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Prescribing practices of sustained low-efficiency dialysis among physicians in South-East Asia

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Background

Sustained low-efficiency dialysis (SLED) is a hybrid of continuous kidney replacement therapy and intermittent hemodialysis, that provides dialysis for an extended period of time. It combines treatment intermittency with reduced ultrafiltration rate and low-efficiency solute removal to reduce hemodynamic instability and dialysis disequilibrium. Although SLED has been described since early 2000s and is widely used, its application remains non-standardized, with practices varying across institutions and countries.

Aim

In this study, we examined the use and prescribing patterns of SLED in South-East Asian (SEA) countries.

Methods

This descriptive study was conducted between May and June 2025, using a survey administered to medical professionals who routinely prescribe SLED. We collected data on participants' demographics, indications for SLED, and details of its prescription and monitoring.

Results

Of the 30 survey respondents, 16 (53.3%) were male, 19 (63.3%) had received nephrology training, and 27 (90%) were physicians. Majority of participants were from Philippines (n = 10, 33.3%), followed by Malaysia (n = 7, 23.3%), Vietnam (n = 7, 23.3%), and Singapore (n = 5, 16.7%).

26 of the 30 survey respondents had prescribed SLED before. More than half of respondents (n=15, 57.7%) shared that their country does not have a standardized protocol for SLED prescription. Yet, most respondents (n = 18, 69.2%) prescribed SLED for durations exceeding six hours. The commonly prescribed blood flow rate (Qb) was 150 mL/min (n =20, 76.9%) while the most frequently selected dialysate flow rate (Qd) was 300 mL/min (n = 23, 88.5%). The most frequently reported indications for SLED prescription were hemodynamic instability (n = 25, 96.6%), acute coronary syndrome (n =19, 73.3%), stroke (n = 19, 73.3%), and initiation of dialysis in kidney failure (n = 7, 26.9%). Heparin was the predominant anticoagulant agent used (n =25, 96.6%). To ensure hemodynamic stability, majority of respondents modulated sodium (n=20, 76.9%) and temperature (n=20, 76.9%) in their dialysis prescription. However, the choice of potassium bath of dialysate was generally mixed: K2 dialysate (n=9, 34.6%), K3 dialysate (n=6, 23.1%), K4 dialysate (n=9, 34.6%).

SLED was generally carried out in high dependency or ICU setting (n=21, 80.7%) followed by in-hospital dialysis center (n=4,15.4%), then general ward (n=1, 3.84). Only two-thirds of the respondents adjusted drug dosages (n=17, 65.4%) for their patients on SLED.

Table 1: Summary of SLED prescriptions

Indications for SLED, n (%)	
Hemodynamic instability	25 (96.6%)
Acute coronary syndrome	19 (73.3%)
Stroke	19 (73.3%)
First dialysis in kidney failure	7 (26.9%)
Choice of anticoagulation, n (%)	
Heparin	25 (96.6%)
No anticoagulation	11 (42.3%)
Regional citrate anticoagulation	2 (7.69%)
Choice of vascular access, n (%)	
Arteriovenous fistula/graft (AVF/AVG) only	4 (15.4%)
Dialysis catheter (non-tunneled, tunneled) only	8 (30.8%)
Both AVF, AVG and dialysis catheter	14 (53.8%)
Choice of monitoring, n (%)	
Post-dialysis creatinine and electrolytes	15 (57.7%)
Urea reduction rate	3 (11.5%)
Kt/V	1 (3.84%)
Did not answer	7 (26.9%)

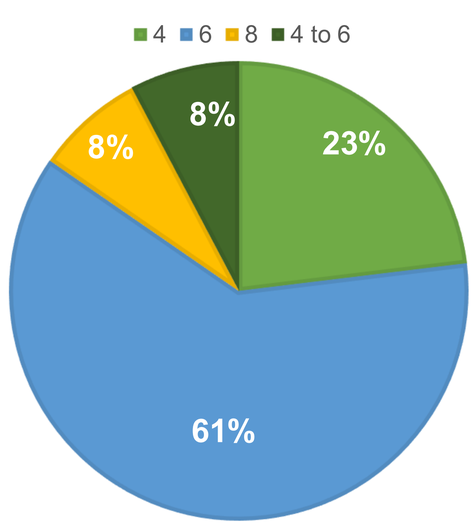

Figure 1: Average duration of SLED in hours

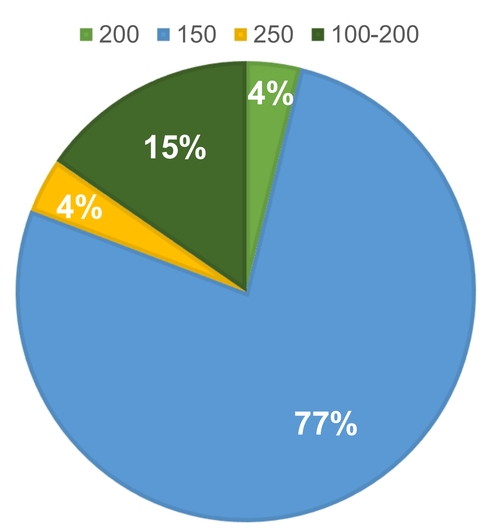

Figure 2: Blood flow rate in ml/min

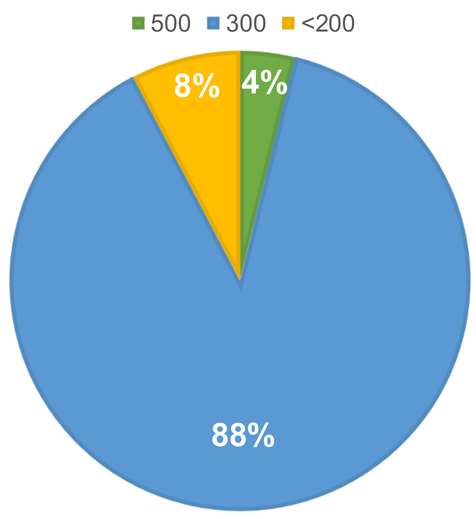

Figure 3: Dialysate flow rate in ml/min

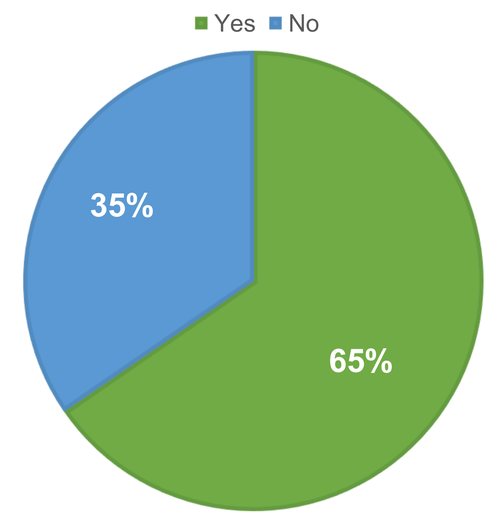

Figure 4: Number of respondents who modulate drug dosages on SLED

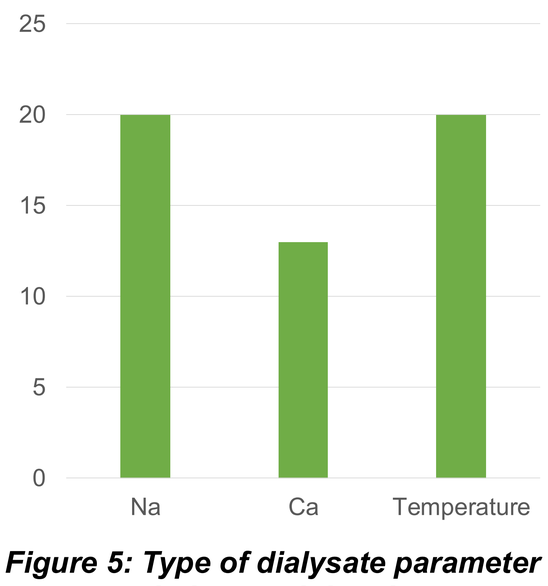

Figure 5: Type of dialysate parameter being modulated

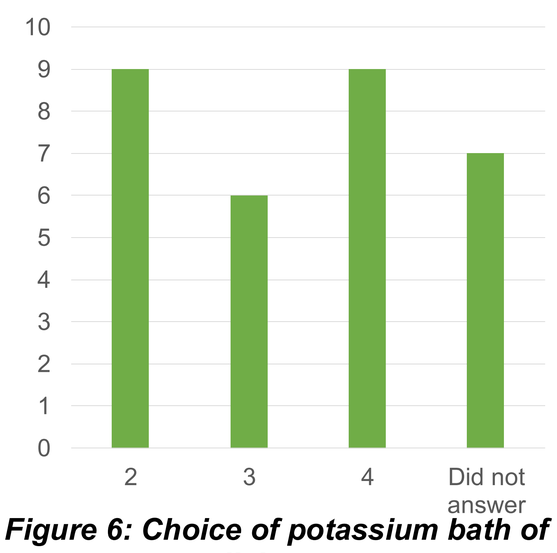

Figure 6: Choice of potassium bath of dialysate

Conclusion

There remains a lack of standardization in the prescription and monitoring of SLED across SEA countries. Further research is warranted to evaluate and compare clinical outcomes associated with different prescribing practices.

References

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[2]Marshall MR, Golper TA (2001). Sustained low-efficiency dialysis for critically ill patients requiring renal replacement therapy. Kidney International, 60, 777-785.