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Efficacy of nafamostat mesilate in pediatric continuous renal replacement therapy: A 5 year follow-up study

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Objectives: Nafamostat mesilate (NM) is an anticoagulation strategy widely used in Korea and Japan for patients with high risk of bleeding who require continuous renal replacement therapy (CRRT). Current center has presented NM protocol for pediatric patients in 2014 and subsequent anticoagulation was applied based on the protocol. This study aimed to verify the efficacy of the NM protocol in pediatric CRRT.

Methods: A retrospective study was performed in patients who had undergone at least 24 h of CRRT between January 2018 and December 2022 in Samsung Medical Center. Medical records including sex, age, duration of CRRT, anticoagulant use, filter lifespan, and laboratory findings were reviewed. According to the anticoagulation strategy applied, patients were grouped as no anticoagulation (group 1), NM (group 2), and heparin (group 3).

Results: A total of 107 patients (56 males and 51 females, mean age of 7.8±5.5 years) were enrolled. The mean duration of CRRT was 11.7 days and the survival rate was 61.7%. NM and heparin were administered to 38 and 27 patients respectively, while 42 patients received no anticoagulation. The mean filter life showed no significant differences between groups (none 32.1 h vs NM 26.7 h vs heparin 33.9 h, p=0.09). For 11 patients from group 2 who were added NM during CRRT, except 27 patients with NM anticoagulation from the initiation, hemofilter lifespan was extended from 19.8±7.7 to 27.0±9.4 h after the use of NM (p=0.03). No known complications related to NM use were detected. One patient experienced a minor bleeding of peritoneal dialysis (PD) catheter site during heparin use so that the anticoagulant was shifted to NM. Survival rate was not significantly different between groups.

Conclusions: NM is safe and not inferior to heparin as anticoagulant for CRRT in pediatric patients with risk of bleeding. Previously devised NM protocol is acceptable for pediatric patients.