

Effects of Polymyxin B Hemoperfusion on Septic Shock Patients Requiring Noradrenaline: Analysis of a Nationwide Administrative Database in Japan

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Results from the Nationwide Administrative Database in Japan concerning adults diagnosed with septic shock and requiring noradrenaline support during the period 2016-2019 have been published in the Blood Purification journal by Fujimori and co-workers.

Methods

The authors conducted an observational propensity-matched analysis on adult patients hospitalized in Japanese ICUs during the period 2016-2019, diagnosed with septic shock requiring noradrenaline support.

Propensity-score matching was used to compare the outcome of patients between PMX-HP-treated and non-treated patients.

Endpoints

The primary endpoint was 28-day mortality counting from the day of noradrenaline initiation.

Secondary endpoints were noradrenaline-, ventilator- and CHDF-free days at day 28.

Results

- Of 30,731 eligible patients, 4,766 received PMX-HP.
- Propensity-score matching produced a matched cohort of 4,141 pairs.
- The **28-day survival rate** was 77.9% in the PMX-HP group and 71.1% in the control group ($p < 0.0001$).
- **Noradrenaline-free days** at day 28 was 24 (11-26) days in the PMX-HP group vs. 22 (0-25) days in the control group ($p < 0.0001$).
- **CHDF-free days** at day 28 was 24 (9-28) days in the PMX-HP group vs. 22 (0-28) days in the control group ($p < 0.0001$).
- **Ventilator-free days** at day 28 was 20 (1-28) in the PMX-HP group vs. 14 (0-28) in the control group ($p < 0.0001$).

Table 1. Noradrenalin-, ventilator-, and CHDF-free days at day 28.

	PMX-HP (n = 4,141)	Control (n = 4,141)	p value
Noradrenaline-free days	24 (11-26)	22 (0-25)	< 0.0001
CHDF-free days	24 (9-28)	22 (0-28)	< 0.0001
Ventilator-free days	20 (1-28)	14 (0-28)	< 0.0001

Data are presented as median (IQR). CHDF, continuous hemodiafiltration; IQR, interquartile range.

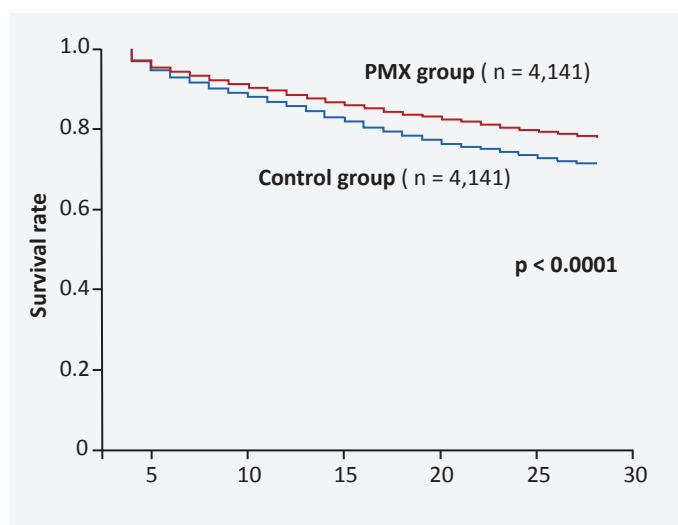


Figure 1. Kaplan-Meier survival curves of propensity-matched patients.

Conclusions

To date, this is the biggest published analysis of a nationwide database and one of the largest data analyses on septic shock patients available in literature.

The study shows that PMX-HP treatment might be useful in reducing mortality in septic shock patients requiring noradrenaline. PMX-HP also significantly reduced the number of days of noradrenaline, CHDF, and mechanical ventilation requirement.

No questioning concerning PMX-HP safety was raised.

This study represents a further step in the clinical evidence of PMX-HP for the management of septic shock patients and thus contributes to the clinical research progress on the role of Blood Purification therapies in sepsis and septic shock.