

This is a Fresenius Medical Care summary of:

Association between peritoneal glucose exposure and peritonitis in peritoneal dialysis patients: the balANZ trial

Nataatmadja M et al., Australia. Perit Dial Int. 2017;37:407–413

Introduction

Glucose is the most widely used osmotic agent in peritoneal dialysis (PD) even though it is known to have both systemic and local adverse effects.

Both glucose and glucose degradation products (GDPs) may affect immunological and inflammatory responses.

Objective

Data from the balANZ study were used to analyse the association between peritoneal glucose exposure and parameters of peritonitis.

Design

The balANZ trial was a multicentre, open-label, randomised, controlled study comparing preservation of residual renal function of a neutral-pH, low-GDP with a conventional PD fluid. Peritonitis episodes were a secondary outcome parameter.

A total of 185 incident patients were followed up over 2 years. Of these, the 177 subjects (low-GDP PD fluid, n=89; conventional PD fluid, n=88) with recorded baseline glucose exposure were included in this post-hoc analysis. Subjects were assigned to the low-glucose exposure group (lGlu, n=102) or the high-glucose exposure group (hGlu, n=75), depending on whether their baseline daily glucose exposure was below or above the population mean of 123.1 g/day.

Results

Baseline and therapy characteristics were similar for both groups, but hGlu patients had a higher body mass index, lower urine volume, a lower APD rate, and tended to have lower ultrafiltration.

- A significant increase in PD fluid glucose exposure was observed during follow-up, which was more pronounced in the lGlu group ($p < 0.001$).
- lGlu patients and hGlu patients experienced a similar number of peritonitis episodes per patient year (0.44 and 0.31, respectively; $p = 0.09$). There was also no significant difference in peritonitis-free survival: the hGlu unadjusted hazard ratio (HR) was 0.66 (95% CI 0.40–1.08) and the hGlu adjusted HR was 0.64 (95% CI 0.39–1.05).
- Use of low-GDP PD fluid was the only independent predictor of peritonitis-free survival (adjusted HR 0.55, 95% CI 0.34–0.89).
- There were no significant differences between the lGlu and hGlu groups in terms of micro-organisms causing peritonitis, peritonitis severity, duration, relapses, hospitalisation, transfer to hemodialysis due to peritonitis, or fatal outcome.

Conclusion

This post-hoc analysis of data from the balANZ trial showed no significant differences in the rates of peritonitis and associated peritonitis parameters between patients with a high peritoneal glucose exposure and those with a lower exposure.