KSN 2016 Abstract Submission

Acute Kidney Injury

KSN2016ABS-1081

The More DIC Gets Worse, The Less Dialyzer Clotting is Frequent in CRRT

Jae Won Yang*[1], Min Keun Kim[1], Jae Seok Kim[1], Seung Ok Choi[1], Byoung Geun Han[1]

[1]Internal Medicine, Yonsei University Wonju College of Medicine, Wonju, Korea, Republic Of

Background: CRRT (Continuous Renal Replacement Therapy) is a useful modality for acute kidney injury (AKI) with hemodynamic instability. CRRT needs continuous systemic anticoagulation to maintain extracorporeal circuit because the circuit is frequently interrupted by dialyzer clotting. Frequent dialyzer clotting reduces the efficiency of CRRT and may be related to consumption of platelet. Therefore, we aim to investigate which conditions contribute to frequent dialyzer clotting and dialyzer lifespan.

Methods: We investigated retrospectively the medical records of thirty patients who had been received CRRT from March to September in 2015. CRRT modes were all veno-venous hemodiafiltration. Heparin was used primarily for circuit anticoagulation in 4 patients, and nafamostat mesilate was used alternatively in 26 patients with current bleeding or getting high risk of bleeding. We investigated clinical situations, CRRT prescriptions and basic blood tests including DIC(disseminated intravascular coagulation) profile. Dialyzer lifespan was calculated as: CRRT maintenance time (hours) divided by the frequency of dialyzer membrane clotting. In addition, we estimated DIC severity by ISTH(The International Society for Thrombosis and Haemostasis) DIC scoring system.

Results: The results showed that D-dimer and FDP (fibrin degradation product) had significant positive correlations with dialyzer lifespan respectively (r=0.38, p=0.048 / r=0.40, p=0.041), while hemoglobin concentration, platelet count, PT(prothrombin time) and activated PTT (partial thromboplastin time) did not show the relationships with diaylzer lifespan. Transfusion of packed RBC(red blood cell), FFP(fresh frozen plasma) and platelet concentrate did not show the relationships with dialyzer lifespan, and clinical severity including initial mean blood pressure, urinary amount and APACHE (Acute Physiology And Chronic Health Evaluation) score also had no relationships. CRRT prescription including CRRT dose, blood flow and type of anticoagulation had no correlations with diaylzer lifespan. When compared with non-DIC group (n=20), DIC group (n=10) had longer dialyzer lifespan, but did not quite achieve statistical significance (DIC vs. non-DIC, 48.0±19.5 vs. 33.4±18.3 hours, p=0.052). When compared with non-sepsis group (n=11), sepsis group (n=19) had shorter dialyzer lifespan significantly (sepsis vs. non-sepsis, 32.2±16.1 vs. 48.8±21.3 hours, p=0.022).

Conclusion: Our study indicates that the more DIC gets worse, the less dialyzer clotting is frequent in CRRT. We believe that local predisposition to bleeding in DIC may play a role in preventing dialyzer clotting although PT and activated PTT had no significant relationships with it.

Keywords: CRRT, Dialyzer, DIC