

Early Complications of Peritoneal Dialysis in Our Center

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Introduction

The success of chronic peritoneal dialysis (CPD) depends to a great extent on the maintenance of a permanent access to the peritoneal cavity. Early complications (within two weeks of catheter implantation) such as bleeding, outflow obstruction, dialysate leak and peritonitis may influence the patients' morbidity and technique outcome.

The aim of the present retrospective study was to determine the frequency and reasons of perioperative complications of peritoneal dialysis (PD) at the Center for Kidney Diseases, Zvezdara University Hospital in Belgrade.

Patients

Two-hundred and twenty eight patients (106 males and 122 females) with a mean age of 61.4 ± 13.8 years were started on PD between January 2000 and December 2002. Causes of the study population end-stage renal disease were hyper-

tensive nephrosclerosis (40.3 %), diabetic nephropathy (27.2 %), interstitial nephritis (6.6 %), glomerulonephritis (5.3 %), polycystic kidney disease (3.9 %) and other (16.7 %).

Methods

Double-cuff straight Tenckhoff catheters and single-cuff Brown catheters were surgically inserted through the midline under local anesthesia. All patients were dialysed immediately after the operation with 1000 ml of dialysate and 12 to 16 daily rapid exchanges (every 30 min.). Antibiotic prophylaxis was not provided.

Results

Table 1 shows the overall incidence of catheter related complications within two weeks of implantation.

Table 1. Incidence of Early Complications of PD

| Year | Leakage | Outflow obstruction | Peritonitis | Overall pts com. | |
|-------------------|-------------------------------|---------------------|--------------------|------------------|-----------------|
| 2000 | 1/89 (1.1 %) | 6/89 (6.7 %) | 14/89 (15.7 %) | 19/89 21.3% | 21/89 23.6% |
| 2001 | 1/65 (1.5 %) | 1/65 (1.5 %) | 10/65 (15.4 %) | 12/65 18.5% | 12/65 18.5% |
| 2002 | 8/74 (10.8 %) | 7/74 (9.5 %) | 15/74 (20.3 %) | 27/74 36.5% | 30/74 40.5% |
| Total | 10/228 (4.4 %) | 14/228 (6.1 %) | 39/228 (17.1 %) | 58/228 25.4% | 63/228 27.6% |
| Literature review | 7-24% till'90 1-8%after'90 | 1-28 % | 1.7-12 % | | |

Pericatheter leakage occurred in 4.4 % of patients. It was a more frequent complication in women, patients older than 65 years of age and with the single-cuff catheters (table 2). Leakage was managed by interruption of PD for one to three days.

Table 2. Incidence of Leakage in the Various Subgroups

| | |
|------------------------|-----------------|
| Patients over 65 years | 7 / 10 (70 %) |
| Females | 7 / 10 (70 %) |
| Single-cuff catheters | 8 / 10 (80 %) |
| Diabetics | 4 / 10 (40 %) |

Outflow obstruction due to malposition of the catheter was observed in 6.1 % of patients. Out of all early complica-

tions only outflow obstruction was the cause of catheter failure and required surgical intervention in all cases.

Table 3. Data on Perioperative Peritonitis

| | |
|------------------------------|---------------------------|
| Percentage of patients | |
| Incidence | 17.1 % |
| Pathogens | |
| Staph. Epidermidis | 20.5 % |
| Staph. Aureus | 10.3 % |
| Enterococcus | 10.3 % |
| Pseudomonas | 7.7 % |
| Acinetobacter | 2.6 % |
| Sterile | 46.1 % |
| | (in 2002 20 %) |
| Urgent insertion of catheter | |
| Yes | 27.6 % |
| No | 15.8 % |
| Surgeons | |
| N° 1 | 12.5 % (1 perit./8 pts) |
| N° 2 | 17.0 % (1 perit./5.7 pts) |
| N° 3 | 18.0 % (1 perit./5.5 pts) |
| N° 4 | 27.0 % (1 perit./3.7pts) |
| Peritonitis associated with: | |
| Leakage | 30.0 % |
| Outflow failure | 14.3 % |
| Bleeding | 11.4 % |

Peritonitis (table 3) occurred in 17.1 % of patients. Such a high incidence can be partly explained by the perioperative use of glass bottles with dialysis solution which are connected to the catheter by an infusion set. Peritonitis occurred more frequently after urgent catheter placement during the night (27.6 % vs 15.8 %) and in patients with the

pericatheter leakage (30.0 %). Surgery was performed mostly by four surgeons. There were differences in the peritonitis rate depending upon the surgeon who inserted the catheter. Underlying renal disease did not influence peritonitis incidence.

Bleeding following catheter insertion was observed in 34.6 % of patients, but in most cases stopped after the first dialysate exchanges and in no case required additional treatment.

Conclusion

Early complications of PD are not rare and special attention has to be paid on their prevention. It is not clear if early peritonitis is a risk factor for subsequent treatment failure and patients' morbidity and mortality.

References

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