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Next-Generation Dialysis Therapy: Online HDF and Novel High-Performance Dialyzers in Japan

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In 2021, a review on the new definition and classification of uremic toxins was published in the *Clinical Journal of the American Society of Nephrology*. This review discusses the importance of removing middle-molecular-weight uremic toxins and the blood purification modalities that effectively remove them. In Japan, the Japanese Society for Dialysis Therapy (JSDT) established the "Standard on Microbiological Management of Fluids for Hemodialysis and Related Therapies" in 2008. In 2010, the "Water Quality Assurance Surcharge for the Purification of Dialysis Water and Dialysis Solutions" was introduced, and in 2012, "On-line HDF therapy" became eligible for health insurance reimbursement. Since 2012, the number of patients treated with online HDF therapy in Japan has risen to 139,222, while the number of patients treated with I-HDF therapy has risen to 64,489 (JSDT survey, as of December 31, 2024). In addition, the "Functional Classification of Blood purifier: Hollow Fiber Type" was revised by the JSDT in 2013. In this revision, blood purifiers were classified into four categories based on β2-microglobulin (β2MG) clearance (70 mL/min or higher vs. less than 70 mL/min) and the albumin sieve coefficient (0.03 or higher vs. less than 0.03). In Japan, online HDF is frequently performed in the pre-dilution mode, and more than 40 liters of replacement fluid is typically used In hemodialysis as well, dialyzers with a β2-microglobulin clearance of 50 mL/min or higher account for the majority of cases, and dialyzers with a β2-microglobulin clearance of 70 mL/min or higher are used in more than 33% of cases, meaning that so-called high-flux and super-high-flux dialyzers are predominantly used. In this presentation, we will report on the current status of maintenance hemodialysis therapy in Japan, as well as the initiatives undertaken by the JSDT.

Keywords: On line HDF, High flux dialyzer, Super high flux dialyzer