

PERITONITIS RATES IN PATIENTS DIALYZED WITH A LOW GDP SOLUTION: Secondary Analysis of a Randomized Controlled Trial

Tabo Sikaneta¹, George Wu², Anita Ng¹, Mohamed Abdoell³, Tony Tu¹, Sara Mahdavi¹, Carlene McLean¹, Janet Roscoe¹, Denise Tam¹, Simon Tsui¹, Gordon Nagai¹, Robert Ting¹, Jason Fung¹, Dimitrios Oreopoulos⁴, Mathew Tong⁵, Paul Tam¹

¹The Scarborough Hospital, Scarborough, ON Canada, ²Credit Valley Hospital, Mississauga, ON, Canada, ³Dalhousie University, Halifax, NS, Canada, ⁴The Toronto Western Hospital, Toronto, ON, Canada, ⁵Princess Margaret Hospital, Hong Kong.



Introduction

We recently completed a randomized multi-national study examining the effects on residual renal function of a biocompatible peritoneal dialysis solution (Gambrosol Trio®)

Purpose

We found higher peritonitis rates in patients receiving Gambrosol Trio® and wished to describe this finding further.

Methods

Secondary analysis of peritonitis events in a single-blind controlled trial involving 99 patients in two centers in Toronto and one in Hong Kong assessing the effects of Gambrosol Trio® relative to standard peritoneal dialysis solutions (Baxter products) on residual renal function. Statistical analysis: Between-group proportions of patients with peritonitis were adjusted using the Bonferroni correction for multiple testing. Fischer's exact test was used to compare frequencies of peritonitis episodes between groups.

Results

Peritonitis episodes: Fifty patients were randomized to receive Gambrosol Trio® and 49 to receive standard solution.

There were 53 episodes of peritonitis in 27 patients treated with Gambrosol Trio® and 22 episodes in 15 patients receiving standard solutions. There was no significant between-group difference in the proportion of patients with peritonitis (0.54 vs 0.31, $p > 0.05$) or number of episodes per patient with peritonitis (1.96 vs 1.47, $p = 0.3012$).

Frequency of peritonitis episodes per patient ($p = 0.3099$, Fisher's Exact Test)

Number of peritonitis episodes per patient	Number of Patients	
	Gambrosol Trio®	Standard
5 or more	1	0
4	3	1
3	5	1
2	6	1
1	12	12

Peritonitis episodes per month by centre

Centre	Gambrosol Trio®	Standard solution
Scarborough	14/30	31/53
Mississauga	27/53	56/3
Hong Kong	20/57	70/29
Overall	17/66	47/24

Causative organisms of peritonitis episodes

	Gram Negative	Gram Positive	Mixed organisms	Culture Negative	Tuberculosis	Candida species
Gambrosol Trio®	15 (28.3%)	18 (34%)	6 (11.3%)	12 (22.64%)	1 (1.89%)	1 (1.89%)
Standard Solution	4 (18.18%)	9 (40.91%)	3 (13.63%)	6 (27.27%)	0 (0%)	0 (0%)

Results

Effect on residual renal function: Residual renal function rates decline according to peritonitis status (rather than by PD solution) were not different from overall renal function decline.

Effect on technique survival: Five patients treated with Gambrosol Trio® vs two patients developed refractory peritonitis and required switch to hemodialysis.

Conclusion

Compared to those receiving standard PD solutions, patients receiving Gambrosol Trio® solutions experienced a non-significant increase in the incidence of peritonitis episodes. This effect was seen across the three participating centres. More infections from gram-negative organisms were observed in the Gambrosol Trio® arm, and more gram-positive infections were seen in the standard solution arm.