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Incremental peritoneal dialysis

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The number of new patients who started renal replacement therapy (RRT) for end-stage renal disease (ESRD) was 18,642, including 15,587 (83.6%) with hemodialysis (HD), 762 (4.1%) with peritoneal dialysis (PD), and 2,293 (12.3%) with kidney transplantation (KT) at the end of 2019 in Korea. Although the incident rate of PD was significantly decreased compared to the past, PD is also important RRT for ESRD patients. It is important that dialysis should be prescribed using shared decision-making, with the aim of minimizing symptoms and treatment burden and maintaining quality of life (QOL), considering the lack of evidence that small solute clearance affects patient outcomes. ISPD guideline defined iPD as less dose PD prescription than standard 'full-dose' PD in initiating PD. It is done with the intention of increasing the peritoneal prescription when residual kidney function (RKF) declines.

PD can be delivered in various methods with lowered indwelling volume, fewer exchange number, or including dry periods or days off PD, according to patients' lifestyle and clinical condition. Incremental prescription for PD patients is main point of iPD although iPD implies lower frequency or lowered total dwelling time of PD compared to full dose PD. This prescription may help improve QOL and life participation through reducing time requirements and burden of treatment. Initially reduced dwell volumes with 1000 mL and only one or two PD exchanges could reduce discomfort or complications related to the volume, pressure, and weight of their indwelling PD fluid, such as back pain, peritoneal fluid leaks and gastroesophageal reflux. Patients with RKF and less uremic condition could be maintained with incremental prescription for some time before requiring full dose PD for clinical or biochemical reasons.

Additionally, iPD may have several benefits such as preservation of RKF, reduced risk of peritonitis, lower peritoneal glucose exposure, and reduced costs. On the contrary, iPD could potentially contribute to reduced small solute clearance, fluid overload, or patient reluctance to increase dialysis prescription when later needed. IPD can be useful in patients with RKF and RKF was well preserved and similar survival was shown in iPD compared to full dose PD in previous retrospective study. Through reduced number or volume of PD exchanges, or use of icodextrin-only regimens, iPD can reduce peritoneal glucose exposure, which may be beneficial for membrane preservation and mitigating the systemic effects of high glucose exposure including weight and fat gain, hyperglycemia, dyslipidemia, accelerated decline in RKF, and metabolic syndrome. Diabetic iPD patients had significantly longer survival and less hospitalization than full dose PD patients in another retrospective study. Prospective clinical trials are necessary to confirm the clinical outcome and to use adequate routine practice of iPD.