



Intravenous literature: Schindler, R., Heemann, U., Haug, U., Stoelck, B., Karatas, A., Pohle, C., Deppisch, R., Beck, W. and Hollenbeck, M. (2010) Bismuth coating of non-tunneled haemodialysis catheters reduces bacterial colonization: a randomized controlled trial. *Nephrology, Dialysis, Transplantation*. Mar 17.

Abstract:

BACKGROUND: Haemodialysis (HD) catheter-related blood stream infections are a major cause of morbidity and mortality in patients with acute and chronic renal failure.

METHODS: We conducted a randomized, prospective, double-blinded trial investigating the clinical value of bismuth-coated non-tunneled HD catheters in patients in need of temporary short-term vascular access. A standard catheter (SC) was compared to a surface-modified, bismuth-film-coated catheter (FCC). After removal of the catheter for any reason, both arterial and venous lumina were rinsed and the fluid cultured for detection of bacterial colony-forming units (CFU). The catheter tip was placed in a tube containing sterile saline, sonicated and shortly centrifuged to remove debris (3 min at 1000 g). The supernatant was cultured and assayed for DNA content.

RESULTS: Seventy-seven patients in three HD units were randomized. Thirteen patients suffered from acute renal failure, 60 patients from chronic renal failure, and four patients without renal insufficiency were treated with plasma exchange. The time to catheter removal was not significantly different between groups, with a mean of 18.5 +/- 2 days for SC and

15.1 +/- 2 days for FCC. In most cases, the reasons for catheter removal were related to no further need for extracorporeal therapy or establishment of a permanent vascular access. Six catheters for SC and four catheters for FCC were removed because of presumed infection. Bacterial colonization was significantly lower for coated catheters compared to standard catheters, both for cultured catheter tips as well as for CFU in rinse fluids ($P < 0.05$).

CONCLUSIONS: Surface modification with bismuth film reduces bacterial colonization of temporary non-tunneled HD catheters in a clinical trial. Larger trials with these modified catheters are justified to further investigate the effect on catheter-related infections, complications and costs.

