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Impact of liver cirrhosis on the outcomes of peritoneal dialysis

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Objectives: Peritoneal dialysis (PD) has become an increasingly popular treatment modality for end-stage renal disease. However, its application to the patients with liver cirrhosis (LC) and subsequent outcomes have not been thoroughly evaluated.

Methods: A total of 1,366 patients (≥ 18 years old), who started PD at four tertiary referral centers between January 2000 and December 2015, were initially reviewed. When the presence of LC was confirmed by radiologic evaluations, 45 patients with LC were finally analyzed (LC-PD). Using multivariate Cox hazard ratio (HR) model, their outcomes such as technical failure, infection, and mortality were compared with non-LC patients receiving PD (non-LC PD) or LC patients receiving hemodialysis (LC-HD), all of whom were selected by 1:1 matching on age, gender, catheter insertion date, and diabetes mellitus.

Results: During the mean follow-up duration of 43 ± 35.8 months, 17 LC-PD encountered technical failures, and this rate was higher than that of non-LC-PD with HR of 3.0 (1.03–8.90). When evaluating infection episodes, the most common causes for peritonitis and exit site infection were *Escherichia coli* (5.8%) and *Staphylococcus aureus* (19.3%), respectively; these event rates of LC-PD were not different from those of non-LC-PD. All-cause mortality rates were similar between LC-PD and non-LC-PD groups, but the LD-PD group had a lower HR of mortality [0.2 (0.04–0.94)] than the LC-HD group.

Conclusions: Although infectious and survival outcomes of PD are not altered by the presence of LC, it may raise the technical problems of PD maintenance.

Figure 1. Technical failure-free survival curves between LC and non-LC patients.

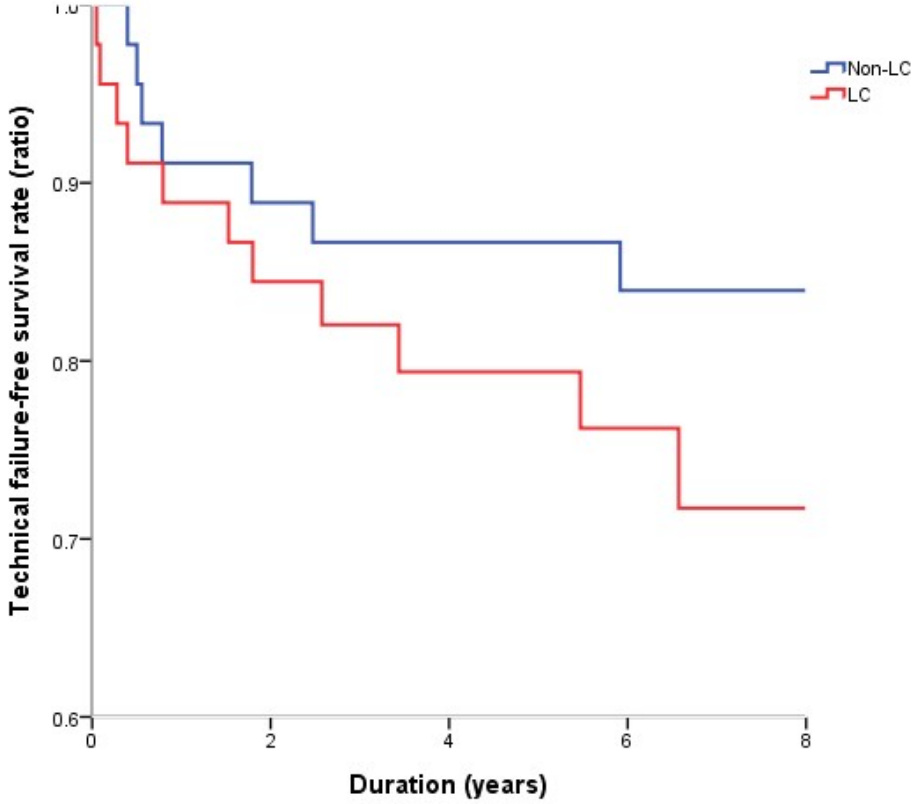

Table 1. Risk of peritoneal dialysis outcomes according to the liver cirrhosis status

			Univariate		Multivariate	
Outcomes	Group	Events, n (%)	HR (95% CI)	*P*	HR (95% CI)	*P*
Technical failure	non-LC	11 (24.4)	1 (reference)		1 (reference)	
	LC	17 (37.8)	1.845 (0.860 – 3.959)	0.110	3.031 (1.033-8.896)	0.044
Exit site infection	non-LC	8 (17.8)	1 (reference)		1 (reference)	
	LC	5 (11.1)	0.683 (0.223-2.088)	0.504	0.127 (0.014-1.120)	0.063
Peritonitis	non-LC	22 (48.9)	1 (reference)		1 (reference)	
	LC	20 (44.4)	0.931 (0.508-1.708)	0.817	1.619 (0.661-3.964)	0.294
Mortality	non-LC	8 (17.8)	1 (reference)		1 (reference)	
	LC	11 (24.4)	1.561 (0.626-3.891)	0.335	0.379 (0.082-1.751)	0.214
Mortality	HD	17 (37.8)	1 (reference)		1 (reference)	
	PD	11 (24.4)	0.691 (0.323-1.476)	0.691	0.191 (0.039-0.935)	0.041

HR, hazard ratio; CI, confidence interval; LC, liver cirrhosis; PD, peritoneal dialysis; HD, hemodialysis.