



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

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Convection Volume and Hemodiafilter Selection in Post-Dilution On-line Hemodiafiltration

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Objectives : High-dose HDF with a convection volume (CV) of ≥ 23 L provides superior removal of middle molecules, thereby potentially contributing to reduction in the mortality risk. We hypothesized that if a super high-flux hemodiafilter is used, it may not be necessary to secure a CV of ≥ 23 L. This study examined the removal efficiency of large-middle molecules using post-dilution online (OL)-HDF with a CV of 7–12 L by comparing three types of hemodiafilters used at our institution.

Methods : This single-center retrospective observational study (Approval No. JSTB 2024-002) included patients undergoing post-dilution OL-HDF (CV 7–12 L, $Q_B = 220$ –300 mL/min, $Q_D = 350$ mL/min) with FIX-S eco (n=19), MFX-UW eco (n=11), or ABH-PA (n=7). Previously collected laboratory data were analyzed to compare the solute removal efficiencies. The evaluated parameters included spKt/V and the reduction rates of creatinine, β_2 -microglobulin (β_2 -MG), and α_1 -microglobulin (α_1 -MG).

Results : There were no significant differences in the spKt/V or reduction rates of creatinine among the three hemodiafilters. The reduction rate of β_2 -MG was significantly higher with MFX than with FIX ($p = 0.017$). Even within a CV range of 7–12 L, sufficiently high α_1 -MG reduction rates were achieved with all the three filters (FIX: $37.9 \pm 5.7\%$; MFX: $40.5 \pm 5.4\%$; ABH: $29.9 \pm 5.8\%$), although the α_1 -MG reduction rate with ABH-PA was significantly lower than that with the other two hemodiafilters (vs. FIX: $p = 0.0061$; vs. MFX: $p = 0.0292$). Our findings suggest that even with a relatively low CV, high removal efficiency of large-middle molecules can be achieved by selecting the appropriate hemodiafilter.

Conclusions : The removal efficiency of large-middle molecules in post-dilution OL-HDF is influenced not only by the convection volume, but also significantly influenced by the choice of the hemodiafilter.