

A 2-YEAR FOLLOW-UP STUDY OF PATIENTS ON CONTINUOUS AMBULATORY PERITONEAL DIALYSIS (CAPD) IN SPECIALIZED HOSPITALS IN DHAKA, BANGLADESH

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Abstract:

Continuous Ambulatory Peritoneal Dialysis (CAPD) is an established form of dialysis in Bangladesh now-a-days. It was a retrospective analysis, where we studied on 107 cases of CAPD patients in different specialized hospitals in Dhaka, Bangladesh. The aim of this study was to describe experience of CAPD in our setup and its impact on survival. Male and female ratio was 54:53. Mean age was 60±11.2 years. Main causes of ESRD were diabetic nephropathy (58.9%). 53.3% of patient preferred CAPD as a mode of renal replacement therapy to other modalities. 32.7% patient suffered from peritonitis. Exit site infection occurred in 9.3%. Among non-infectious complications pain during dialysis (30.8%) was most common. Mean Blood urea was 19.15mg/dl; serum creatinine 633micromol/L.

Key words: Continuous ambulatory peritoneal dialysis (CAPD), Kidney failure, Survival.

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Introduction:

Over the past few years, continuous ambulatory peritoneal dialysis (CAPD) has gained tremendous popularity all over the world. The total number of patients receiving continuous peritoneal dialysis as their renal replacement therapy (RRT) in different parts of the world is nearing the 100,000 mark¹. The efficiency of CAPD compares very well to, and in many aspects supersedes that of, haemodialysis (HD). CAPD compares very closely to HD in dialysis adequacy as measured by urea kinetic modelling (Kt/V per week) and creatinine clearances per week².

Daily fluid intake can be liberal and most patients will need minimal dietary restrictions. The degree of blood pressure and fluid balance control is better while using CAPD. The long-term nutritional status of CAPD patients is comparable to HD patients³. One should remember that with CAPD there is a constant

removal of waste products from the body which is the most physiological way of dialyzing. The rate of peritonitis has come down significantly over the past years so that an infection rate of one episode every 24 months is the expected norm using the Y connector system⁴. We proposed this study to report the experience with CAPD as a modality of RRT from tertiary level health care facilities in Bangladesh. The aim of this study was also to see the impact of CAPD on survival of the patients.

Methods:

It was a retrospective analysis, where we studied on 107 cases of CAPD patients in different specialized hospitals in Dhaka, Bangladesh. CAPD was done between June 2013 and June 2015. Two-cuff coiled Tenckhoff catheters were used. Flushing of the catheter was done on the third and fifth days. CAPD were initiated on manual exchanges on the 7th day

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using twin-bag system. For the first one week, the treating nephrologists gave education and training in PD and were helped by the corporate colleagues. Patients were advised to immediately contact telephonically the treating nephrologists for any assistance and advice. All patients were followed up at an interval of at least eight weeks.

Operational definitions:

Ultrafiltration failure (UFF): Net UF volume <400 ml after 4 hours of fluid dwell with 2 litres of 4.25% dextrose dialysis solution.

Dialysate leak: Development of any moisture around the catheter that had a high glucose level.

Hemoperitoneum: Prolonged collection of blood in the peritoneal cavity.

Peritonitis: Cloudy fluid and/or abdominal pain associated with a WBC>100 (with >50% neutrophils). Peritonitis was treated as per the ISPD protocol. Patients with suspected peritonitis were advised to come to the hospital, who were likely to have delay in reporting to hospital were advised to immediately start the empiric antibiotics.

Results:

107 patients were included whose records were available for this study. Fifty four (66.7%) were males and 53 were females (33.3%). The etiology of End stage renal disease (ESRD) in all 107 patients is shown in table-I.

Table-I
Causes of ESRD

Causes of ESRD	%
Diabetic Nephropathy	58.9
HTN	30.8
CGN	3.7
Others	1.5

Diabetic Nephropathy was the main cause of ESRD in these patients (58.9%). After a good counseling, 53.30% of the patients decided to take CAPD as their mode of renal replacement therapy (table-II).

Table-II
Causes behind CAPD

Causes behind CAPD	%
Patients choice	53.3%
Poor cardiac status	25.2%
Vascular acc. problem	21.5%

Among the non-infectious complications of CAPD, pain(30.8%) during dialysis was the commonest. However, ultrafiltration failure was very less (4.7%) (table-III).

Table-III
Non-infectious complications

Non-infectious complications	%
Ultra filtration failure	4.7
Fluid leakage	0.9
Pain	30.8
Hydrothorax	1.9
Malfunction of catheter	1.9
Others	27.1
No complication	32.7

Peritonitis (32.7%) was the main infectious complication, and exit site infection occurred in 9.3%. All the biochemical evaluations are shown in table-IV.

Table-IV
Biochemical evaluation of the patients after CAPD

Biochemistry	Mean results
Blood Urea	19.15±8.4 milimole/l
Serum Creatinine	633±210.1 micromole/l
Serum Calcium	1.94±0.4milimole/l
Serum Phosphate	1.63±0.54milimole/l
Serum Albumin	24.42±7.1 g/l

Discussion:

This study is the experience over 2 years of one of the fastest growing centers having CAPD facilities program in Bangladesh, and to the best of our knowledge, in this sub-continent. Diabetic Nephropathy was the main cause of

ESRD in these patients (58.9%), as because the mean age of our patients was 60.00±11.20 years. Day by day diabetic nephropathy is taking the first position all over the world. Nearly half of this group of patients chooses CAPD as their renal replacement therapy, but renal team had talked with them frequently. Due to poor cardiac status some patients (25.2%) were referred from various centre for CAPD.

Non-infectious complications of CAPD are classified into two groups on the basis of onset from the time of insertion of catheter: early onset (one to four months) and late onset (12-24 months). Early-onset complications include exit site leak, catheter malposition, hemoperitoneum, right-sided hydrothorax and ultrafiltration failure (UFF). The late-onset complications include abdominal hernia, scrotal swelling, encapsulated peritonitis and catheter cuff protrusion⁵. In this study, 30.8% patient fell pain during dialysis, because patient also may describe the pain which was related to other abdominal causes. With improvement in peritoneal dialysate delivery system and connections, the rates have further decreased. With the “Y Set” or disconnect system peritonitis-rate reported is one episode per 24-36 patient months. This ‘flush before fill’ method has now become more popular in comparison to standard connection systems⁶.

In our patients, only 37% suffer from peritonitis which is comparable to any other centre in the world and exit site infection was very low only 9.3%. Biochemical parameters of our study group of patient were very good. The serum creatinine and blood urea levels remained stable. Serum total protein and albumin levels remained stable throughout the study. There was a mild rise of serum calcium at the start of treatment, but became stable thereafter. In present clinical practice, the earlier controversy as to which treatment modality, HD or CAPD, was better for patients with ESRD is fading away⁷.

Many studies have shown that CAPD offers equal advantages as HD⁸. Given the advantages, Nissensen et al. concluded that the low popularity of CAPD clearly implied that we were denying to patients an effective form of

RRT principally because of non-medical factors⁹.

It is time that the nephrology community should change this trend and encourage the patients’ (and physicians’) preference for this technique.

Prichard¹⁰ and Lameire et al.¹¹ have recently shown that the patients who have been referred early to a nephrologist will prefer CAPD while late referrals, with the attendant emergencies, were more likely to be offered HD. It is fair to note that in Bangladesh most patients who reach dialysis are late referrals. Nevertheless, the new trend adopted by more and more renal centers in the world is to gear towards a novel approach to dialysis, namely “the integrated care” system where peritoneal dialysis and HD are considered as a “continuum”¹².

It was shown that patients starting initially on peritoneal dialysis and switched later on to HD had better survival than those remaining on their initial treatment of either type¹³.

Conclusion:

In conclusion, we would like to say that CAPD can be a revolutionized procedure for ESRD patients even in remote and rural places. Good results can be achieved by carefully selecting patients who have sufficient resources and can strictly adhere to the basic principles of asepsis. It can emerge as a safe, viable mode of renal replacement therapy for ESRD patients in developing countries like Bangladesh.

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