interested in basic research as well as those who would like to consolidate their knowledge of PD clinical practice.

On 29 August, you may choose to visit PD units in Hong Kong. PD-first policy was adopted in Hong Kong almost 20 years ago, and over 80% of dialysis patients are now on PD. Many centers have close to 400 PD patients. These visits will provide first-hand experience on how PD units are managed.

The abstract submission deadline for the Congress is **15 March 2006** and the early-bird registration deadline is 15 May 2006. Traveling grants will be available to support young doctors or nurses whose abstracts are accepted for presentation.

Detailed information, online abstract submission and registration is now available at www.ispd2006.org



Upcoming PD Meetings

Annual Conference on Dialysis

26-28 February 2006, San Francisco, USA
Web site: www.muhealth.org/~dialysis
Early registration deadline: 6 January 2006

11th Congress of ISPD

25-29 August 2006, Hong Kong
Web site: www.ispd2006.org
Abstract submission deadline: 15 March 2006

Research Update in PD

More data on dialysis adequacy

Two recent papers provide insight into the optimal Kt/V for PD patients. In the first paper, Lo et al reviewed 150 anuric PD patients over 10 years. A negative effect of peritoneal Kt/V on survival is noted at a level below 1.67, while the limit of its effect is shown at around 1.80. The authors suggested a minimal Kt/V target of 1.70 and an optimal target of 1.80 in anuric patients. In the latter, the ADEMEX group found no evidence of a long-term benefit in the quality of life of CAPD patients by increasing peritoneal small-solute clearances above a weekly total Kt/V of 1.73.

Comments: The targeted Kt/V of the two studies are remarkably similar. These data will perhaps put an end to the debate on PD adequacy, at least for the time being.

* Lo WK, et al. Minimal and optimal peritoneal Kt/V targets: results of an anuric peritoneal dialysis patient's survival analysis. *Kidney Int* 2005;67:2032-2038.

* Paniagua R, et al. Health-related quality of life predicts outcomes but is not affected by peritoneal clearance: The ADEMEX trial. *Kidney Int* 2005;67:1093-1104.

An old regimen to prevent peritonitis ...

Exit site mupirocin is effective in preventing *Staphylococcus aureus* exit site infections. However, it does not reduce Gram-negative infections. Bernardini et al recently reported a multi-center, double-blind, randomized, controlled trial comparing daily gentamicin and mupirocin cream at the catheter exit site. The result is impressive: gentamicin cream applied daily to the peritoneal catheter exit site reduced *Pseudomonas aeruginosa* and other Gram-negative catheter infections by more than 50% and reduced peritonitis by 35%, particularly Gram-negative organisms. In addition, gentamicin cream was as effective as mupirocin in preventing *S. aureus* infections.

Comments: Gentamicin cream is notably less costly than mupirocin, to which the incidence of resistance is rising. This study is particularly relevant to Asian countries where Gram-negative peritonitis is common.

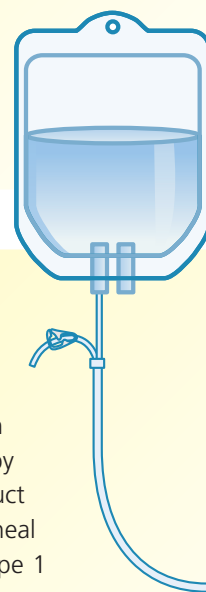
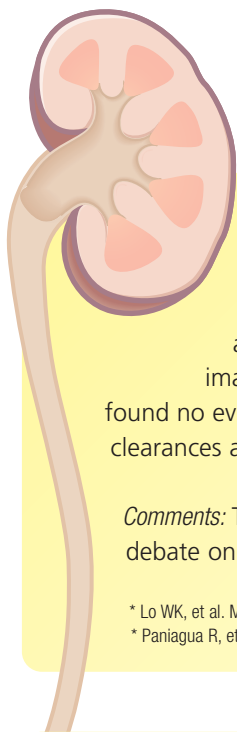
* Bernardini J, et al. Randomized, double-blind trial of antibiotic exit site cream for prevention of exit site infection in peritoneal dialysis patients. *J Am Soc Nephrol* 2005;16:539-545.

... and a new one to prevent peritoneal damage?

Advanced glycation end products (AGE) accumulation in the peritoneum plays a major role in progressive peritoneal damage in PD patients. Some biochemical studies showed that pyridoxal phosphate (PP), a derivative of vitamin B6, protects proteins from glycation, while hepatocyte growth factor (HGF) heals damaged tissues in a reciprocal manner against TGF- β 1. In a recent study by Nakamura and Niwa, PP was found to trap 3-deoxyglucosone, a major glucose degradation product (GDP) in PD, in an in vitro model. The investigators demonstrated that PP and HGF prevented peritoneal thickening; accumulation of AGE; expression of TGF- β 1, vascular endothelial growth factor and type 1 collagen; and neoangiogenesis in a rat PD model.

Comments: The beneficial effect of pyridoxal phosphate needs to be validated in humans. The very mechanism of GDP trapping implies that PP needs to be administered intra-peritoneally, as in this study. Although oral vitamin B6 is easily available, the injectable form is not.

* Nakamura S, Niwa T. Pyridoxal phosphate and hepatocyte growth factor prevent dialysate-induced peritoneal damage. *J Am Soc Nephrol* 2005;16:144-150.



From the PD Industry

Glucose Degradation Products (GDPs) – the vanishing villain

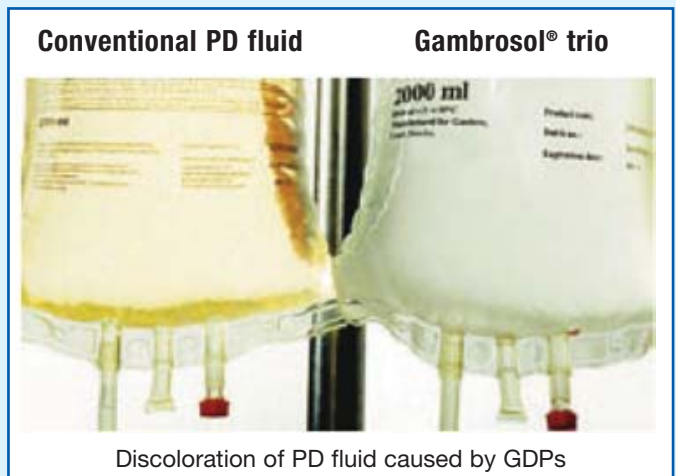
When glucose is heated some molecules break down and GDPs are formed. This is a well-known phenomenon in food industry where burnt sugar is used to create an appetizing and aromatic surface. Degradation can be avoided by lowering the pH, a technique which is adopted in glucose-containing therapeutic solutions such as PD fluids. The pH value used in conventional PD fluid is a compromise between GDP formation and patient tolerance to acidity and it does not prevent the degradation completely. Once the process has been initiated at a high temperature it continues at lower temperatures and the GDP content builds up during storage of the solution.

GDPs are toxic

The toxicity of conventional PD fluids was a serendipitous discovery by a group of researchers in Gambro's Laboratory for Cell Toxicology in Lund (Wieslander *et al.* KI, 1997). They had added commercial PD fluid to cell cultures, normally used for measuring the toxicity of plastic materials, and were surprised to find that the cell growth was seriously inhibited. The experiment was repeated, this time with PD fluid not exposed to heat-sterilization. This time the cell growth was normal!

Glucose degradation is complex

Research on GDPs has now been going on for almost 15 years and generated knowledge that has changed the entire biocompatibility arena of PD. Today, GDP is the fluid component most talked about at PD meetings and all new development of PD fluids is focused on reducing the level of GDPs. Some of the most well-known GDPs, formaldehyde and methylglyoxal, were identified early but it was evident that there are many more. The recent identification and quantification of



3,4-DGE has provided an increased understanding of the toxicity and complexity of glucose degradation. (Lindén *et al.* KI, 2002).

In vitro toxicity is clinically relevant

The early GDP investigations in *in vitro* models showed inhibition of many vital cell functions. Clinical effects, such as infusion pain and sterile peritonitis, could be connected with fluids stored for long time or sterilized at high pH (Tuncer *et al.* NDT, 2000). Today there are clinical studies demonstrating significant beneficial effects on markers of peritoneal tissue integrity when low-GDP fluids are used (Rippe *et al.* KI, 2001).

Growing impact of GDPs in PD patients

GDPs are transported into the blood stream and may have systemic effects. Being reactive carbonyls they participate in the formation of advanced glycation end products (Zeier *et al.* KI, 2003). Preliminary data from a randomised, controlled trial indicates significant preservation of the residual renal function in patients using PD fluids with reduced levels of GDP (Haag-Weber *et al.* JASN, 2003).

All available data, whether from *in vitro*, *in vivo* or clinical experiments, demonstrate negative effects of GDPs. The potential risk with long-term exposure to GDPs for PD patients has mandated that the future PD fluids contain the lowest concentration of GDP.



By Gambro Corporate Research and Global Marketing PD.*

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