INCIDENCE AND RISK FACTORS OF INFECTIOUS PERITONITIS IN PERITONEAL DIALYSIS PATIENTS: A SWISS SINGLE CENTER EXPERIENCE

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INTRODUCTION

Despite the improvement of peritoneal dialysis (PD) techniques, PD-peritonitis remains one of the most frequent complications. Data on PD peritonitis incidence and related risk factors in Switzerland are sparse.
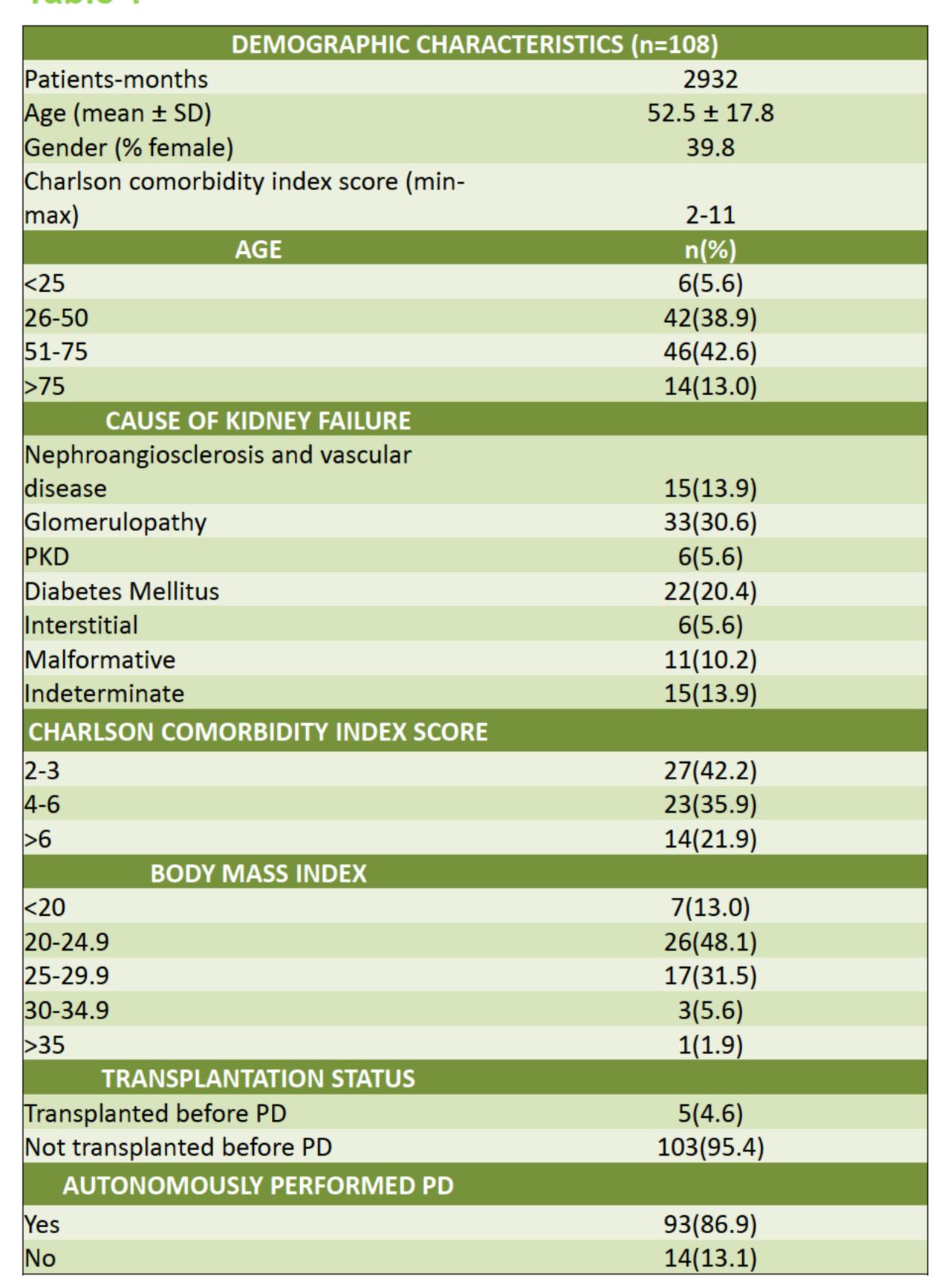
METHODS

This is a single-center, retrospective study including all patients who underwent peritoneal dialysis between 1995 and 2010 in the university hospital of Lausanne (CHUV). Patient records were used to collect patient characteristics, details on peritonitis episodes and their outcome. Patients performing PD exchanges autonomously were classified as autonomous. Patients helped by a nurse or a family member at home, were classified in the non-autonomous group. The proportion of patients free of peritonitis episodes over time was estimated using Kaplan-Meier analysis, censored for death or transplantation. Cox regression analysis was used to assess the influence of possible risk factors on the incidence of PD peritonitis.

RESULTS

All 108 patients (65 men and 43 women) were included in this analysis; baseline characteristics are shown in table 1. A total of 113 episodes of PD-peritonitis were recorded, corresponding to an incidence of one episode per 26 patient-months. Median peritonitis-free survival time was 23.6 months. The isolated pathogens are shown in Figure 1. In Cox regression analysis, adjusted for age and sex, factors associated with increased risk of PD-peritonitis were diabetes, a Charlson score >5, and non-autonomously performed PD-exchanges, whereas age, gender and previous transplantation were not (Table 2). One patient died because of peritonitis.
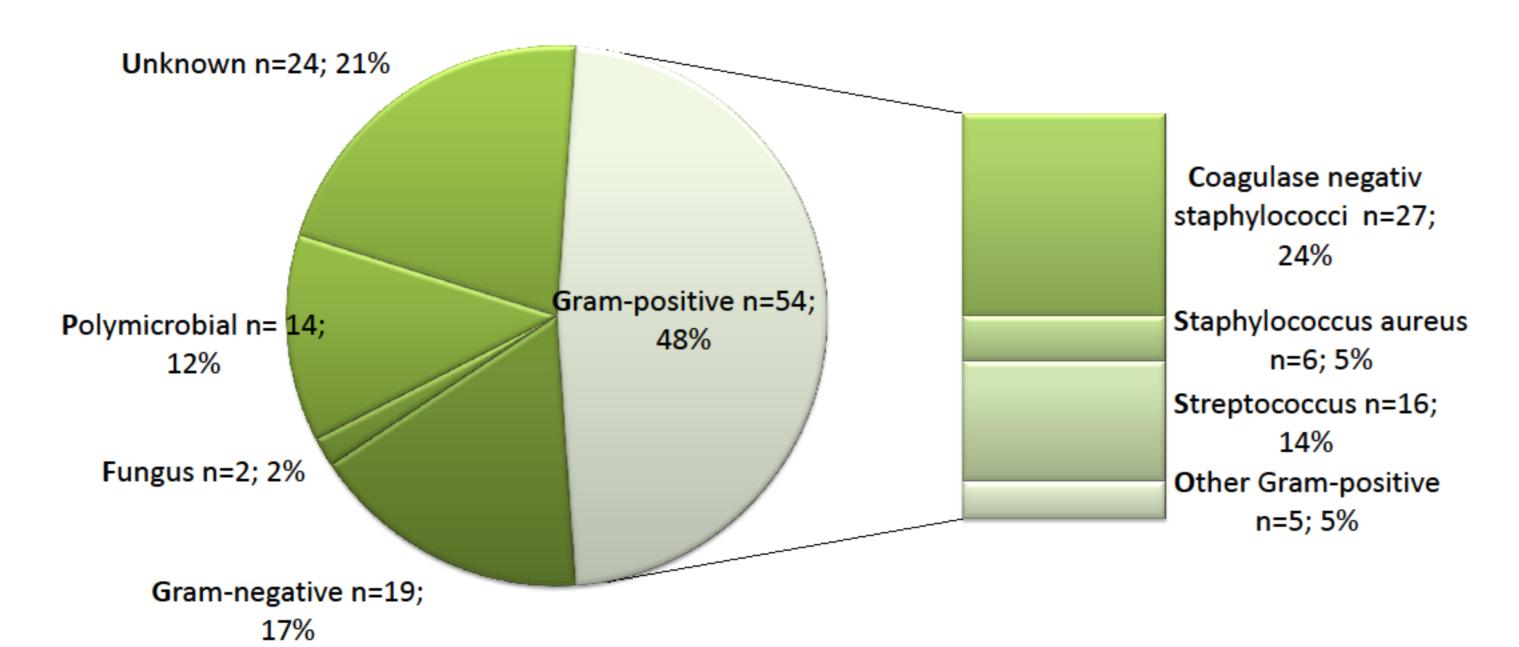
Table 1

DEMOGRAPHIC CHARACTERISTICS (n=108)	
Patients-months	2932
Age (mean ± SD)	52.5 ± 17.8
Gender (% female)	39.8
Charlson comorbidity index score (min-max)	2-11
AGE	**n(%)**
<25	6(5.6)
26-50	42(38.9)
51-75	46(42.6)
>75	14(13.0)
CAUSE OF KIDNEY FAILURE	
Nephroangiosclerosis and vascular disease	15(13.9)
Glomerulopathy	33(30.6)
PKD	6(5.6)
Diabetes Mellitus	22(20.4)
Interstitial	6(5.6)
Malformative	11(10.2)
Indeterminate	15(13.9)
CHARLSON COMORBIDITY INDEX SCORE	
2-3	27(42.2)
4-6	23(35.9)
>6	14(21.9)
BODY MASS INDEX	
<20	7(13.0)
20-24.9	26(48.1)
25-29.9	17(31.5)
30-34.9	3(5.6)
>35	1(1.9)
TRANSPLANTATION STATUS	
Transplanted before PD	5(4.6)
Not transplanted before PD	103(95.4)
AUTONOMOUSLY PERFORMED PD	
Yes	93(86.9)
No	14(13.1)

Figure 1 – Microbiological characterisitcs of peritonitis

Unknown n=24; 21%
Gram-positive n=54; 48%
- Coagulase negativ staphylococci n=27; 24%
- Staphylococcus aureus n=6; 5%
- Streptococcus n=16; 14%
- Other Gram-positive n=5; 5%
Polymicrobial n=14; 12%
Fungus n=2; 2%
Gram-negative n=19; 17%

Figure 2 – Peritonitis-free survival curve for autonomous and non-autonomous patients

- Autonomously performed PD
- Non-autonomously performed PD

Table 2

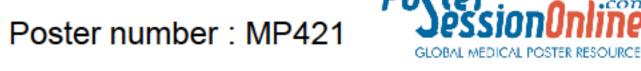| MEDIAN FREE PERITONITIS SURVIVAL			
	Months [95% CI]	p-value (Log Rank)	Hazard Ratio (95% CI) Cox linear regression
Patients (n=108)	23.6[18.6-28.6]		
GENDER		0.48	
Male	23.6[16.9-30.2]		
Female	24.7[14.0-35.5]		
AGE		0.53	
<25	15.8[0.0-34.8]		
26-50	23.6[16.3-31.0]		
51-75	22.2[11.3-33.2]		
>75	24.0[4.9-43.0]		
METABOLIC STATUS		0.002*	
Diabetic	14.8[7.6-21.9]		2.6 (1.4-4.6)
Non-diabetic	24.6[14.1-35.1]		
CHARLSON INDEX SCORE		0.002*	
<6	24.7[17.6-31.9]		
≥ 6	10.6[8.1-13.1]		4.1 (1.6-10.8)
BMI		0.089	
Normoweight (BMI<25)	23.6[13.0-34.3]		
Overweight (BMI>25)	14.8[7.1-22.4]		
TRANSPLANTATION STATUT		0.67	
Transplanted before PD	23.6[6.0-41.3]		
Not transplanted before PD	23.6[18.1-29.0]		
AUTONOMOUSLY PERFORMED PD		0.04*	
Yes	24.0[19.9-28.0]		
No	16.1[8.7-23.5]		3.3 (1.6-8.3)

CONCLUSIONS

The rate of PD-peritonitis reported in this Swiss single-center study is well below the maximal acceptable rate of the ISPD (International Society for Peritoneal Dialysis)[1], as is peritonitis-related mortality. Non-autonomously performed PD, diabetes and a high Charlson comorbidity score were associated with a higher risk of PD-peritonitis.
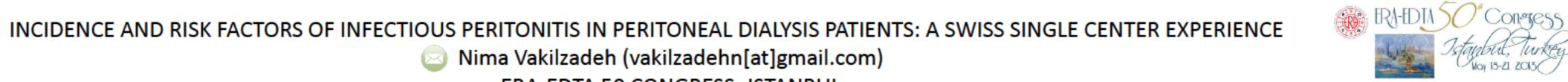
[1]Li PK, Szeto CC, Piraino B, et al. ISPD guidelines/recommendations: Peritoneal dialysis – related infections recommendations : 2010 Update. Perit Dial Int 2010;30:393-423.

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