

ISPD Asian Chapter Newsletter

International Society for Peritoneal Dialysis (ISPD)



The 5th Asian Chapter Meeting of the ISPD

October 6-8, 2011

International Convention Center

Dusit Thani Pattaya, Thailand

Website: <http://acm-ispd2011.org/welcome.html>

Welcome message

This is the first time in our kingdom that we are having an honorable opportunity to be the host for Asian Chapter Meeting (ACM) for International Society for Peritoneal Dialysis (ISPD). This is the fifth ACM that we would like to propose to be held in Pattaya and combined together Annual Meeting of Nephrology Society of Thailand (NST). This time may be the ripe time for Asian people to sit together as a matter of our government's policy, Continuous Ambulatory Peritoneal Dialysis (CAPD) in Thailand has been promoted during the last two years to be the priority to share the proportion of the renal replacement therapy, Thai Society has been working hard to facilitate and pave the path through the rocky roads of achievement. We would like to see more long term survival on CAPD, and share any data to our Asian friends. We do hope that CAPD policy would be very successful in this region.

Pattaya is a romantic city that never sleeps through night long. It is fascinated with sea, sun, sand, sky, and sensational appealing. Staying within Dusit Resort & Hotel as our venue, you can see the best charming scenic view of Pattaya Bay. Sitting any corner in this place of this meeting, you can mix the best scientific program and casual night life that is beyond any fisherman can imagine. We wish you all have successfulness in the scientific program, and be satisfied with our special social events.

Dusit Lumlertgul
President
5th ACM-ISPD2011

Important Dates

Abstract Submission: May 1, 2011

Abstract Notification: June 30, 2011

Early Registration: July 15, 2011

Standard Registration: August 31, 2011

Dear All,

In this issue, we are delighted to have Professor Xueqing Yu share his experience of running PD satellite centers. In addition, KH Koh, from Korea, will discuss his experience in measuring bioimpedance in PD patients. 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 me your e-mail address.

Sincerely,

Dr. Cheuk-Chun SZETO

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PD SATELLITE CENTER PROGRAM IN GUANGDONG PROVINCE OF CHINA



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Peritoneal dialysis (PD) is developing rapidly in China. However, there are several factors which negatively impact development of PD in China including limited and outdated therapy experience and lack of adequate training for doctors and nurses, an insufficient PD follow up system, and poor center management experience. For example, in the Guangdong province, the one of province in southern China, which is more economically developed when compared with inner China, 41% of the dialysis centers only provide HD treatment (56.6% centers offer both HD and PD, and 2.4% centers only for PD), especially in the non-metropolitan areas. The development of PD therapy is poor because the PD centers in these regions are small with limited medical service and inadequate experience in regards to patient education, training, support, and follow up. These problems result in a high dropout rate and a high incidence of peritonitis, as well as lower patient and technical survival. How to improve the quality of PD therapy is a big challenge in Guangdong province, even in China. In an attempt to address this, we have initiated a satellite center PD program to improve the patients' quality of life, patient and technique survival, work ability, and in general, to promote high quality PD therapy in the Guangdong province.

Sun Yat-sen University PD center pioneered PD for the treatment of acute kidney failure in China in 1963, and started CAPD in 1978. We are now running the biggest and fastest growing PD center, with more than 850 CAPD patients, in China. The PD patient number is increasing with more than 100 cases per year. As of January 2010 the patient survival rate is 92%, 82%, 78% after 1, 2, and 3 years, respectively. The technical survival rate is 97%, 95%, and 93% after 1, 2, and 3 years, respectively. The peritonitis rate is one episode per 75 patient months in 2010, and the annual dropout rate is 14.3% excluding patients having undergone successful kidney transplantation.

Sun Yat-sen University PD center is as the central center and response to organize and run this satellite program. PD satellite centers were selected from different areas across the Guangdong province, if they met the following criteria: independent PD units, full-time PD physicians and nurses; acceptance of a unified training program, follow-up and treatment practices in central PD center. Site observation is conducted every 3-6 months by staff from Sun Yat-sen University. PD satellite center meetings are held every 6 months for the purpose of communication and training of the local doctors and nurses. All local doctors and nurses undergo a 3 month training program at the central center, including catheter insertion technique, patient education and training procedures, PD complication management, collection and analysis of clinical data, and implementation of a CQI process. The aim of this study is to standardize all aspects of PD care into a unified model. Clinical

information of PD patients, including blood pressure, body weight, fluid balance, biochemical indices, catheter function, exit site condition, dialysis adequacy, nutritional status, quality of life, and PD related complications, is collected regularly and forwarded to the central center. The central center then calculates the drop-out rate based on PD related complications, patient and technical survival, and time on therapy, and then provides feed back to the satellite centers.

The program began in January 2008, and there are now 30 doctors and 36 nurses from 13 PD centers who have received PD training. Currently, all satellite PD centers have their own professional PD doctors (all of them are nephrologists) and nurses, and a well functioning unified follow-up and management protocol for all patients. Several hundred patients are now receiving PD through this program. The total number of PD patients treated by our center and the satellites increased to 2544 from 1010. The number treated in the satellite units increased to 1687 from 601. The annual dropout rate fell to 17.6% from 28.2%, and the average peritonitis incidence fell from 1 episode in 39.4 patient-months to 1 episode in 46.2 patient-months. The 1-year patient and technique survival rates increased to 84.2% from 82.0% and to 93% from 88.7% respectively.

Our PD satellite center program is a good model for increasing the use and improving the quality of PD in a developing country and rural areas. More and more doctors and ESRD patients have update knowledge of PD therapy, and select PD as the first choice of renal replacement therapy modality. It will tremendously enhance PD therapy in the utilization of PD in China. We plan to expand this program to other parts of southern China. To further expand this program, we plan to a) train more doctors and nurses from the satellite centers; b) conduct clinical seminars and workshops jointly with the satellite centers; c) identify new means for continuous education; and d) initiate multi-center clinical trials across the satellite centers. If this central-satellite model of PD program management continues to be successful, we plan to expand this program to other parts of southern China in order to allow more centers to join together, resulting in, more patients benefiting through the provision of optimal PD treatment.

THE IMPLICATION OF BIOIMPEDANCE ANALYSIS IN PERITONEAL DIALYSIS PATIENTS



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In a routine practice of dialysis clinic review, we always wish to assess their general well being by investigating their nutritional and fluid status. Thus, we engage in investigating albumin and lipid profile besides many other blood parameters. Nevertheless, it is always a dream for any clinician to be able to investigate patients in body composition detail fully without much invasive procedures.

The clinical question, in our mind, would include whether the patient is in dry weight, and is the nutritional status adequate? Thus, the

invention of bioimpedance analysis (BIA) has been a potential promise for such clinical need ^(1,2). Although BIA has been successfully utilized in numerous clinical works, most clinicians have limited understanding of its implication unfortunately. This is due to the apparent complex physics behind these methodologies.

Moreover, nephrologists are not sure whether they could rely on the dry weight as reported by the BIA machine, as the dry weights were clearly established on the general population which has marked a different body composition from a dialysis patient. In addition, this BIA reference data has been vastly established in a developed country population and a predominantly Western ethnicity ⁽³⁾. Thus, its use in Asian countries must be handled with great care.

On the other hand, many clinicians have been amazed with the high clinical survival predicting value of phase angle in many disease populations including peritoneal dialysis ⁽⁴⁾. However, there haven't been reports of any significant remedy to modify or improve these parameters, which has added to the dilemma in BIA advancement in the nephrology field. The question is: are we creating a parameter that we cannot intervene or improve?

The actual fact in physics is: BIA is actually just a measurement of impedance and phase angle under alternative current. By breaking down the impedance and phase angle into resistance and reactance, we can beautifully assess detail body composition of the patients. The good correlations between triglyceride level and resistance, as well as between albumin and reactance, as demonstrated in our study, are just echoing or verifying our hypothesis, and we are yet to publish these data.

Because of that, the normal reference points in BIA machine could not be easily applied to the entire population. The fact is different ethnic and different disease groups have varying body composition. With this in mind, we aim to establish the references of BIA with the Malaysian general population. Our BIA study clearly demonstrated that the value of capacitive indices has outweighed phase angle and more so, has higher survival discriminatory value than the traditional nutritional marker of anthropometry and blood investigations, e.g., albumin. Next issue is: how do we establish the dry weight? To our personal opinion, rather than merely rely on the reference point from the general population, we should establish the dry weight of survival with euvolaemic features, i.e., the weight that most likely predict higher survival with good blood pressure and void of fluid overload symptoms.

In our centre, BIA has been carried out with the above goals and manages to identify some patients who suffered from marked malnutrition. With the prediction of potential high mortality, we thus changed their dialysis modality to haemodialysis with parenteral nutrition. Of course the other potential choice would be intraperitoneal amino acid as dialysate.

In short, BIA is definitely a valuable instrument for clinical assessment of patients, and it has higher survival discriminatory value than traditional nutritional measurements. Anyway we need to establish the normal reference points of the general population in different populations. This is the reason we published our general population data which showed a marked difference from the German Western population.

Here, we also wish to take the opportunity to propose that PD centres with BIA facilities should investigate to identify the practical achievable ideal value of BIA parameters. Our current study has

helped to establish these ideal values.

Next, comes a more difficult issue: what are the BIA parameters that we should assess? We have shown that the following three were most useful, besides conventional phase angle.

1. body capacitive index (BCI), i.e., Capacitance x Height²/Weight,
2. body resistive index (BRI), R_{BMI} (Resistance x Weight/Height²)
3. CH², (Capacitance x Height²).

We showed that phase angle is mathematically linked with BCI and BRI with

$$\alpha = \text{ArcTan}\left(\frac{1}{\omega \times BCI \times BRI}\right)$$

Because of fat tissue partially insulating the electricity conduction, women have higher BRI in comparison to men and thus giving rise to lower phase angle. Thus, this limits the nutritional discriminatory value of phase angle. In contrary, BCI could provide albumin related nutritional information regardless of gender. On the other hand, CH² reflects total amount of nutrition and thus a definite valuable parameter.

These parameters are easily measured with a 50 kHz single frequency BIA machine. We have to understand that phase angle, BCI, CH² and BRI will all vary with different frequencies of alternative current. Therefore, with current availability of multifrequency BIA machine ⁽⁵⁾, future investigators might wish to assess their value in different frequencies of alternative current and further improve the understanding of body composition in dialysis patients.

Finally, we need to come back to the basic philosophy in clinical science that, all advancement should hopefully constructively improve patients' outcome. Therefore, we should overcome two obvious hindrances in current BIA usages, i.e., need of normal references for different populations and need of BIA education for practicing clinician.

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2. Zhu F, Wystrychowski G, Kitzler T, et al. Application of bioimpedance techniques to peritoneal dialysis. *Contrib Nephrol* 2006; 150:119-128.
3. Bosy-Westphal A, Danielzik S, Dörhöfer RP, Piccoli A, Muller MJ: Patterns of bioelectrical impedance vector distribution by body mass index and age: implications for body-composition analysis. *Am J Clin Nutr* 2005;82:60-8.
4. Mushnick R, Fein PA, Mittman N, et al. Relationship of bioelectrical impedance parameters to nutrition and survival in peritoneal dialysis patients. *Kidney Int Suppl* 2003; 87:S53-6.
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ACKNOWLEDGEMENTS:

The authors wish to thank the Director-General, Ministry of Health, for permission to publish this article.

LITERATURE UPDATE ON PERITONEAL DIALYSIS

EARLY IDENTIFICATION OF EPS?

Encapsulating Peritoneal Sclerosis (EPS) tends to develop after prolonged Peritoneal Dialysis (PD). A group of investigators from the UK studied the longitudinal changes in peritoneal membrane function of patients who later developed EPS. The dialysate/plasma creatinine ratio increased with time, in both patients and controls, but was significantly higher in patients with EPS at the time their dialysis was discontinued. More interestingly, the ultrafiltration capacity was significantly worse for at least 2 years before stopping dialysis, diverging further at the time dialysis ceased, suggesting reduced osmotic conductance in the EPS patients. The results suggest that regular peritoneal membrane function tests can identify most patients at high risk of developing EPS before its occurrence.

1. Lambie ML, et al. The peritoneal osmotic conductance is low well before the diagnosis of encapsulating peritoneal sclerosis is made. *Kidney Int.* 2010 Sep;78(6):611-8.

Comment: Two points to be noted. First, although it provides useful data regular monitoring of peritoneal membrane function test is not mentioned in most of the practice guidelines. Second, an effective therapeutic agent to revert the process of EPS at its early stage is yet to be identified.

SOCIAL SUPPORT: IT COUNTS

Social support is generally believed to contribute to the success of Peritoneal Dialysis (PD), but the benefit has not been systemically studied. In a recent study, the functional social support scores were assessed in an incident cohort of 949 dialysis patients from 77 clinics in the USA. Notably, the mean social support scores were higher in PD versus HD patients. A higher overall support predicted greater 1-year satisfaction and quality of life, and these patients were less likely to be hospitalized.

1. Plantinga LC, et al. Association of social support with outcomes in incident dialysis patients. *Clin J Am Soc Nephrol.* 2010 Aug;5(8):1480-8.

Comment: There are useful (non-medical) ways to improve the social support of dialysis patients. Many studies in other disease entities actually showed that hospitalization could be reduced by programs that provide social support – although publication bias may play a role here.

PD FOR ACUTE RENAL FAILURE

Peritoneal Dialysis (PD) remains a choice of renal support for patients with acute renal failure, particularly in situations like hypotension, disturbed coagulation, or difficult venous access. The main disadvantage of PD is the relatively limited efficacy. In a recent pilot study, 6 children were treated with both conventional PD and continuous flow PD (CFPD) for 8 to 16 hours. The latter was performed with two bedside-placed catheters, dialysate flow rate at 100 ml/1.73m²/min was maintained with an adapted continuous venovenous hemofiltration machine. In this study, CFPD provides a significantly higher urea and creatinine clearance, as well as ultrafiltration rate; no complications occurred.

1. Raaijmakers R, et al. Continuous Flow Peritoneal Dialysis: First Experience in Children with Acute Renal Failure. *Clin J Am Soc Nephrol.* 2010 Oct 28.

Comment: The result of this study is promising. One should, however, be cautious before extrapolating the result to adult patients, who have a much higher body-weight-to-surface-area ratio.

NEWS FROM THE ISPD

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- Application for ISPD Scholarships and Grants

Become a member of the ISPD www.ispd.org! For more information please visit <http://ispd.org/lang-en/members-section/jcs/form>. For developing countries the ISPD offers an Institutional Membership, where up to ten members can be included in the membership for the cost of one.

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, 2011.** Details and application procedures can be found under the Regional Chapters – Asian Chapter, on the ISPD website at <http://ispd.org/lang-en/scholarships-awards/asianchapter-Scholarship>

OTHER UPCOMING MEETINGS

ISPD NORTH AMERICAN CHAPTER MEETING

June 16-18, 2011

New Haven, Connecticut

For more information or to register, please visit:

<http://www.ispd.org/NA/>

ISPD LATIN AMERICAN CHAPTER MEETING

August 26-27, 2011

Lima, Peru

Website: <http://www.ispd-lac2011peru.org/>

ISPD 2012 - 14TH CONGRESS OF THE INTERNATIONAL SOCIETY OF PERITONEAL DIALYSIS

September 9-12, 2012

Kuala Lumpur, Malaysia

Website: <http://www.ispd2012.org.my/index.html>