

Taurolidine versus heparin lock to prevent catheter-related bloodstream infections (CRBSI) in patients on home parenteral nutrition: a prospective randomized trial

T. Bisseling¹, M. Willems², M. Versleijen¹, R. Vissers¹, G. Wanten¹. Departments of ¹Gastroenterology and Hepatology and ²Vascular Surgery, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands

Background: CRBSI, mainly occurring in a subset of patients, remain the major threat for the success of any Home Parenteral Nutrition (HPN) program. Taurolidine, an antimicrobial agent without known side effects, holds promise as an effective catheter lock to prevent CRBSI. A randomized controlled trial in HPN patients, however, was lacking so far.

Objective: to evaluate the effect of taurolidine versus heparin catheter lock on the occurrence of CRBSI in patients who recently developed an episode of catheter sepsis.

Methods: Between April 2006 and March 2008, 30 HPN patients from one referral center, overall harboring 80 patients, were enrolled after developing CRBSI, as proven by positive blood cultures and the absence of other infectious foci. Following adequate treatment of the infection, either with or without a new access device (Hickman catheter or Port-a-Cath), these patients were randomized to continue HPN using heparin (5 mL, 150 U/mL, controls), or taurolidine (5 mL, 2% solution) to lock their access device.

Results: Whereas in the heparin control group (14 patients; 4 males; mean age 50 yrs) during the observation period 10 re-infections were observed (73%; mainly due to *Staphylococcus sp*), in the taurolidine group (16 patients; 4 males; mean age 56 yrs) during 5370 catheter days only 1 re-infection (6%; with *Candida*) occurred (mean infection-free survival 155 (95% CI 67-243; heparin) versus 641 (95% CI 556-727; taurolidine) days; log-rank $p < 0.0001$). No side effects were reported in either group. Moreover, after crossing-over of the 10 patients with infections on heparin to taurolidine, only 1 re-infection has occurred so far. Of note, neither in controls nor in the taurolidine group, any catheter occlusions were observed.

Conclusion: Taurolidine lock dramatically decreased CRBSI when compared with heparin in this group of HPN patients with proven susceptibility to infections.