



ISPD Asian Chapter Newsletter

International Society for Peritoneal Dialysis (ISPD)

From the Editorial Office

Dear All,

In this issue, we are delighted to have Dr. Seung Hyeok Han and Dr. Dae-Suk Han from Korea discuss their experience with new PD solutions. You are most welcome to distribute this newsletter electronically, or in printed form to your colleagues or others who may be interested. If you or your colleagues would like to receive this newsletter directly from our editorial office, please send your e-mail address to: administration@multi-med.com.

The ISPD 2010 Congress is scheduled for July 23-26, 2010. The abstract deadline has passed, however you can still register early. We look forward to seeing you in Mexico City.

Sincerely,

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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

News from the ISPD

Membership benefits of the International Society for Peritoneal Dialysis include:

- Print and/or 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

Join today at www.ispd.org

The 13th Congress of the ISPD
Centro Banamex, Mexico City, Mexico
July 23-26, 2010
Website: <http://ispd2010mexico.org/>



Asian Chapter Scholarship

This scholarship supports up to 3 months of training in clinical PD for doctors and nurses from Asia. Application deadline for each round is twice a year on June 30 or December 31. **The next deadline is June 30, 2010.** Details and application procedures can be found under the Regional Chapters - Asian Chapter, on the ISPD website.

John Maher Award

This is the most privileged award given out by the ISPD once every two years to honor a young investigator or nephrologist under the age of 40 for contribution to the development of peritoneal dialysis. The deadline for nomination is April 1, 2010. Please visit www.ispd.org for details.

Baxter Scientia Asia Pacific Program

The Establishment and Impact of the Baxter Scientia Asia Pacific Program at the Peking University Third Hospital in China

The idea of establishing a novel, neutral, regional educational program around CKD and PD emerged from multiple discussions with many opinion leaders across Asia Pacific during 2006-07. It appeared evident that the lack of structured, formal training and education in these areas constituted a major reason for nonoptimal care for such patients in many regions across Asia Pacific. Consequently, Baxter eventually agreed to address this unmet need by developing the Baxter Scientia program. The selection of the Third Hospital at Peking University as the home for this new educational effort was based on several factors including: (i) the focus on patient empowerment, center management, and CQI (continuous quality improvement), (ii) outstanding outcomes of the care provided, (iii) the integration of clinical research and CQI, and (iv) the academic (i.e. research) track record of the unit – all prerequisites for a Center of Excellence.

The Baxter Scientia Asia Pacific program was established in July 2008. Its focus is on research and training in kidney disease. Its vision is “to continuously improve quality of patient care in kidney disease patients”. As of December 2009, more than 400 nephrologists and nurses from Japan (Fig. 1), Thailand (Fig. 2), Korea, Singapore, Malaysia, Indonesia, India, Australia, New Zealand, Vietnam, Hong Kong, Taiwan, and China have been trained over a 15-month period. People from the United Kingdom, Sweden, Canada, and the United States were also program participants as well as faculty members. All participants spent either one week or three months in this unit, learning how to manage CKD and PD patients appropriately (Fig. 3).



Fig. 1

The training aspect of the program focuses on: 1) a holistic approach to peritoneal dialysis adequacy to achieve homeostasis and to tailor the prescription based on a patient's economic status; 2) implementing a chronic care approach to CKD



Fig. 2

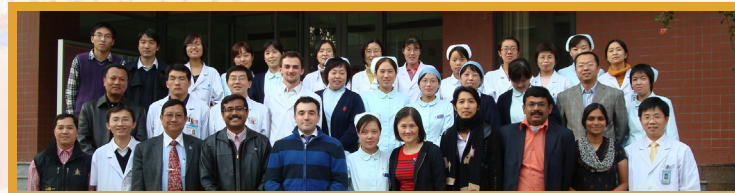


Fig. 3

patients and PD patients; 3) dietary management and maintenance of the nutritional status of PD and CKD patients; 5) various approaches to patient empowerment and the promotion of patient self-management; 6) center management, quality management and CQI and program accountability (in order to achieve Center of Excellence status); 7) integration of research, clinical and teaching functions; 8) a holistic approach to promote patient rehabilitation; 8) comorbidity management; 9) team-building and team approach to patient care.

The training program is more than simply lectures and presentations. It emphasizes experience-sharing, discussions, clinical observation, patient interviews, and participation in practical patient care and management. Following completion of the course, almost all participants indicated that they had changed their attitudes and beliefs about PD and were very confident about PD therapy. Most returned home to confront rapidly-growing PD programs and quality of care improved tremendously.

In 2010, apart from the standard courses, new programs such as “Leadership in PD Therapy”, “Catheter Implantation”, and “Research in PD” have been initiated. These new programs will be run in two full days of training, and are aimed at the more advanced level.

For those who are interested in these various courses, please contact the course manager Miss Chunyan Su (scymbu@126.com) to learn more about the program. Limited scholarships are also available.

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And

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Medical Director, Vice President, Medical Affairs, Baxter
Renal Asia Pacific
February, 2010

Literature Update on Peritoneal Dialysis

New PD Solutions – new evidence

Two recent studies shed additional light on the use of new PD solutions. First, a group from China performed a randomized, double-blind, perspective control study of 201 CAPD patients, comparing the ultrafiltration and small solute clearance of icodextrin versus 2.5% glucose solution. The investigators found that both ultrafiltration and overall creatinine clearance were significantly higher in the icodextrin group. More importantly, the beneficial effect was significant, even in patients with low-average peritoneal transport status.

Another retrospective study reviewed 2163 new PD patients from 54 centers in Korea. As compared to patients treated with a conventional dextrose-based solution, the use of biocompatible physiological-pH bicarbonate-lactate buffered PD solution was associated with a significantly lower risk of death (hazard ratio 0.70, 95% CI, 0.50 to 0.98). Unfortunately, many laboratory data were not available from this retrospective nature, so that more detailed analysis on nutritional status, inflammatory marker, or phosphate control is not possible.

Comments

These two studies do not prove that we should use the new PD solutions for all patients. Nonetheless, we should consider using them more often.

1. Lin A, Qian J, Li X, et al. Randomized controlled trial of icodextrin versus glucose containing peritoneal dialysis fluid. *Clin J Am Soc Nephrol* 2009; 4:1799–1804.
2. Han SH, Ahn SV, Yun JY, Traneus A, Han DS. Mortality and technique failure in peritoneal dialysis patients using advanced peritoneal dialysis solutions. *Am J Kidney Dis* 2009; 54:711–720.

New Peritoneal Dialysis Solutions- How Far Have We Come?

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Paradigm Shift from Conventional to Newer Solutions

Recently, new biocompatible PD solutions, characterized by being bicarbonate/lactate-buffered with a physiological pH and low GDP content, have been developed. To date, both in vitro and animal studies have demonstrated that such biocompatible solutions decrease cytotoxicity, and improve peritoneal cell viability and function, thus providing a better preservation of peritoneal membrane structure and function.¹⁻² With such experimental evidences in mind, biocompatible solutions have been increasingly used in PD patients, and many nephrologists

have become interested in whether improvement in the local peritoneal milieu by these biocompatible solutions can lead to enhanced clinical outcomes.

Superiority of Newer Solutions over Conventional Solutions

A number of trials have demonstrated the superior clinical outcomes of new dialysis solutions over conventional solutions.³⁻¹⁰ Some of them are of special interest as they refer to important therapeutic goals which potentially may improve patient survival.

The new solutions may be of help in preservation of residual renal function (RRF), a powerful predictor of survival in dialysis patients. Williams et al.³ conducted a prospective, randomized crossover study and showed for the first time that residual urine volume was more preserved in patients using biocompatible solutions than in those prescribed conventional solutions. This finding concurs with a long-term clinical experience of bicarbonate-buffered PD solutions by Montegro et al.⁴ In contrast, two recent studies contradict this favorable effect.⁵⁻⁶ However, the latter are limited by being of short duration, by the heterogeneous use of dialysis solutions, and by the inclusion of patients using both CAPD and APD. Kim et al.⁷ raised these concerns and conducted a prospective randomized controlled trial (RCT) for a longer period (up to 12 months) in CAPD patients. The results suggest that biocompatible solutions may better preserve RRF, particularly in patients with $RRF \geq 2$ ml/min/1.73m² BSA.

Achievement of adequate ultrafiltration is another important therapeutic target as it affects patient's fluid status, blood pressure, and cardiac function, which are key factors associated with morbidity and mortality. The importance of adequate ultrafiltration was highlighted by an earlier study indicating that peritoneal ultrafiltration > 750 mL/day was significantly associated with improved survival in anuric APD patients.¹¹ Interestingly, it has been reported that biocompatible solutions increase ultrafiltration volume.¹² In contrast, several studies have shown that peritoneal ultrafiltration volume is lower in patients using biocompatible solutions^{3,10} which may explain why RRF is more preserved by these solutions. In summary, the impact of biocompatible solutions on fluid status and RRF remains controversial. It is possible that more accurate assessments of fluid removal/status and RRF will provide better insight into this matter.¹³

Similar conflicting data have been reported with regards to (i) systemic inflammation where two prospective RCTs yielded contradictory findings,⁵⁻⁶ and (ii) observational studies showing a lower peritonitis rate in patients using biocompatible solutions⁸⁻⁹ (whereas a prospective RCT failed to prove such finding⁶).

Survival Benefit of Newer Solutions

Despite the absence of evidences for clear clinical benefits of nonacidic solutions, newer solutions have been widely used for the last decade, mainly due to their theoretical merits. To date, no prospective RCT exploring the effect of patient survival has been conducted, while there have been two observational studies suggesting a survival advantage of biocompatible solutions. This was first reported by Lee et al.¹⁴ Recently, we conducted another observational study in 2163 patients from 54 centers in Korea using the Baxter Korea database.¹⁵ To minimize confounding by indication, which is unavoidable in observational studies, we utilized a statistical analysis based on propensity score matching. With this robust and rigorous analysis, we found that biocompatible, physiologic pH, bicarbonate/lactate-buffered PD solution was associated with a significantly decreased risk of death, compared with conventional solution [hazard ratio (HR), 0.70; 95% confidence interval (CI), 0.50–0.98; $p = 0.039$] (Fig. 1(A)). Other types of statistical models also demonstrated similar findings; intention-to-treat (HR, 0.69; 95% CI, 0.53–0.93; $p = 0.02$), as-treated (HR, 0.51; 95% CI, 0.33–0.80; $p = 0.004$), and per-protocol (HR, 0.62; 95% CI, 0.46–0.84; $p < 0.001$) analyses (Fig. 1(B–D)). Interestingly, icodextrin was also significantly associated with a reduced risk of death (HR, 0.40; 95% CI, 0.28–0.58; $p < 0.001$). Despite the limitations of the study induced by its retrospective nature (especially confounded by indication, the large sample size and the appropriateness of the statistical methods used), the results do, indeed, indicate a true impact on patient survival.

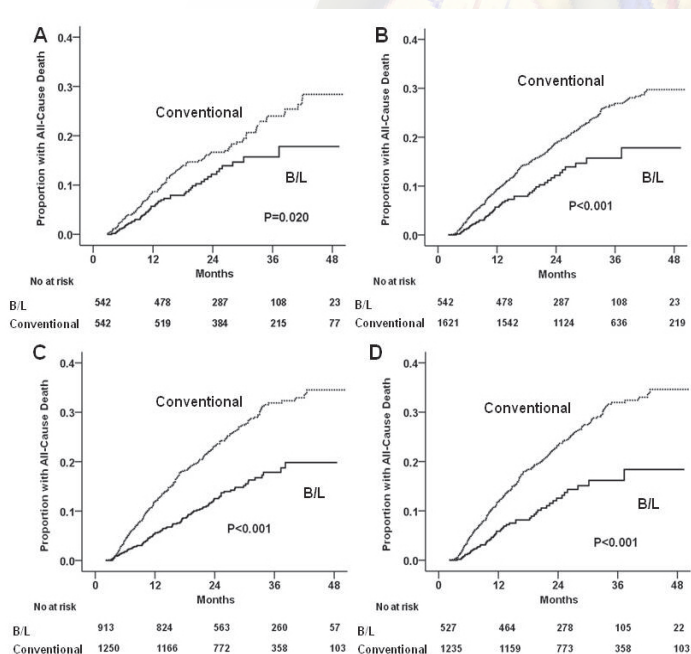


FIG. 1. Kaplan-Meier plots for all-cause mortality in patients treated with physiologic pH, bicarbonate/lactate-buffered (B/L) or conventional solutions; (A) propensity-score; (B) intention-to-treat; (C) as-treated; (D) per-protocol analysis (with permission for reprint from AJKD).

Current Perspective

The results of our large observational cohort study support earlier observations of a beneficial impact of using new, advanced PD solutions on patient survival. To further substantiate these findings and to identify underlying mechanisms, appropriately sized and adequately designed clinical trials are warranted.

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