

## **EMERGENCE OF GENTAMICIN-RESISTANT BACTEREMIA IN HEMODIALYSIS PATIENTS RECEIVING GENTAMICIN LOCK CATHETER PROPHYLAXIS**

Stephen Sweet,<sup>1,3</sup> Stephen Gobeille,<sup>3</sup> Daniel Landry,<sup>1</sup> Sarah Haessler,<sup>2</sup> Chirag Vaidya,<sup>1</sup> Gregory Braden.<sup>1,3</sup> <sup>1</sup>Renal Division, Baystate Medical Center, Springfield, MA; <sup>2</sup>Division of Infectious Disease, Baystate Medical Center, Springfield, MA <sup>3</sup>Western New England Renal and Transplant Associates, Springfield, MA. Recent reviews suggest that antibiotic locks could be utilized in catheter-dependent chronic hemodialysis patients in an effort to reduce the rate of catheter-related blood stream infections (CRIs). Although these studies have shown a significant decrease in CRIs, there are no data regarding the long-term consequences of this practice. Over a 4 year period, beginning in October 2002, we initiated a gentamicin/heparin lock (GHL) protocol in 1488 chronic hemodialysis patients receiving dialysis through a tunneled catheter in 8 outpatient units. Within the first year of the GHL protocol, our CRI rate decreased from 17 to 3.7 events per 1000 catheter days. Beginning 8 months after initiation of the GHL protocol, febrile incidents occurred in 17 patients with 26 episodes of coagulase negative *Staphylococcus aureus* resistant to gentamicin. Over the 4 years of GHL use, an additional 8 patients developed 10 episodes of gentamicin-resistant CRI (8 cases *Enterococcus faecalis*, 1 case methicillin-sensitive *Staphylococcus aureus* and 1 case of *Streptococcus salivarius*) of which there was one death, 2 cases of septic shock requiring ICU admission and 2 cases of endocarditis. In these 8 patients, the mean duration of catheter days was 306.5 (range 29 to 1023) and the mean duration of GHL was 227 days (range 27 to 1022). Treatment included catheter removal and 2-8 weeks of intravenous antibiotics. Due to these events, the GHL was discontinued in 2006. While the use of a GHL effectively lowered the CRI rate in our dialysis population, within 8 months gentamicin-resistant CRI emerged. We conclude that gentamicin-resistant infections are a serious complication of the long-term use of GHL. Alternative non-antibiotic catheter locks (e.g. ethanol, citrate, taurolidine or methylene blue with citrate) may be preferable in an effort to decrease the incidence of CRIs without inducing resistant pathogens.