



CHRONIC PERITONEAL DIALYSIS in CHILDREN: Single center experience comparing two periods over 18 years

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INTRODUCTION

Peritoneal dialysis (PD) is the most common treatment method for children with end-stage renal disease (ESRD), but the catheter related complications and peritonitis limit its more common usage in this age group.

AIM

The aim of the study was to evaluate whether there is a change with time regarding the complications of PD and prognosis of children treated by chronic PD comparing the period of 1996-2004 to 2005-2014.

PATIENTS and METHODS

The study group consisted of 109 patients (54 female, 55 male) and was divided into two groups.

The patients followed up between 1996-2004 were enrolled in Group I and those followed up between 2005-2014 were enrolled in Group II.

Forty four patients in Group II were compared to 65 children in Group I regarding PD complications and prognosis.

- The percentage of the patients on automated PD (APD) was higher in Group II than Group I (73% and 60%, respectively). Catheter failure rate was 18% in Group II, while the rate was 36.9% in Group I.

Table 3: Comparisons of the APD and CAPD patients

	1996-2004 years		2005-2014 years	
	CAPD	APD	CAPD	APD
No of patients	26	39	13	31
Age (years)	11.3±4.3	8.8±5.9	7.14±4.98	6.97±5.68
Gender	20 F/6 M	14 F/25 M	10 F/3 M	10 F/21 M
Peritoneal dialysis duration	19.3±11.2 (40 days-195 months)	24.5±14.6 (2-175 months)	33-31±20.35 (3.2-84 months)	33.2±21.22 (3.2-84 months)
Technique failure	34.6%	38.6%	15.3%	19.3%
Catheter exit site infection	6	4	6	10
Peritonitis rate (episode/PD months)	1:13.5	1:15.6	1:23.3	1:19.6

CAPD: Continuous ambulatory peritoneal dialysis, APD: Automated peritoneal dialysis, M: male, F: female

- The most frequent cause of catheter failure was recurrent peritonitis in both groups. Peritonitis rate was lower in Group II than in Group I (1:22.4 episode/PD months vs 1:14.3 episode/PD months).
- The most common causative microorganism of peritonitis was *Staphylococcus aureus* in both groups.

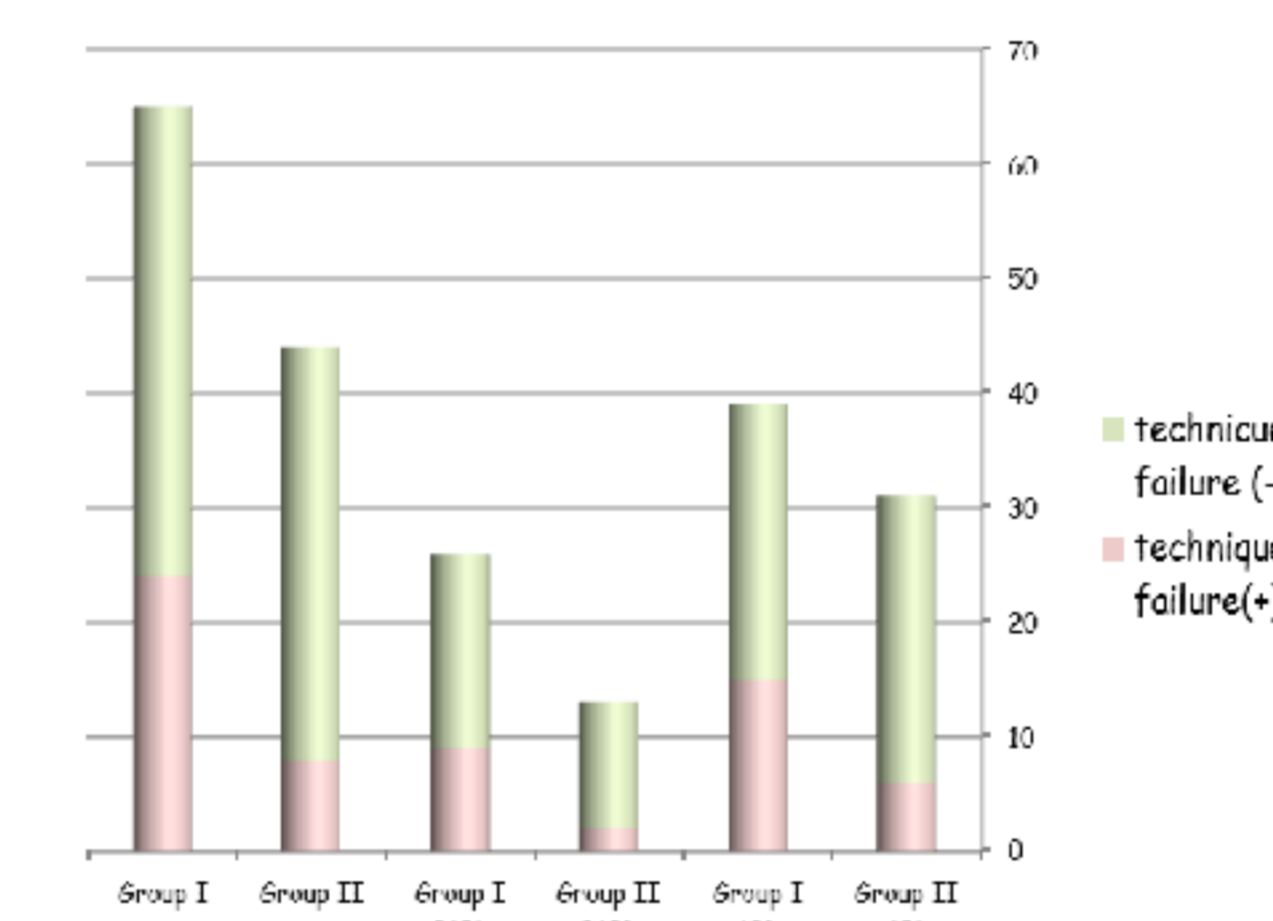


Figure 1: The frequency of the technique failure in children on PD
CAPD: Continuous ambulatory peritoneal dialysis, APD: Automated peritoneal dialysis

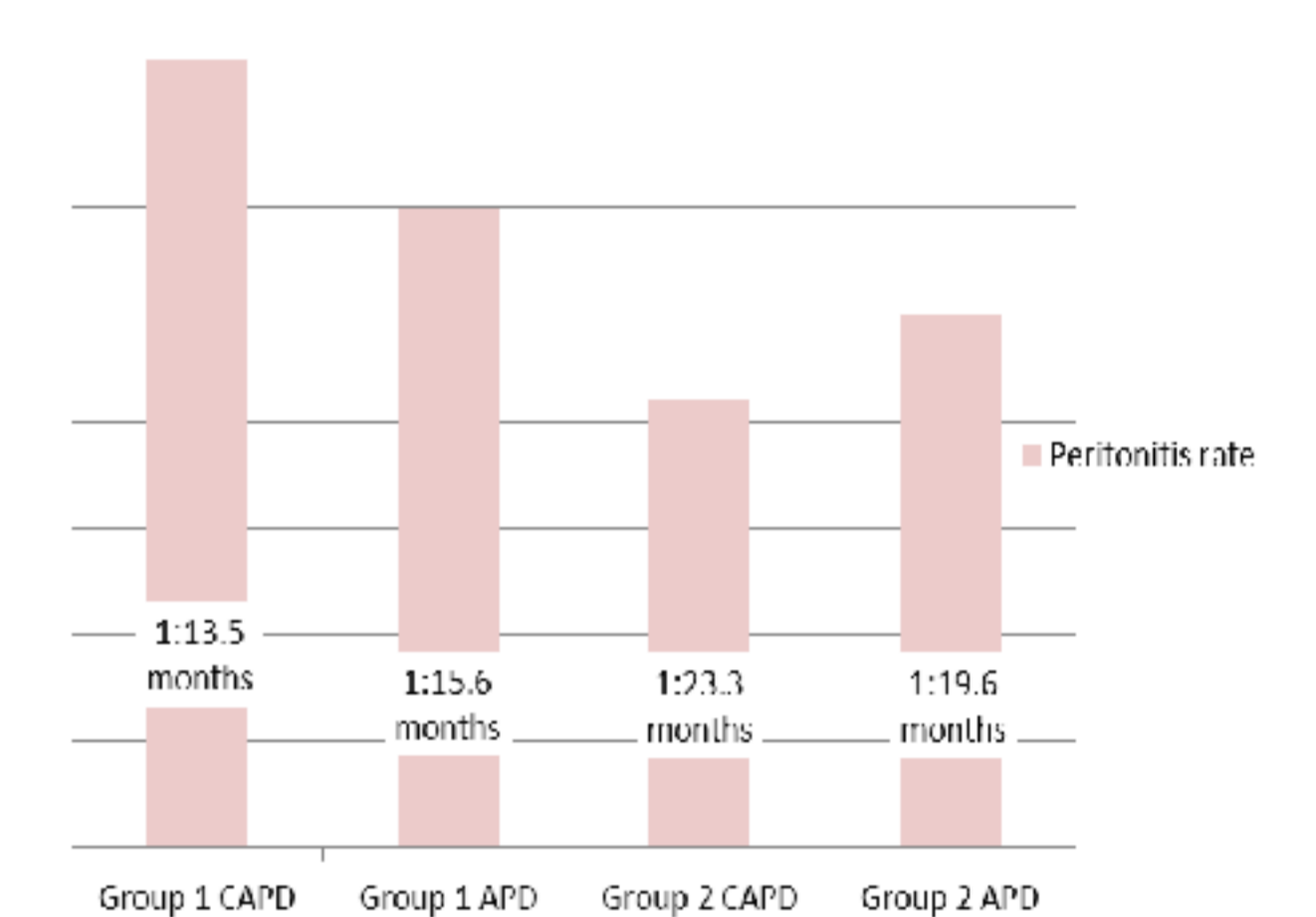


Figure 2: Differences in peritonitis rates during the study period
CAPD: Continuous ambulatory peritoneal dialysis, APD: Automated peritoneal dialysis

Table 1: Clinical and demographic characteristics of the patients

Groups	1996-2004	2005-2014
No of patients	65	44
Age	9.5±4.2 years (15 days-19 years)	7.14±5.73 years (0 days-17.5 years)
Gender	31 M/34 F	24 M/20 F
Peritoneal dialysis duration	23.6±21.3 months (40 days-195 months)	33.3±20.98 months (32 days-84 months)
Peritoneal dialysis system		
CAPD	26 (6M/20F)	13 (3M/10F)
APD	39 (25M/14F)	31 (21M/10F)

CAPD: Continuous ambulatory peritoneal dialysis; APD: Automated peritoneal dialysis; M: male; F: female

RESULTS

- The mean age of onset of PD was 9.5±4.2 years and 7.14±5.73 years in Group I and II, respectively.
- The most common cause of chronic kidney disease (CKD) was uropathies in both groups.

Table 2: Primary causes of end stage renal disease

	1996-2004 years	2005-2014 years
Vesicoureteral reflü (VUR)	16	5
Other uropathies (non-VUR)	4	12
Nephrolithiasis	3	0
Glomerulonephritis	14	3
Vasculitis	2	0
Nephrotic syndrome	8	7
Alport syndrome	5	3
Polycystic kidney disease	1	6
Cystinosis	5	1
Oxalosis	4	1
Amiloidosis	0	1
Renal vein trombosis	0	1
Hemolytic uremic syndrome	0	3
Unknown	3	2

- The most important difference between the two groups was that the percentage of the patients who received renal transplantation.
- Transplantation rate was 43.2% in Group II whereas 7.7% in Group I.

Table 4: The causes of technique failure in the study group

	1996-2004 years n(%)	2005-2014 years n(%)
Reccurent peritonitis	18 (76)	4 (50)
Herniation	4 (16)	1 (12.5)
Leakage	12 (50)	3 (37.5)
Bloody dialysate	2 (8)	0
Hydrothorax	1 (4)	0
Scrotal edema	3 (12)	0

Table 5: Final clinical status of children on PD

	1996-2004 years n (%)	2005-2014 years n (%)
Continuation on PD	37 (56.9)	5 (11.4)
Switched to HD	17 (26.2)	5 (11.4)
Transplantation	5 (7.7)	19 (43.2)
Exitus	6 (9.2)	9 (20.4)
Transition to adult clinics	0	4 (9)
Lost to follow	0	2 (4.6)

CONCLUSION

PD is the treatment of choice for ESRD in children until the patients undergo renal transplantation. Although the most important complication of PD is still peritonitis, the rate of peritonitis and catheter failure have diminished as the experience in the field of PD increase.