

STEADY CONCENTRATION PD AS AN ALTERNATIVE TO ICODEXTRIN

Martus G⁴, Heimbürger O³, Wilkie M⁵, Hegbrant J⁶, Carlsson O¹, Johansson A¹, de Leon C¹, Johansson A²

1. Triomed AB, Lund, Sweden.
2. Department of Nephrology, Skåne University Hospital, Malmö, Sweden.
3. CLINTEC, Karolinska Institute, Karolinska University Hospital, Solna, Sweden.
4. Renal Unit, Skåne University Hospital, Lund, Sweden.
5. Sheffield Kidney Institute, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, United Kingdom.
6. Department of Nephrology, Lund University, Lund, Sweden.

Objectives

Fluid overload is a major issue in PD, which may be addressed using icodextrin for the long dwell. Carry Life® UF is a novel portable PD device utilizing steady concentration PD (SCPD) for patients requiring additional fluid removal. The therapeutic concept is to maintain a stable dialysate glucose concentration by administering glucose throughout the dwell, to compensate for glucose uptake. A small amount of the dialysate is cyclically drained into the device and a glucose concentrate is added before the fluid is returned to the patient. The aim of this study was to compare ultrafiltration volumes (UFV), sodium removal, and albumin loss using Carry Life® UF and icodextrin.

Methods

Eight stable PD patients treated with CAPD or APD were included in the study. Subjects were treated with three 5-hour Carry Life® UF treatments at increasing glucose doses (11, 14, 20 g/h). An overnight icodextrin dwell (2000 ml, 7.5%,) preceded each treatment with Carry Life® UF. The Carry Life® UF treatments used a 1500 ml, 1.36% glucose initial fill. A small amount of fluid was drained from the peritoneal cavity once every hour to avoid overflow. Data expressed as mean ± SD, statistical analysis using one-way ANOVA, ***p<0.001.

Results

Treatment	Treatment time (hours)	UFV (ml/treatment)	Albumin loss (g/treatment)	Sodium removal (mmol/treatment)
Icodextrin	11.4±1.4	595±239	2.8±1.2	88±34
Carry Life® UF	11 g/h	5.2±0.3***	646±251	1.4±0.57***
	14 g/h	5.1±0.3***	739±312	1.3±0.49***
	20 g/h	5.2±0.2***	863±381	1.2±0.44***

Conclusions

Carry Life® UF removed the same amount of fluid and sodium during five hours as Icodextrin during 11 hours. Due to the shorter treatment time, Carry Life UF treatment was associated with a significant reduction in albumin loss. In conclusion, Carry Life® UF using SCPD is a promising alternative to icodextrin, enabling increased UF and sodium removal rates.