

Comparing efficiency and safety of double filtration plasmapheresis with therapeutic plasma exchange in the treatment of Lupus Nephritis

Yeqing Xie, Jiarui Xu, Jiawei Yu, Jiachang Hu, Wuhua Jiang, Jie Teng, Bo Shen, Xiaoqiang Ding

Department of Nephrology, Zhongshan Hospital, Shanghai, China;



Introduction

Large number of antibodies are the significant characteristics of lupus nephritis (LN), and therapeutic plasma exchange (TPE) was used to quickly remove the antibodies and control the symptoms. Considering plasma limitation, double filtration plasmapheresis (DFPP) has been recently administrated in LN treatment. This study was to discuss the efficiency and safety of these two techniques in the treatment of LN.

Methods and Materials

This retrospective study recruited the patients pathological conformed as LN from May 2019 to December 2021 who received either TPE or DFPP treatment. The clinical parameters before and after plasmapheresis, adverse events, patient survival rate and renal outcomes during follow-up were collected to compare the effectiveness and safety.

Results

A total of 33 LN patients confirmed by renal biopsy were included in this study, including 12 cases of DFPP and 21 cases receiving TPE treatment. Compared to TPE group, the SCr levels was significantly lower in DFPP group both at 1st month and 6th month ($P=0.01$). There was no statistical significance between two types of plasmaphereses in the levels of anti-dsDNA antibody titers, 24h urinary protein and SLEDAI score during the follow up (**Table 1**). During the 6 months after treatment, patient total survival rate (16.6% vs. 14.3%, $P=0.89$) demonstrated no statistical significance between two groups. The kidney survival showed statically higher in DFPP groups when compared to TPE group (90% vs. 50%, $P=0.04$) in the survival patients. (**Table 2, Fig 1**)

Table 1. Parameters assessment during follow-up period between two groups.

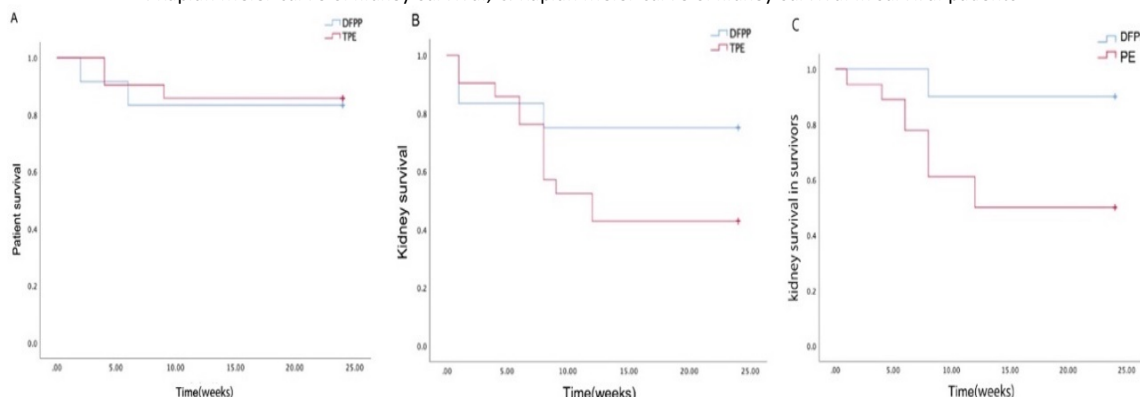
	1M			6M		
	TPE	DFPP	P value	TPE	DFPP	P value
SCr ($\mu\text{mol/l}$)	227(214-253)	119(90-148)	0.01	371(159-422)	107(83-241)	0.01
24h urinary protein (g)	3.54 (3.17-4.86)	2.84 (1.63-4.24)	0.07	2.21 (2.12-2.81)	1.23 (0.98-2.21)	0.06
Anti-dsDNA Antibody (IU/mL)	252 (208-443)	209 (78-333)	0.13	129 (53-333)	98 (81-121)	0.58
C3 (g/L)	0.45 (0.39-0.67)	0.96 (0.46-0.97)	0.03	0.84 (0.49-1.12)	1.27 (0.89-1.29)	0.01
SLEDAI	6(4,10)	5(4,8)	0.12	4(2,6)	4(0,4)	0.14

Table 2. Patient all-cause mortality and kidney survival

	TPE(n=21)	DFPP(n=12)	P value
All-cause mortality	3(14.3%)	2(16.6%)	0.89
Kidney survival (total)	9(42.9%)	9(75.0%)	0.12
Kidney survival (survival)	9(50.0%)	9(90.0%)	0.04

Figure 2. Kaplan-Meier curve analysis of all-cause mortality and kidney survival: A. Kaplan-Meier curve of patient survival,

B. Kaplan-Meier curve of kidney survival, C. Kaplan-Meier curve of kidney survival in survival patients



Conclusions

There is no significant difference in the short-term efficacy and safety of TPE and DFPP in the treatment of LN. For the treatment of LN, DFPP is an effective alternative to TPE for patients with plasma limitation.



THE 29TH INTERNATIONAL CONFERENCE ON
ADVANCES IN CRITICAL CARE NEPHROLOGY
AKI & CRRT 2024

MARCH 12-15, 2024 SAN DIEGO, CALIFORNIA