KSN 2021
FULLY VIRTUAL MEETING
September 02 (Thu) - 05 (Sun)

Abstract Submission No. : 9114

Expanded hemodialysis

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Although survival and quality of life in hemodialysis patients have improved compared with the past, results are still unsatisfactory. This issue may be because current dialysis membranes are not able to remove the full spectrum of uremic toxins accumulated in the body. New strategies and solutions are definitely required to respond to unmet clinical needs.

A new class of membrane called medium cut-off (MCO) has been recently introduced. The MCO membranes have wider pores and more uniformity in pore size, allowing an increased clearance of uremic toxins. Because of the mechanism of internal filtration/backfiltration, middle molecules are dragged by the convective forces, and no substitution solution is needed. Expanded hemodialysis (HDx) is defined when the MCO membrane is used with conventional hemodialysis machine.

The better performance of removing large uremic toxins in HDx has been documented by some randomized controlled trials, but the removal of albumin in HDx could larger than that in high-flux HD. Data on patient outcomes including the cardiovascular disease risk and patient-reported outcome have been also revealed; and the randomized controlled trial named CARTOON was firstly performed from the dialysis units of four tertiary referral hospitals in South Korea to compare cardiovascular parameters between HDx and online-hemodiafiltration (HDF). Accordingly, HDx was not inferior to online-HDF in terms of cardiovascular risk according to the change trends in the values of brachial-ankle pulse wave velocity, echocardiography, and other blood biomarkers. Additionally, the changes in patient-reported outcomes did not differ between the two groups. In addition to this study, future trials will continue to provide evidence on a good option of HDx regarding better outcomes than the previous ones.