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Efficacy and Safety Profile of Nafamostat in Patients receiving Continuous Renal Replacement Therapy: A Systematic review and Meta-Analysis

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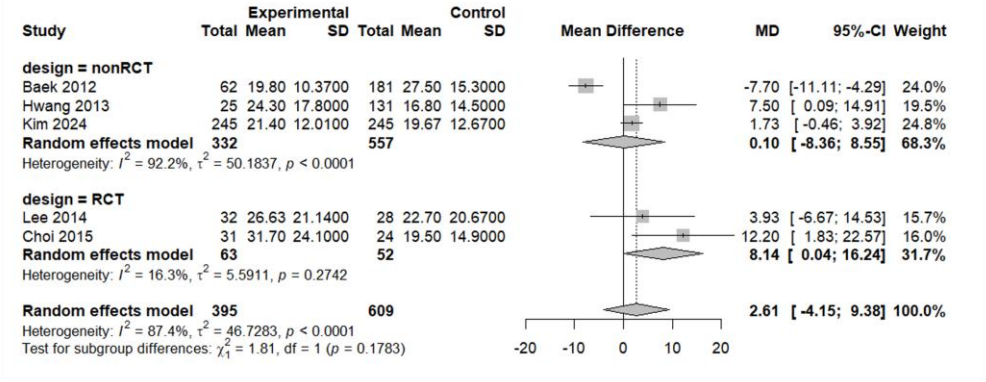
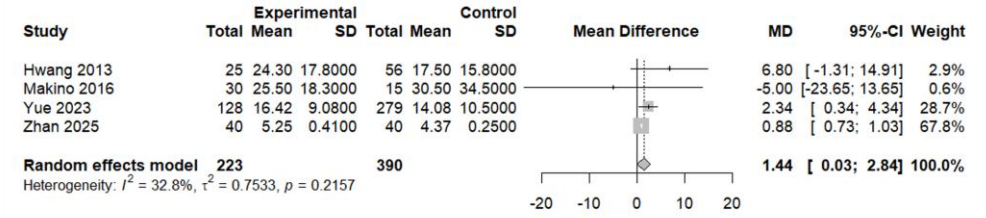
Objectives : To compare efficacy and safety profile between nafamostat and other anticoagulation approaches in patients receiving continuous renal replacement therapy (CRRT)
Methods : We conducted a systematic review with meta-analysis. We search OvidMedline, Scopus, Embase, Cochrane Library and EBSCO database from inception to Febuart 1st, 2025 for randomized controlled trials (RCT) and non-RCT comparing nafamostat versus other approaches, including non-coagulations, heparin and regional citra anticoagulation. ROB-2 was used to evaluate risk of bias of the included studies.
Results : We included 9 nonRCT and 2 RCT in this analysis. Most studies were conducted in South Korea, Japan and China. All 9 nonRCT were retrospective. Regarding Nafamostat's efficacy, meta-analysis of filter life span reveal an improved in lifespan as compared between Nafamostat and No-anticoagulation approach in high-risk bleeding patients, with a mean difference of 2.6 (95%CI -4.1 to 9.3) hours. Notably, data from two RCTs showed significant difference, at 8.14 (95% CI 0.04 to 16.24). Likewise, comparing between Nafamostat and heparin anticoagulation, a significant filter lifespan benefit was found, with a mean difference of 1.44 (95% CI 0.03 to 2.84) hours. However, compared to regional citrate anticoagulation, no significant difference was found, with a mean difference in filter lifespan at -4.63 (95% CI -15.25 to 5.99) hours. Regarding safety profile, bleeding events, rate of blood transfusion and other nafamostat-related adverse event (hyperkalemia, leukopenia, gastrointestinal symptoms) were comparable with other anticoagulation approach.
Conclusions : Based on limited evidence with certain risk of bias, nafamostat appeared to have beneficial effect on filter lifespan, especially when compared to no anticoagulation or heparin. Larger trials comparing RCA and nafamostat are guaranteed.

fig1.png

a. Nafamostat vs. No anticoagulation



b. Nafamostat vs. Heparin



c. Nafamostat vs. Regional Citrate Anticoagulation