The occurrence of peritoneal dialysis related infections in a Norwegian cohort over a 10 years period

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INTRODUCTION

The use of peritoneal dialysis (PD) in Norway has been limited compared to other western countries. PD is considered a good alternative to haemodialysis and the method is cost-efficient. Infections related to PD are still the most frequent complication, and often limits the extent of its use.

OBJECTIVES

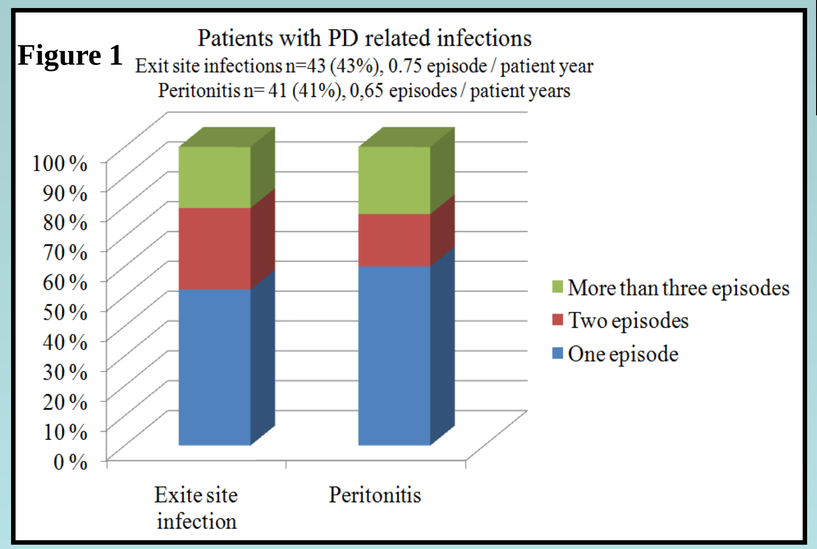
Primary objective: To access the occurrence of PD related exit site infection and peritonitis.

Secondary objective: To evaluate how gender, age, diabetes mellitus and other clinically important factors for performing PD, had influence on the occurrence of PD related infections.

METHODS

101 of our patients with end-stage renal failure (ESRD) received PD-catheters during 11 years period (1999-2010), 65% male (n=66) with median age 67 years (18-94) and 35% female with median age 58 years (18-89). The causes of end-stage renal failure were hypertension 27%, diabetic nephropathy 16%, glomerulonephritis 23% and others 35%. Standard Tenckhoff catheter was used. Preoperative antibiotic prophylaxis has not been routine, but has been used sporadically.
All information was gathered retrospectively from the patients' charts.

Figure 1



RESULTS

Few patients had complication associated to PD catheter insertion. Two (2.0%) developed postoperative infections. Nine (9.0%) patients did not start PD-treatment, two received renal transplants predialytic, two removed the catheter due to infection, and 1 patient required HD before PD could be initiated, one died and three patients were not yet initiated PD.
There was a median delay of 1 month (1-38) before PD was started.
89 patients were started on PD, and the median time for active PD was 7.0 months (1-30).
Exit site infections: Infections occurred in 43 (43%) patients, 23 (23%) had one episode and 12 (12%) had 2 episodes and 9 (9%) had 3 or more than 3 episodes. The incidence of exit site infections for the entire cohort is 0.75 episodes / patient year (Figure 1).
Peritonitis: 41 patients (41%) had peritonitis, 24 had one, 7 had two and the rest of the patients had 3 or more than 3 episodes. The incidence of peritonitis was 0.65 episodes / patient year. (Figure 1).
PD discontinuation: 69 (69%) patients discontinued PD. 30% received renal transplants, 14% due to PD related infections, 8% due to non-infectious complications, 9% patients died during PD and 7% were discontinued PD due to terminal disease (Figure 2).
Cause of infections: *Staphylococcus aureus* was the cause of both exit site and peritonitis in the majority of the patients.
Patients older than 75 years of age had no significant higher rate of infection compared with younger age groups (log rank test p=NS).
Occurrence of both exit site infection and peritonitis was higher in female (figure 3). In order to identify risk factors in patients with peritonitis, a multivariate Cox regression was performed and the model was adjusted for clinically relevant factors as age, gender, occurrence of exit site infection, diabetes mellitus, previous cardiovascular / cerebrovascular disease, body weight, smoking, and if the PD was assisted by nurse at home or other institutions. Female gender was associated with significantly higher risk of peritonitis in both univariate (figure 4) and multivariate analysis (HR 0.25, CI: 0.70-0.87) (p<0.03).

Figure 2

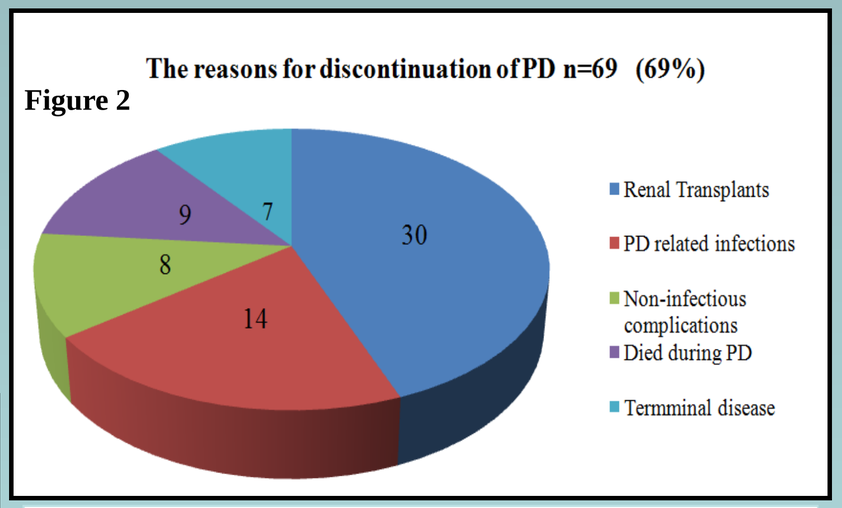


Figure 3

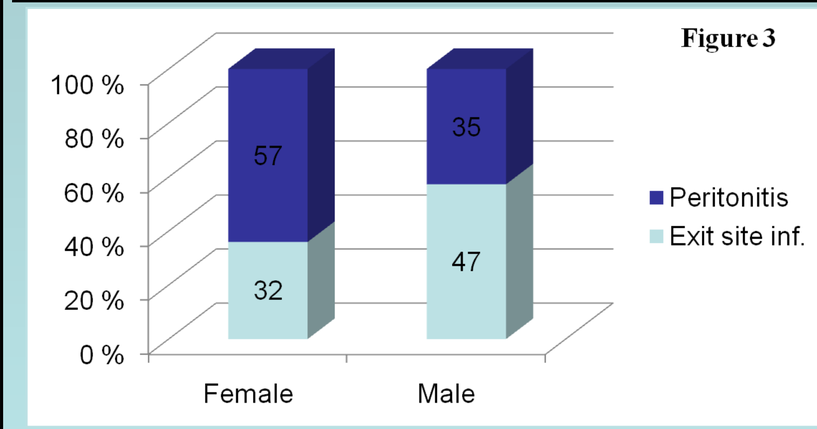
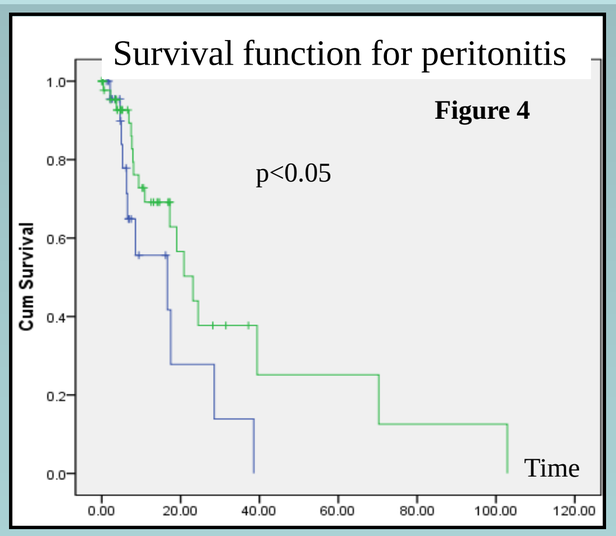


Figure 4



CONCLUSIONS

In our experience, peritoneal dialysis is a good treatment option in selected patients and the occurrence of PD related infections are low. Infections were however the reason for conversion to haemodialysis in a few patients. In our population, PD is a safe bridge to kidney transplantation and PD is also safe treatment option in elderly individuals with no excess infection rate. In this cohort female gender was associate with higher rate of peritonitis.