

International Icodextrin Use and Association with Peritoneal Membrane Function, Fluid Removal, Patient and Technique Survival

ANN ARBOR, MI, USA -

The Dialysis Outcomes and Practice Patterns Study (DOPPS) Program at Arbor Research Collaborative for Health is pleased to announce the publication of our Peritoneal DOPPS manuscript titled, **International Icodextrin Use and Association with Peritoneal Membrane Function, Fluid Removal, Patient and Technique Survival** which is now accessible in Kidney360 ([read the paper here](#)) and describes international icodextrin prescription practices and their relationship to clinical outcomes.

Background

Poor peritoneal ultrafiltration contributes to volume overload and higher mortality risks, with poor ultrafiltration being an important reason PD patients transfer to hemodialysis. Higher mortality risks also are seen in PD patients who have a higher than average peritoneal solute transfer rate which is believed to result in lower net ultrafiltration and greater fluid reabsorption leading to poorer survival. Under these circumstances, guidelines recommend icodextrin to be used.

Icodextrin is a high molecular weight glucose polymer developed as an alternative osmotic agent to glucose for use during the once-daily PD long-dwell exchange (8-16 hrs) for solute removal. In randomised clinical trials, icodextrin use during the long dwell has provided benefits for fluid management by improving volume status, increasing ultrafiltration compared to glucose, and reducing the likelihood of overhydration. Meta analyses of such trials has indicated a trend towards lower mortality with use of icodextrin. In this new paper, Simon Davies and colleagues used international PDOPPS data from 2014-2021 to describe international icodextrin prescription practices and their relationship to clinical outcomes.

Key findings from this manuscript include:

- Across all countries icodextrin was more likely used if membrane function tests indicated reduced ultrafiltration capacity to glucose.
- Much lower icodextrin use for the long dwell was seen in US PD patients (17%) vs 43-56% in other high-income PDOPPS countries (Australia, New Zealand, Canada, Japan, and United Kingdom). Reasons for the more restricted use in the US are unclear, although % of centers undertaking routine membrane function testing also was the lowest in the US which may impact icodextrin use. Considerable variability was seen in icodextrin use and in routinely performing membrane testing across facilities in every country.
- Where icodextrin use was low, there was greater use of high glucose & overall higher ultrafiltration volumes at each level of residual renal function defined by urinary output.
- These data suggest that icodextrin is being used selectively to maintain sufficient ultrafiltration in PD patients with less efficient membranes and to avoid excessive use of

hypertonic glucose. The US is exceptional in which the typical practice was to use high glucose solutions instead of icodextrin in patients with less efficient membranes.

- Additionally, icodextrin was more frequently prescribed when cardiovascular or diabetic comorbidity was present, and when residual kidney function was lower, or time receiving PD therapy was longer.
- Analysis did not find a beneficial association between icodextrin use and patient survival or hemodialysis transfer. However, since icodextrin was preferentially used in patients with risk factors for worse volume status and greater cardiovascular and diabetes comorbidity, overcoming treatment-by-indication bias was a limitation in assessing these outcomes.

[Read the paper here](#)

About the DOPPS Program: Our goals are to improve the experience of patients with kidney disease by understanding current clinical practice, identifying practices associated with best outcomes, and serving as a resource for the kidney community. Started as a hemodialysis study in 1996, the DOPPS Program now follows over 70,000 patients at more than 750 clinical sites in approximately 20 countries. We focus on the lives of individuals with advanced non-dialysis chronic kidney disease (CKDopps) or with kidney failure treated by in-center hemodialysis (DOPPS) or peritoneal dialysis (PDOPPS).

The DOPPS Program is funded by a consortium of private industry, professional societies, and public funding sources. Please visit DOPPS.org to learn more about the DOPPS Program, our support, and opportunities for collaboration.

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