



ISPD Asian Chapter Newsletter

International Society for Peritoneal Dialysis (ISPD)

www.ISPD.org

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Asian PD Perspective

The 2nd Asian Chapter Meeting of the ISPD

Dr. K. S. Nayak

The 2nd Asian Chapter Meeting of the International Society for Peritoneal Dialysis was held in the "Pearl City" of Hyderabad, India, on 21-23 January 2005 at the Hitex Exhibition and Convention Center.

The theme of the meeting was "Redefining and Expanding PD Horizons in Asia". Despite the tsunami disaster that hit the region 3 weeks prior to the conference, the meeting was still a success, with approximately 500 delegates from 27 countries attending. It was heartening to note the extremely positive turnout from West Asian and North African countries such as Morocco, Algeria, Tunisia, Lebanon, Iran and Iraq. The mission of the meeting to elevate the region to the world PD arena was also accomplished. Delegates from Hungary, Italy, Poland, Germany and the Czech Republic added a truly international flavor to the meeting.



Opening speech by Dr. Wai-Kei Lo. Alongside are Dr. K.S. Nayak, Dr. Georgi Abraham and Dr. Raymond Krediet.

The inauguration of the meeting, symbolized by the Indian tradition of lighting a lamp, was performed with the chief minister of the state of Andhra Pradesh and the oldest surviving CAPD patient in India. They also prayed for the victims of the tsunami tragedy.



The oldest surviving Indian CAPD patient lighting the traditional lamp to inaugurate the 2nd ACM – ISPD. Alongside are the Chief Minister of the State (foreground) with Dr. K.S. Nayak and Dr. Wai-Kei Lo watching the proceedings.



Dr. K.S. Nayak, president of the meeting, addressing the audience.

With an international faculty of over 40 speakers, the meeting addressed many aspects of PD, with a special emphasis on nutrition, adequacy and automated PD. A session was also dedicated to microbiological issues in PD. A live interactive demonstration of a laparoscopic CAPD catheter insertion was shown via satellite link.

A regional symposium, where PD practitioners from different Asian and African countries spoke about their regional PD programs, was particularly well received. At the beginning of the meeting, a "Pan-Asian PD Registry" was proposed. However, it was anticipated that an enduring and concerted effort was required to accomplish this daunting task.



Girls performing a highly artistic and 'balancing act' version of the traditional Indian dance form "Bharatanatyam" during the inaugural ceremony.

During the meeting, a dedicated 'Congress Newspaper' was published to allow participants to review the day's events and be reminded of the daily program. The newsletter also featured meeting updates and interviews with experts.

In summation, the meeting realized its goal of raising PD awareness in the region. It also expanded the horizons of the ISPD Asian Chapter.

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: fklii@kidney.org.hk

Editorial

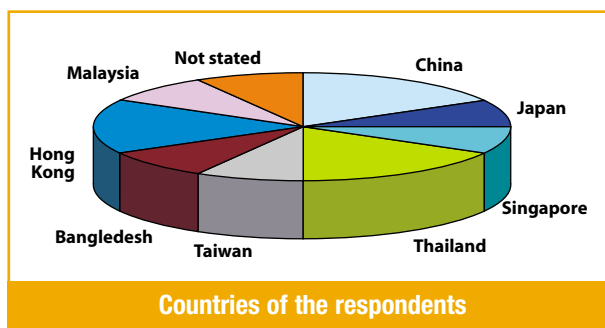
Newsletter Opinion Survey

Dr. Fu-Keung Li

A survey was conducted in January 2005 to collect readers' opinions of the *ISPD Asian Chapter Newsletter*. The survey was conducted through an online response system and included 15 questions. The results are summarized below.

The respondents were from seven countries, mostly from Southeast Asia. Eighty-three percent of the respondents were doctors and 17% were nurses. The comments on the newsletter were generally positive; all respondents enjoyed reading it and most found the information useful. Interestingly, more than half of the respondents expressed their wish for the *ISPD Asian Chapter Newsletter* to be translated and published in their own languages.

The editorial office has acknowledged all the comments and suggestions, and improvements will be made accordingly. Constant feedback from our readers is important for the newsletter to better fulfill its mission to promote PD across Asia. You are most welcome to send your comments and suggestions to the Newsletter Editor.



News from ISPD (Please see news details at www.ISPD.org)

ISPD Peritoneal Dialysis-related Infections Recommendations: 2005 Update

Five years after the last version in 2000, the 2005 guideline has been published in *Perit Dial Int* 2005;25(2): 107-131. It will soon be available on the ISPD home page. There are significant changes in the approach compared with the 2000 version. You are strongly recommended to read it in detail.

Institutional Membership

Designed especially for developing countries, the Institutional Membership program allows 10 members from the same institute to join the ISPD at the cost of a single member, and all 10 can enjoy the whole range of ISPD member benefits, including cheaper ISPD meeting registration rates. Please visit www.ispd.org to download the registration form. *Join now!*

Asian Chapter Scholarship

Dr. Tong Hang Thi Thu from 108 Military Hospital, Hanoi, Vietnam, was awarded a PD-training scholarship under Dr. Wai-Kei Lo of Tung Wah Hospital, Hong Kong. She is the second recipient of this scholarship.

This scholarship was set up to provide financial support for training in a PD center of excellence within Asia or Australia for a period of 3 months. The following centers have expressed their willingness to accept PD trainees:

Institute	Country/region	No. of PD patients	Program supervisor
Institute of Nephrology, Peking University	Beijing, China	280	Professor Tao Wang
Caritas Medical Centre	Hong Kong, China	140	Dr. Hing-Sum Tsui
Division of Nephrology, Department of Medicine and Geriatrics, Princess Margaret Hospital	Hong Kong, China	400	Dr. Kwok-Lung Tong
Division of Nephrology, Department of Medicine and Geriatrics, United Christian Hospital	Hong Kong, China	416	Dr. Yiu-Wing Ho
Renal Unit, Department of Medicine, AHML Nethersole Hospital	Hong Kong, China	300	Dr. Alex Yu
Renal Unit, Tung Wah Hospital	Hong Kong, China	170	Dr. Wai-Kei Lo
Global Hospital	Hyderabad, India	125	Dr. K.S. Nayak
Akane Foundation, Tsuchiya General Hospital	Hiroshima, Japan	170	Dr. Hideki Kawanishi
Kaohsiung Medical University	Kaohsiung, Taiwan	115	Professor Hung-Chun Chen
Khon Kaen Medical School	Khon Kaen, Thailand	100	Dr. Dhavet Sirivongs

Contact details of these centers can be found in the ISPD Web site. Please note that this list is not exhaustive. Any center with more than 75 PD patients that has been established for at least 5 years is eligible to be a training center for the scholarship. Center supervisors may contact Dr. Wai-Kei Lo at wkloc@hkucc.hku.hk if their centers are interested to receive ISPD Asian Chapter trainees. Individual trainees may also contact training centers not included in this list.

There are two batches of trainees per year. Deadlines for application are on 30 June and 31 December. *Don't miss these dates!*

ISPD Asian Chapter Meeting

The **Second Asian Chapter Meeting** was successfully held in Hyderabad, India, on 21-23 January 2005. Although the meeting was greatly affected by the tsunami that hit the region a month prior, approximately 500 delegates from different Asian countries were able to attend. The efforts of Dr. K.S. Nayak – the meeting's organizing chairman – to overcome the difficulties due to the tsunami were much appreciated.

The **Third Asian Chapter Meeting** will be held in **November 2007** in Hiroshima, Japan.

Upcoming PD Meetings

Joint ISPD and World Congress of Nephrology (WCN) pregress PD course 25 June 2005, Singapore

This is a one-day course held by several PD experts from around the world. This course is clinically oriented and will provide basic principles to guide clinical practice. There will be interactive case discussions on several topics to enhance understanding of PD practice. Please note that the course fee has been reduced from the rate published in the WCN announcement brochure. Please visit www.wcn2005.org for details.

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

This meeting comprises a 3-day congress, a day of pregress courses and half-a-day of visits to Hong Kong PD units. These visits provide the opportunity to observe and discuss how doctors and nurses run PD units in Hong Kong, where PD penetration exceeds 80% and most centers have more than 200 PD patients. Preliminary information is now available at the ISPD Web site www.ispd2006.org.

From the Editorial Office

If you want to communicate PD news or PD data through the newsletter to other Asian colleagues, or if you have comments or suggestions regarding the newsletter, please send your message to the Newsletter Editor.

You are most welcome to distribute this newsletter electronically or in printed form to colleagues or other interested people. If you or your colleagues want to receive this newsletter directly from our editorial office, please send your e-mail address to: meeting.hk@asia.cmpmedica.com.



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

To our Industry Partners:

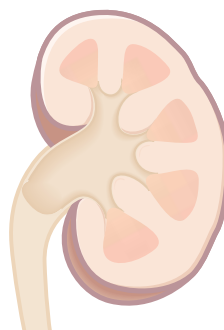
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Research Update in PD



Dr. Cheuk-Chun Szeto

Department of Medicine & Therapeutics
The Chinese University of Hong Kong
Prince of Wales Hospital
Hong Kong



Longevity of peritoneal membrane

Time on treatment is associated with a greater risk of impaired ultrafiltration (UF) in PD patients. A recent study examined peritoneal membrane function by annual standard peritoneal equilibration test in an observational cohort of 574 new PD patients between 1990 and 2003. Throughout time on therapy, there was a negative relationship between solute transport and UF capacity, and a significant increase and decrease in these parameters, respectively. During the first 12 months of treatment, the increase in solute transport was not associated with the expected fall in UF capacity. However, later in treatment, there was a disproportionate fall in UF capacity. Early exposure to higher-glucose solutions was associated with more rapid deterioration in membrane function.

Comments: This study provides convincing evidence of a change in clinical peritoneal transport over time on dialysis. The next question is: can a new PD fluid (PDF) delay the deterioration?

* Davies SJ. Longitudinal relationship between solute transport and ultrafiltration capacity in peritoneal dialysis patients. *Kidney Int* 2004;66:2437-2445.

Effect of new PD solutions in rats ...

Two new studies provide evidence supporting the benefit of new "biocompatible" PDFs. In the first study, which used a rat model, the authors examined the effect of standard and new PDFs on peritoneal function and structure. It was found that the net UF was lower after treatment with standard PDF, but not with low-glucose degradation product (GDP) bicarbonate/lactate-buffered PDF and amino acid-based PDF. Peritoneum exposed to standard PDF had increased microvascular proliferation and submesothelial fibrosis, which were not observed in groups exposed to newer solutions. Staining for methylglyoxal adducts was prominent in the standard PDF-exposed group, mild in the low-GDP bicarbonate/lactate-buffered group and absent in the other groups. Standard PDF induced accumulation of advanced glycation end products (AGEs). AGE accumulation was absent in the new PD solutions.

Comments: This study has two remarkable features. Firstly, it examines several new PD solutions, rather than conventional solutions. Secondly, the study provided direct evidence of the benefit of PDFs with neutral pH and low GDP on peritoneal structure. Similar work is unlikely to be repeated in humans.

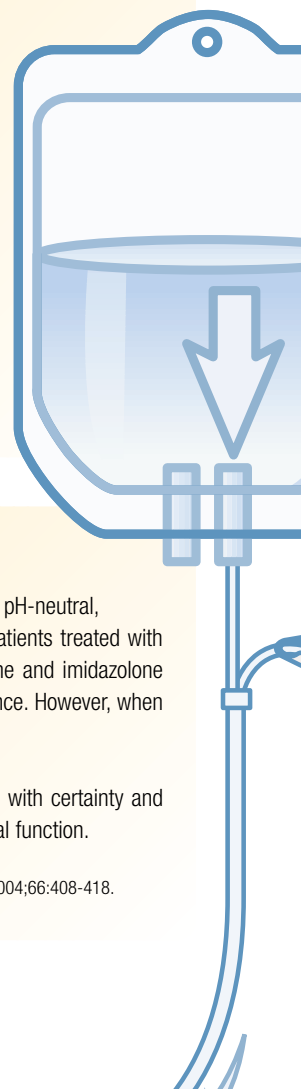
* Mortier S, Faict D, Schalkwijk CG, et al. Long-term exposure to new peritoneal dialysis solutions: Effects on the peritoneal membrane. *Kidney Int* 2004;66:1257-1265.

... and in humans

The second study is an open, randomized, prospective, crossover, European multicenter trial that compared conventional PDF with a pH-neutral, lactate-buffered, low-GDP solution (balance). Eighty-six patients were randomized and treated with each solution for 12 weeks. In patients treated with balance, there were significantly higher effluent levels of CA 125 and lower levels of hyaluronic acid. Serum N-carboxymethyl-lysine and imidazolone levels fell significantly in balance-treated patients. Furthermore, residual renal function was better after patients were exposed to balance. However, when anuric patients were analyzed as a subgroup, there were no significant differences in peritoneal transport characteristics and UF.

Comments: Because of the study's crossover design, changes in peritoneal transport and clinical outcome could not be determined with certainty and further studies are needed. However, it is interesting to note that the pH-neutral PDF had substantial benefit in preserving residual renal function.

* Williams JD, Topley N, Craig KJ, et al. The Euro-Balance Trial: the effect of a new biocompatible peritoneal dialysis fluid (balance) on the peritoneal membrane. *Kidney Int* 2004;66:408-418.



From the PD Industry

3,4-DGE in different PD solutions

Gambro Corporate Research

It is well known that glucose degrades to different carbonyl compounds, i.e. glucose degradation products (GDP), during heat sterilization [Wieslander *et al. Kidney. Int.* 1991]. Many side effects of PD, such as mesothelial cell damage and chemical peritonitis, are linked to the presence of GDP.

In order to avoid the formation of GDP in PD solutions, one might replace glucose as the osmotic agent. This has, however, for various reasons proven to be difficult. For a given sterilization process, the degree of glucose degradation strongly depends on pH. A pH between 2 and 3.5 has been shown to cause minimal degradation [Kjellstrand *et al. Perit. Dial. Int.* 2001]. Sophisticated manufacturing processes using multi-compartment bags make it possible to apply a low pH in the glucose compartment and thereby to minimize GDP formation. Still, the overwhelming number of PD solutions used today are manufactured in the conventional way by mixing all ingredients in one compartment and with a pH around 5.5. Consequently, the majority of PD patients are exposed to unnecessarily high concentrations of GDP.

Of all GDPs identified, 3,4-dideoxyglucosone-3-ene (3,4-DGE) has been shown to be the one that is most strongly connected to biological side effects [Erixon *et al. Perit. Dial.* 2004]. The concentration of 3,4-DGE in PD fluid could thus be used as a marker of biocompatibility.

Therefore, we decided to measure the 3,4-DGE levels in commercially available glucose-containing PD solutions from three different manufacturers.

Conventional as well as multi-compartment PD solutions (commonly referred to as being biocompatible) were analyzed. All PD solutions were stored for 1 month at room temperature prior to analysis. This would allow 3,4-DGE to re-equilibrate and stabilize in case a PD solution had been exposed to high temperatures during previous storage and/or transportation [Erixon *et al. Perit. Dial.* 2004].

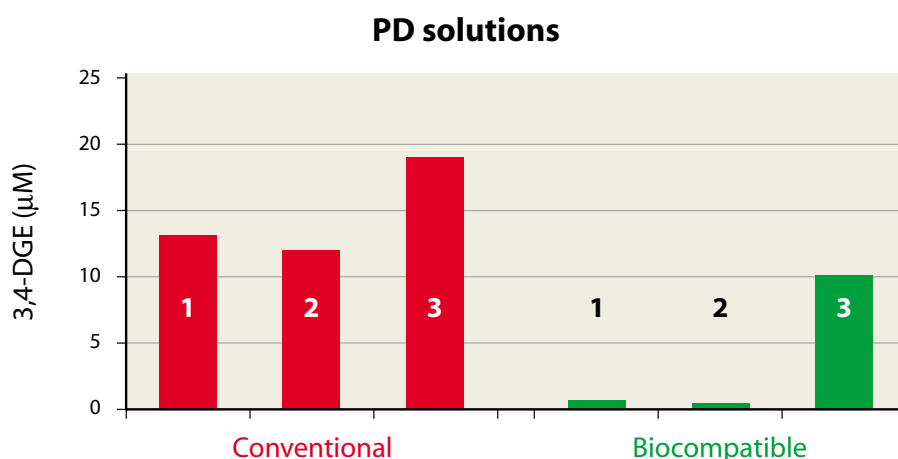
Conventional PD solutions had 3,4-DGE concentrations within a range of 12-19 μM , whereas the biocompatible PD solutions were within a range of 0.4-11 μM . All biocompatible PD solutions contained less 3,4-DGE compared with the conventional ones. The different levels of 3,4-DGE in the biocompatible PD solutions were related to the pH in the glucose compartment.

In conclusion, there is a huge variation in 3,4-DGE concentrations in commercially available PD solutions. So, how is it possible to know if a PD solution contains minimal levels of 3,4-DGE? Basically three conditions should be fulfilled:

- The PD solution must be in a multi-compartment bag.
- The pH in the glucose compartment should be between 2 and 3.5.
- Recommended storage conditions should be followed in the clinic.

If possible to analyze (in the mixed solution), the UV absorption at 228 nm should be lower than 0.1 cm^{-1} after compensation for lactate [Kjellstrand *et al. Perit. Dial. Int.* 2004]. This roughly corresponds to a 3,4-DGE concentration lower than 2 μM , well below that of the conventional PD fluids.

3,4-DGE in commercially available glucose-containing PD solutions from different manufacturers.



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From the PD Industry

Icodextrin, a superior osmotic agent in peritoneal dialysis

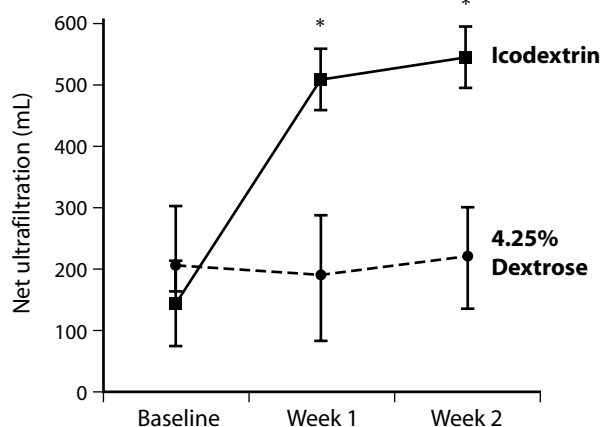
Min S Park MD and Salim Mujais MD

New peritoneal dialysis solutions need to be differentiated from traditional solutions by manifesting superior performance in three domains: enhancing the function of the dialytic process, minimizing the metabolic disruptiveness of glucose, and optimizing the peritoneal milieu to foster the biological health of the membrane. Icodextrin, a family of glucose polymers, satisfies all of these domains.

The functional superiority of icodextrin compared with glucose-containing solutions in achieving positive ultrafiltration during the long dwell has been amply documented in comparison with 1.5% and 2.5% dextrose.¹ This superiority has been documented in all peritoneal transport types and in numerous studies in Europe, North America, Latin America, Japan and Asia.¹ A recent randomized controlled study² has extended this superiority to 4.25%. In patients with high or high average transport profile, long dwell ultrafiltration with icodextrin was greatly superior to that with 4.25% dextrose with elimination of negative ultrafiltration in all patients. This finding will allow for total avoidance of very hypertonic glucose solutions in patients most at risk for requiring their use and suffering their metabolic consequences.^{2,3}

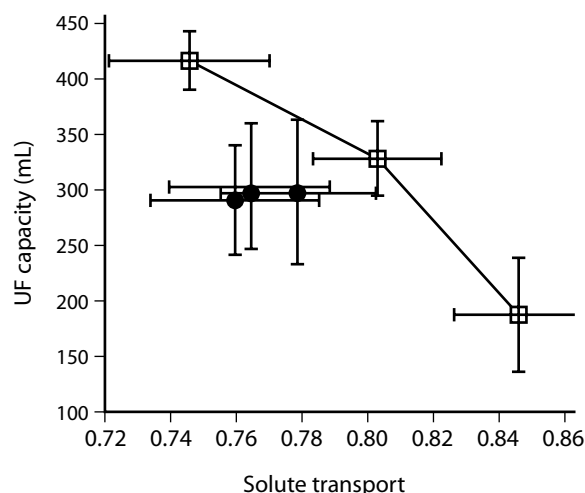
The characteristic of icodextrin that underlies its functional superiority is also responsible for its metabolic superiority.⁴ Because of its large molecular weight, icodextrin has distinct kinetic behavior after instillation in the peritoneum: unlike the small molecular weight glucose, the absorption of icodextrin from the peritoneal cavity is slow and limited. This results in a lower carbohydrate absorption and consequently less metabolic disruptiveness. Unlike 4.25% dextrose, icodextrin does not result in any hyperinsulinemia or hyperglycemia.⁴ Insulin resistance is improved with chronic use of icodextrin.⁴ A recent study

Superior net ultrafiltration with icodextrin²



P<0.001 vs 4.25% dextrose (adjusted for baseline values).

Longitudinal membrane function according to baseline use of icodextrin (●) or no icodextrin (□)⁶



shows that the use of a portfolio of new solutions of Extraneal, Nutrineal and Physioneal results in better overall glycemic control.⁵

The biologic superiority of icodextrin is due to it having no free glucose during manufacturing and after instillation in the peritoneal cavity. The peritoneal membrane is thus spared from being exposed to two major factors believed to be responsible for peritoneal damage: glucose and glucose-degradation products. This biologic superiority has been demonstrated clinically in a recent study showing that in anuric patients peritoneal function is better preserved with icodextrin compared with hypertonic dextrose.⁶

In summary, icodextrin exhibits functional, metabolic and biologic superiority over glucose-containing solutions. The rising use of icodextrin around the world is due to the recognition of this superiority and the opportunity to offer patients a better solution for the long dwell.

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