Risk of CRBSI in CRRT

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Objectives: A temporary hemodialysis catheter is required to access efficient blood flow for continuous renal replacement therapy (CRRT) in intensive care unit. It has not been well studied the relationship between duration of the catheter and CRBSI. Therefore, we investigated that if the catheter duration prolonged, whether the CRBSI risk increases.

Methods: We observed 302 ICU patients who underwent CRRT from January, 1st, 2017 to June, 3rd, 2017 in Korea University Anam Hospital. Total 239 CRRT cases were reviewed. Catheter insertion procedure was standardized using Betadine sterilization method. We used Cox proportional hazard adjust model for multivariate analysis. This is retrospective observational single-center study. (IRB No.2017AN0310)

Results: 66 (23%) CRBSI events reported during 1056 days of CRRT. The most common pathogen was gram positive including Staphylococcus aureus. The average age of both groups was quite young, the disease severity and comorbidities are not significantly different between the groups except the CRBSI group had prolonged RRT days, more septic, more cirrhotic liver condition. The multivariate logistic regression analysis shows that after adjusting all of these factors, the catheter duration is a risk factor for CRBSI in statistically significant manner, no matter the location was. Among the underlying comorbidities, sepsis is a significant risk factor as we can obviously predict. The gram positive pathogen was also one of the significant risk factors.

Conclusions: One-third of patients undergo CRRT experienced CRBSI. The femoral temporary hemodialysis catheter position was not inferior to other location. As the multivariate analysis showed, temporary hemodialysis catheter duration was a significant risk factor for AKI, so it should be removed as soon as possible regardless of location.