KSN 2020
FULLY VIRTUAL MEETING

Abstract Type : Oral
Abstract Submission No. : OR-1660

Novel medium cut-off dialyzer improves erythropoiesis stimulating agent resistance in maintenance hemodialysis patients: a randomized controlled trial

Jeong-Hoon Lim[1], Ju-Min Yook[2], Soon-Youn Choi[2], Hee-Yeon Jung[2], Ji-Young Choi[1], Sun-Hee Park[2], Chan-Duck Kim[2], Yong-Lim Kim[2], Jang-Hee Cho[2]
[1]Department of Internal Medicine-Nephrology, Kyungpook National University Chilgok Hospital, Korea, Republic of
[2]Department of Internal Medicine-Nephrology, Kyungpook National University Hospital, Korea, Republic of

Objectives: Anemia is a common complication of end-stage renal disease (ESRD) necessitating erythropoiesis-stimulating agents (ESA) for treatment. The response to ESA is affected by inflammation linked to middle molecules. The impact of medium cut off (MCO) membranes which effectively clear middle molecules was evaluated in hemodialysis (HD) patients.

Methods: Fifty patients who underwent high-flux HD for more than 3 months were randomly allocated into the MCO or high-flux group. Erythropoietin resistance index (ERI; U/kg/week/g/dL) was assessed between the two groups. Biomarkers associated with iron metabolism and inflammation were also measured.

Results: MCO group showed significant decrease in ESA dose, weight-adjusted ESA dose, and ERI compared to high-flux group at 3 months (all $P<0.05$). In the MCO group, ESA dose, weight-adjusted ESA dose, and ERI had significant decrease at 3 months compared to baseline (all $P<0.01$). Serum iron and transferrin saturation were elevated higher in MCO group at 3 months (both $P<0.05$). MCO group showed no difference in reduction ratio of serum hepcidin compared to high-flux group. However, they showed significant decrease in serum hepcidin level compared to the baseline ($p=0.043$) and greater reduction of TNF-α compared to high-flux group ($P=0.025$).

Conclusions: Novel MCO dialyzer improved ESA resistance compared to high-flux dialyzer. It would be associated with the better removal of inflammatory cytokines, which in turn affects the iron metabolism. HD using MCO dialyzer could be a valid treatment option for ESRD patients to improve ESA resistance.

Figure 1. Changes of monthly ESA, weight-adjusted ESA, and ERI in MCO and high-flux groups.

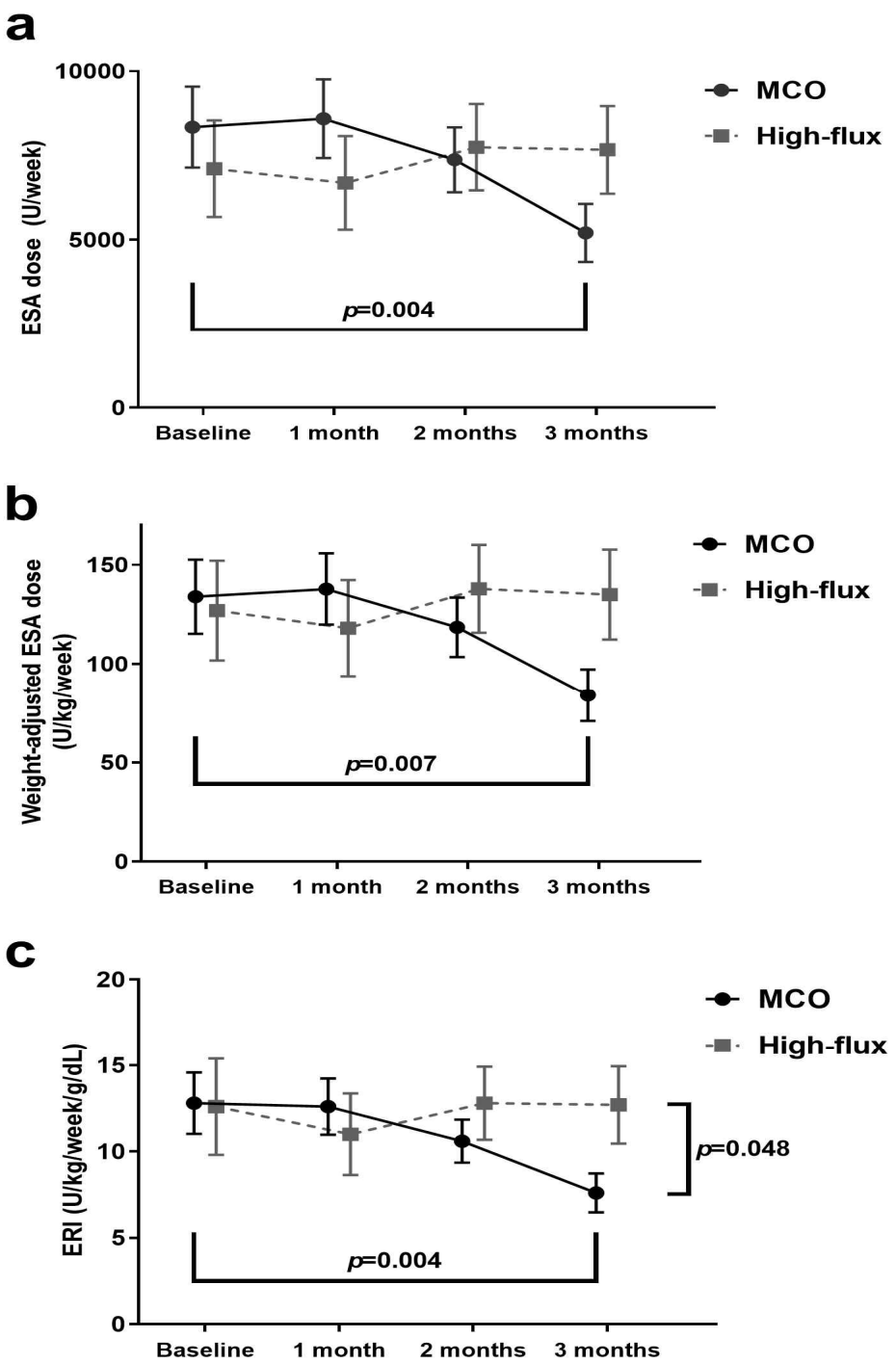

Figure 2. Iron metabolism regulatory pathway