



FROM THE EDITORIAL OFFICE

Dear All,

In this issue, we are delighted to have Dr. KS Nayak share his experience of conducting a "PD Quiz" in his national PD meeting. A quiz on similar lines is being considered for the upcoming 5th Asian Chapter Meeting of the ISPD in Pattaya, Thailand. In addition, Dr. Santosh Varughese, from India, will discuss his experience in PD catheter insertion, and Dr. Jie Dong, from Beijing, will discuss patient retraining after peritonitis. 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,

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NEWS FROM THE ISPD

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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 December 31, 2010.** Details and application procedures can be found under the Regional Chapters – Asian Chapter, on the ISPD website.

OTHER UPCOMING MEETINGS

31st Annual Dialysis Conference

17th International Symposium on Hemodialysis

22nd Annual Symposium on Pediatric Dialysis

February 20-22, 2011

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Abstract deadline: Friday, October 4, 2010

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October 6-8, 2011

Dusit Resort, Pattaya, Thailand

ISPD 2012 - 14th Congress of the International Society of Peritoneal Dialysis

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PERCUTANEOUS CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD) CATHETER INSERTION – A SINGLE CENTRE EXPERIENCE

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As in the rest of the world, the incidence of chronic kidney disease (CKD) has been increasing in developing countries¹. With inadequate facilities and no system of general physical health assessment or screening in places nearly universally, the presentation may be with CKD stage 5 (CKD 5) in as many as 54.4%, as our own study² of consecutive CKD 5 attending our nephrology services showed. This study was representative of several northern and eastern states in India, and neighboring countries of Bangladesh, Bhutan and Nepal, in addition to patients from surrounding areas.

In certain parts of the developing world where the facilities of doing maintenance hemodialysis are inadequate, or where patients have inadequate access to hemodialysis and transplantation facilities, continuous ambulatory peritoneal dialysis (CAPD) lends itself as the obvious preferred modality of renal replacement therapy (RRT). CAPD has the advantage of being a home-based therapy and should have penetrated the length and breadth of the Indian subcontinent but, it has not due to various reasons. Inadequate knowledge and competence regarding CAPD among primary physicians, patient misgivings, apprehensions and unwillingness to assume responsibility for their own health, non-availability of insurance, and high costs are perhaps the most important reasons.

Placement of the CAPD catheter with laparotomy and direct visualization has been the conventional mainstay of access placement. This however necessitates availability of surgical and anaesthetic services which may not be easily available in some areas. Additionally, the open surgical procedure has increased costs, length of hospital stay, and necessitates a greater duration of a break-in period. The earliest description of using the percutaneous technique catheter placement, by the percutaneous technique, was described in as early as 1984³, and over the last decade has been increasingly used by trained doctors with similar success rates as open placement. This technique has several advantages including reducing incision size and the duration of hospital stay⁴, as well as obviating the need for specialist anaesthetic or surgical services.

CAPD is the preferred modality of RRT in patients infected with HIV and other blood-borne viruses, considering the difficulty most treatment facilities in resource-constrained settings have in accessing already overstretched theatre facilities and the lack of personnel required for one-to-one therapy⁵.

Our centre, Christian Medical College, is a large tertiary teaching hospital where nephrology services have been offered for over four decades, and where hemodialysis and kidney transplantation were first done in India. Over the past nearly two years percutaneous CAPD catheter insertion was done in 96 patients with CKD 5. Five of them had undergone previous intra-abdominal surgeries which had potentially minimal risk of peritoneal adhesions. Six patients had the hepatitis C virus, four had HIV infection, and one was anti-HBc antibody positive indicating past hepatitis B virus infection.

The technique employed was using blind placement of the swan neck double-cuffed Tenckhoff catheter in the midline using either a trocar or using the Seldinger technique. The mean hospital stay for these patients is 3 days as opposed to at least 7–10 days in those for whom laparotomy and surgical placement are used. There was no significant break-in period in these patients, as opposed to after 10–14 days in those who underwent laparotomy. There were no leaks via the exit site or the incision site. One patient had an injury to the jejunal mesenteric artery requiring emergency laparotomy and ligation of the bleeding vessel⁶. Another patient had blood-tinged drain fluid which settled with conservative therapy. In five patients, the drain of peritoneal fluid was inadequate, and required surgical removal of the omentum and catheter repositioning. The approximate cost savings on surgical charges alone is approximately £200 (US \$323) for each patient. Except in those with prior major abdominal surgery, where the likelihood of adhesions necessitates

open placement via laparotomy, percutaneous CAPD catheter insertion is extremely simple to perform and, compared to laparotomy, reduces the duration of hospitalization, spares valuable resources (e.g. theatre facilities and personnel) and reduces anaesthetic risks.

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THE EVALUATION OF BAG EXCHANGE PROCEDURE AND THE RISK OF PERITONITIS

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Peritonitis contributes to the treatment failure, hospitalization and death in patients on peritoneal dialysis (PD)¹⁻². The risk of peritonitis is at least partly due to technique related factors that can be improved through strengthened training³⁻⁵. Of note, although bag exchange procedure has been emphasized during the initial training for new PD patients, patients' home practices are not routinely monitored. Accordingly, the data of bag exchange procedure and its impact on the risk of peritonitis are lacking.

Recently, we examined 130 incident CAPD patients. During the initial training, all patients were taught to perform the standard procedures, which included 8 items; checking of fingernail cleanliness⁶, ultraviolet radiation for 20 minutes, checking the expiration date and bag leakage, putting on a face mask and cap, proper hand washing with soap for at least 15 seconds⁷ and steps to connect and disconnect the bag, flushing before filling, and avoiding any suspected contamination. Patients or their helpers must correctly perform the bag exchange at the end of the initial training. Otherwise, they could be requested to continue to practice in clinic visits within the first month of PD.

After six months of CAPD, we then evaluate the bag exchange. For this purpose, we developed a questionnaire consisting of 8 potential errors in relation to the 8 procedure items. Each item was recorded as "yes" or "no," and the total item of errors was computed. After the assessment, our PD nurse pointed out errors to the patient and recommended improvements.

What are the common mistakes? In this group of patients, who had been on CAPD for 6 months, 52% of them improperly washed their hands, 46% did not check the expiration date or bag leakage, and 12% forgot to wear a face mask or cap. When we correlated the error and the risk of subsequent peritonitis, only not-wearing face mask or cap was a significant predictor of peritonitis.

I believe our observation is quite expected. In a hospital setting, wearing a face mask can prevent the downward dispersal of upper respiratory tract bacteria to blood agar plates, particularly during talking and head turning⁸. It is also recommended to routinely use face mask and ultraviolet light in non-surgical areas of hospitals and nursing homes⁹. PD, as a home-therapy mode, should achieve an environmental hygiene similar to a nursing home. After all, the cost of a face mask and cap is low, while peritonitis and its consequences are considerable.

Compared to not wearing a face mask or cap, other suspected contaminations resulting in peritonitis during an exchange procedure, such as improper hand washing, spiking of bags, having the tubing clamp open, no-flushing before fill, have been more widely discussed in PD community¹⁰⁻¹¹. Although we did not find any relationship between improper hand washing and peritonitis, the high prevalence of improper hand washing in our patients is worrying, which indicated that we need to strengthen this aspect during initial training and retraining.

Our data also indicate that retraining should be strengthened in PD patients. In many countries, the rapid expansion of the PD population in recent years led to high patients-to-nurse ratio (30:1 in our unit). Although the initial training was performed in a one-to-one manner, the fact that patients rarely follow the procedure of bag exchange, as taught, suggests a need of retraining. Since the initial training time was not correlated to the peritonitis rate¹², we believe monitoring the bag exchange technique at regular intervals can decrease the risk of peritonitis.

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PD QUIZ – A NEW CHANNEL OF TEACHING PD TO NEPHROLOGY FELLOWS

Dr. KS Nayak

The 13th Annual Conference of the Peritoneal Dialysis Society of India (PDSI) was held in Bangalore, India in late September 2010. The meeting had a record registration of over 450 delegates, with an excellent scientific content!

The highpoint of the meeting was an exciting and absorbing, 'edge of the seat' PD Quiz (Figure 1 and Figure 2). Two nephrology fellows, from the top institutions of the country, were partnered together to participate in the quiz. After a preliminary written test, four best teams were selected for the final round, which was conducted by Dr. KS Nayak, the QuizMaster. The final round was a competition on the podium, with the audience participating as the fifth team. After a standard sequential round, the teams were put through the 'rapid fire-buzzer' rounds and then the tie-breaker. The two top teams received the shield of honour with attractive prizes.

The event proved to be exciting and well received by the audience. It represents a novel and interesting way of teaching crucial points related to PD practice to nephrology fellows and nurses. A quiz on similar lines is being considered for the upcoming 5th Asian Chapter Meeting of the ISPD in Pattaya, Thailand.



FIGURE 1. Dr. KS Nayak as the QuizMaster.



FIGURE 2. Two teams trying to answer a difficult question.

UNPLANNED START ON MAINTENANCE AUTOMATED PERITONEAL DIALYSIS (APD)

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The high number of late referred patients with chronic kidney disease (CKD) stage V, and the urgent need for an unplanned start on maintenance dialysis with associated detrimental effects on mortality, morbidity and need for hospitalization remain a major challenge facing the dialysis community worldwide. The unplanned starter on maintenance dialysis can be defined as a patient, who starts dialysis without any permanent vascular access for HD or PD in place¹. These patients, often referred to as the “parachute” or “crash lander” CKD population, are overrepresented among the elderly². In most dialysis units, acute initiation of hemodialysis (HD) via a temporary central venous catheter is the preferred modality in this scenario, despite its associated risks of septicaemias and venous stenosis, and thrombosis. These risks are particularly pronounced in the elderly due to a heavy burden of underlying comorbidity including peripheral vascular disease, malnutrition, and inflammation². Besides, once started on in centre HD, these patients are less likely to transit to peritoneal dialysis (PD) later on².

UNPLANNED APD

Accordingly, we have developed a programme for unplanned start on automated peritoneal dialysis (APD) for patients with urgent need for initiation of dialysis³⁻⁵: Standard, coiled, double-cuff Tenckhoff PD-catheters are surgically implanted in local anaesthesia using 1 gram of intravenous vancomycin as infection prophylaxis. The “crash lander” patients are started on APD (HomeChoice® cyclers, Baxter Healthcare) very soon (hours to few days) after PD-catheter implantation using a standard prescription for 12 hours overnight APD (Table 1)⁴. The cyclers are pre-programmed with a chip (ProCard®, Baxter Healthcare). Tidal APD, used to avoid alarms from the cycler and to save drainage time during the first nights of APD, is gradually increased to 80% during the first week of treatment. After 1-2 weeks, the patients are converted to an 8 hours APD with or without wet day with Extraneal (Baxter Healthcare) and discharged from hospital. After discharge, Assisted APD⁶⁻⁷ may be used permanently or as a bridge to autonomy depending on the patient’s education, training and capability to self-care, as suggested recently by the European Renal Best Practise Advisory Board¹.

Almost all “crash landers” can be started on unplanned APD, but we regard severe hypertension (DBT > 120 mmHg), severe overhydration or overt pulmonary edema, severe hyperkalemia (s-K⁺ > 6.5 mmol/L) or signs of uremic pericarditis or colitis as absolute contraindications^{4,5}. On the other hand, conditions such as high age, obesity, ischemic or congestive heart failure, polycystic kidney disease, diverticulitis, abdominal hernias, portal hypertension, solid organ transplantation, or suspicion of poor adherence or physical or mental inability to perform PD should not be considered as absolute contraindications to PD provided that, in regards to the latter conditions, the centre is able to offer assisted PD, if needed¹.

RESULTS

Based on retrospective analysis of our data, and after adjustment for differences in baseline characteristics using a multiple-variable Cox proportional hazards model, we have shown that even in the elderly (age > 65 years), unplanned start on APD has no detrimental effects on the patient, combined patient and

TABLE 1: Standard initial prescription for unplanned start on APD

Bodyweight	< 60 kg	>60 kg
Time overnight, hours	12	12
Total fill volume, L	10	14
Max dwell volume, L	1.2	1.5
Tidal, %	50-75	50-75

PD-technique, or peritonitis free survival⁵. Unplanned start on APD does not increase short term risk of infectious complications (peritonitis or exit site infections) but, may increase the risk of mechanical complications and the need for replacement of displaced and malfunctioning PD-catheters⁴. Unplanned start on APD is a safe and efficient procedure resulting in a steady and significant reduction of azotemia during the first week of treatment, and elimination of hyperkalemia and metabolic acidosis after two treatment sessions³.

In a small prospective French study, comparing unplanned start on APD versus unplanned start on HD, using temporary tunnelled central venous catheters as vascular access and after adjustment in differences in comorbidity, Lobbedez and co-workers found no difference in patient survival or survival free of re-hospitalization⁸.

CONCLUSIONS

Unplanned start on APD right after PD-catheter implantation is a feasible, safe and efficient procedure with no detrimental effects on patient survival, PD-technique survival or risk of infectious complications. PD should therefore be considered as a complementary alternative to HD, also in the unplanned setting.

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