STAPHYLOCOCCUS AUREUS BACTERAEMIA: VARIATION AND TRENDS IN A NATIONAL COHORT OF RENAL REPLACEMENT THERAPY PATIENTS

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Introduction and Aims: Infection is second only to cardiovascular disease as the primary cause of deaths in patients on renal replacement therapy (RRT). A significant proportion of this burden of infection is related to haemodialysis (HD) vascular access with Staphylococcus aureus bacteremia (SAB). The aim of this study was to determine the SAB rate in the Scottish RRT population, to determine variability in rates across each of the Scottish Renal units over a 54-month period of observation, and to report on the association with the prevalence of vascular access methods and mortality.

Methods: A linkage analysis with Health Protection Scotland was performed to identify all patients registered with the Scottish Renal Registry who had an episode of SAB in the period 1 January 2006 until 30 June 2010. Period-prevalent SAB rates were calculated by tethering SAB events to the number of exposed haemodialysis days for each patient, and were expressed for individual units and as for the whole Scottish RRT population. All cause mortality was reported with the time between SAB episodes and death, and the cause of death. Prevalent dialysis vascular access data for each unit was also recorded.

Results: A total of 2,678,632 HD days were observed for 3833 individuals. 836 discrete SAB episodes occurred in 553 HD patients. Around one in six (14.4% (553/3833)) of all patients who received HD in Scotland in the study period had one or more episodes of SAB, with an overall SAB rate of 0.31 episodes per 1000 HD days [Figure 1]. In those who had a SAB on HD, 19.3% occurred in the first three months and 27.2% within the first six months of starting. Patients using a central venous catheter were most at risk. All-cause mortality at 3, 6 and 12 months post SAB was 22.6, 30.7 and 39.2% respectively, and MRSA bacteraemia was associated with a significantly higher mortality rate than MSSA bacteremia. Not all units with high CVC use experienced high SAB rates.

Conclusions: Significant variation in SAB rates existed between Scottish renal units and this was not always in proportion with dialysis catheter prevalence. Whilst nephrologists should continue to limit the number of incident and prevalent HD patients who rely on a central venous dialysis catheter for vascular access where possible, our data suggest that that using the proportion of HD patients using a CVC is insufficient to determine the ‘quality’ of a HD access service. We feel that data on the overall SAB rate within an HD population should be ranked with equal importance.