

EV0860

ePoster Viewing

Intravascular catheter-related infections

Clinical relevance and outcomes of catheter-related *S.aureus* bacteraemia in a Spanish tertiary-care hospital

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Background: Catheter-related *Staphylococcus aureus* bacteraemia (SAB) is associated with significant morbidity and mortality in hospitalised patients. We aimed to determine the incidence of this infection in our setting and to evaluate the incidence of complications (endocarditis, secondary metastatic foci, and relapses) after an episode of catheter-related SAB.

Material/methods: A prospective, observational cohort study of episodes of monomicrobial catheter-related SAB in adult patients (≥ 18 years) was conducted in a 1000-bed teaching hospital in Barcelona (Spain) from January 2012-September 2015. Long-term central venous catheters were excluded. Demographic, clinical data, risk factors for complicated bacteraemia, variables identified as quality-of-care-indicators, outcomes, and a 3 month follow-up period were recorded. Peripheral venous catheter-related bloodstream infections (PVC-BSIs) were compared with central venous catheter-related bloodstream infections (CVC-BSIs).

Results Ninety-one episodes of catheter-related SAB were detected: 54 PVC-BSIs (annual incidence 0.48 episodes/10000 patient-days) and 37 CVC-BSIs (0.33 episodes/10000 patient-days). One patient with PVC-BSI was excluded (lost to follow-up). Sixty-three out of 90 (70%) were men, median age of 62.8 years (IQR, 47-76.3). Comorbidities were: diabetes mellitus 26 (28.9%), malignancies 24 (26.7%), immunosuppression 20 (22.2%), chronic pulmonary disease 17 (18.9%), and liver cirrhosis 6 (6.7%). Sixteen (17.8%) were methicillin-resistant strains and 59/88 (67%) had a vancomycin Etest MIC ≥ 1.5 mg/dl. Foreign body (other than catheter) was present in 14 (15.6%) and 21 (23.3%) had an endocarditis-predisposing condition. Among them, echocardiography was performed in 15/18 (83.3%) patients who survived >48 h. Early appropriate intravenous antimicrobial therapy (≤ 48 h) was administered in 83 (92.2%), follow-up blood cultures (2-7 days after antimicrobial initiation) were obtained in 78.9%, and 22.2% had persistent bacteraemia (>48 h after active antimicrobial). Complicated bacteraemia was detected in 18 (20%): 11 endocarditis, 3 non-prosthetic arthritis, 3 septic thrombophlebitis, and 1 spondylodiscitis. Mortality at 14 and 30 days was 12.2% and 20%, respectively. Among the 60 survivors with non-complicated BSIs, there were 4 relapses: 2 endocarditis (1 recent Bentall Bono procedure when first SAB occurred and previous normal transesophageal echocardiography; 1 without cardiac risk factors and no previous echocardiography) and 2 patients with new SAB who died before performing further investigations.

Compared with CVC-BSI, PVC-BSI patients were older (median age 65.7 vs 59.2, $p=0.029$), less frequently immunosuppressed (13.2% vs 35.1%, $p=0.014$), and had similar rates of foreign body presence, early appropriate treatment and persistent bacteraemia. Overall, PVC-BSI had higher rates of complications (endocarditis, secondary metastatic foci, and relapses) (15/53 [28.3%] vs 4/37 [10.8%], $p=0.045$), but similar 14-day and 30-day mortality (13.2% vs 10.8% and 20.8% vs 18.9%, respectively).

Conclusions: Catheter-related *Staphylococcus aureus* bacteraemia is a serious preventable infection associated with a complication rate of 20% in our cohort. Special attention should be paid to peripheral catheters that are more frequently associated with complicated SAB than central venous catheters.