



Lecture Code : DN01-S1

Session Name : Dialysis Nurse Course 1

Session Topic : Dialysis Nurse Course 1

Date & Time, Place : June 14 (Sun) / 08:30-10:30 / Room 1+2 (GBR 101+102), 1F

Assessing and Improving Dialysis Adequacy for Optimizing Peritoneal Dialysis (복막투석 치료 최적화를 위한 투석적절도 평가 및 개선전략)

Junseok Jeon

Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea

The concept of peritoneal dialysis (PD) adequacy has undergone a substantial transformation over the past three decades. Early landmark studies, including the CANUSA study (1996) and the ADEMEX trial (2002), established solute clearance targets such as Kt/V_{urea} as the primary metric for PD adequacy. However, subsequent reanalysis of the CANUSA data revealed that residual kidney function (RKF), rather than peritoneal clearance per se, was the principal driver of survival. The ADEMEX trial further demonstrated that increasing peritoneal Kt/V beyond 1.7 conferred no additional survival benefit. These findings prompted a fundamental paradigm shift, culminating in the 2020 International Society for Peritoneal Dialysis (ISPD) practice recommendations, which advocate a goal directed, person centered, and multidimensional framework for PD adequacy assessment. This lecture reviews the evolution from single target solute clearance to a comprehensive adequacy model that integrates volume status, nutritional parameters, patient reported outcome measures, and quality of life alongside small solute clearance. The assessment of volume status incorporates both clinical evaluation and objective tools such as bioimpedance spectroscopy, natriuretic peptide levels, and lung ultrasound. Small solute clearance remains a useful monitoring parameter, though its limitations are emphasized, including significant estimation errors in total body water calculation using the Watson formula and the nonequivalence of peritoneal and renal clearance. Nutritional assessment through the Subjective Global Assessment, serum albumin, normalized protein nitrogen appearance, and body composition analysis complements traditional adequacy metrics. Strategies for improving PD adequacy are discussed across several domains. Preservation of RKF is highlighted as one of the most impactful interventions,

achieved through avoidance of nephrotoxins, use of renin angiotensin aldosterone system inhibitors, diuretic therapy, and biocompatible PD solutions. Incremental PD, endorsed by the 2020 ISPD guidelines, is presented as a safe and effective approach for patients with preserved RKF, offering benefits including reduced peritoneal glucose exposure, lower peritonitis risk, and improved quality of life. Prescription optimization strategies are outlined for both continuous ambulatory PD and automated PD, with emphasis on peritoneal equilibration test guided adjustments, icodextrin use for long dwells, and adapted APD based on individual peritoneal kinetics. Emerging evidence on remote monitoring in automated PD is reviewed, including a recent cluster randomized controlled trial demonstrating significant reductions in mortality, cardiovascular events, and hospitalizations with remote monitoring integration. Special considerations for anuric patients, rapid transporters, obese individuals, and elderly or frail populations are addressed, reinforcing the need for individualized, patient centered care. The lecture concludes with a practical clinical framework that positions PD adequacy as a dynamic, multidimensional construct requiring ongoing reassessment and shared decision making between patients and healthcare teams.

Keywords: Peritoneal dialysis adequacy, Goal-directed peritoneal dialysis, Residual kidney function, Incremental peritoneal dialysis, Remote monitoring