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Effect of Expanded Hemodialysis on inflammatory cytokines: 3-year cohort study

Nam-Jun Cho, SeungHyun Jung, Ka Young Lee, Jin Young Yu, Samel Park, Eun Young Lee, **Hyo-Wook Gil**
Department of Internal Medicine-Nephrology, Soonchunhyang University Cheonan Hospital, Korea, Republic of

Objectives: Expanded hemodialysis (HD) equipped with a medium cut-off (MCO) membrane provides superior removal of larger middle molecules. However, there is still little research on the long-term benefits of expanded HD. This observational study evaluated the efficacy of expanded HD for inflammatory cytokine including IL-6 and safety profile over three years.

Methods: Our study included a prospective cohort study to investigate the inflammatory cytokine changes and a retrospective observational cohort study to investigate the long-term clinical efficacy and safety during three years. The patients were categorized according to their dialyzer: MCO and high flux (HF) dialyzer. The inflammatory cytokines including IFN-γ, IL-1β, IL-6, and TNF-α were measured annually.

Results: The concentrations and changes over time of the four cytokines did not differ between HF group (n = 15) and MCO group (n = 27). There was no significant difference in death, cardiovascular event, infection, and hospitalization between the two groups in prospective and retrospective cohorts. Also, the temporal changes of laboratory values including serum albumin and erythropoietin prescription amount were not significantly different between the two groups in prospective and retrospective cohorts.

Conclusions: Inflammatory cytokine was not different in expanded HD compared with HF dialysis during 3-year treatment, although the level of inflammatory cytokine was stable, which could explain the biocompatibility of expanded HD.