



9 December 2019

Dear Kidney Society,

I would like to send you a copy of a summary of the findings of The SOLID trial, which was a trial undertaken in 99 home and self-care haemodialysis patients at 11 sites across NZ. The trial was commenced in April 2012 and participant visits were completed in 2016.

I have included a technical summary of the final research article along with this letter, as well as a schematic that explains the trial and its results in a plain way.

This trial is perhaps the largest, most complex, multi-centre, investigator led grant trials conducted in NZ to date. I hope you will find the results interesting.

Please contact me directly if you have any further questions about the trial.

Sincerely,

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Abstract of final scientific article

Background: Cardiovascular (CV) disease is a leading cause of mortality in hemodialysis (HD) patients. A modifiable risk factor is fluid overload. We test whether lower dialysate [Na⁺] during HD reduces left ventricular (LV) mass over 12 months.

Methods: This was a 2-group, randomized, controlled, assessor-blinded clinical trial. Key inclusion criteria: aged > 18 years, receiving home/self-care HD, pre-dialysis serum [Na⁺] ≥ 135mM. Key exclusion criteria: HD frequency > 3.5 times/week, sodium profiling, hemodiafiltration. The intervention was dialysate [Na⁺] 135mM versus 140mM for 12 months. The main outcome was LV mass index by cardiac magnetic resonance imaging.

Results: 99 participants were randomized. Median (interquartile range) age 51 (42, 60) years, 67 were male, 31 had diabetes mellitus, and 59 LV hypertrophy. Relative to control, dialysate [Na⁺] of 135 mmol/L did not change LV mass index [effect estimate (95% confidence intervals, CIs) -3.94 (-10.52, 2.63) g/m² at 12 months], despite reduction in interdialytic weight gain [-0.56 (-0.90, -0.22) and -0.57 (-0.86, -0.27) kg at 6 and 12 months, respectively], extracellular fluid volume [-0.90 (-1.63, -0.18) and -0.60 (-1.48, 0.26) L], and plasma brain natriuretic peptide concentration [intervention/control (95% CIs) 0.43 (0.23, 0.78) and 0.49 (0.27, 0.90)]. The intervention increased intra-dialytic hypotension [odds ratio (95% CIs) 7.5 (1.1, 49.8) and 3.6 (0.5, 28.8) at 6 and 12 months]. There was no effect on quality-of-life, perceived thirst or xerostomia, or dietary sodium intake. Five participants in the intervention arm could not complete the trial due to hypotension.

Conclusions: Dialysate [Na⁺] of 135 mmol/L did not reduce LV mass relative to control, despite improving fluid status.