Frequency of arterial catheter infections – a prospective case study

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Background and Goal of Study

Although catheter related bloodstream infections are becoming a more prevalent problem in managing cases of critically ill patients a vast majority of papers relate to central catheters and their microbiologic status. Studies concerning arterial catheters are few. The aim of our study was to perform an analysis of the incidence and epidemiology of arterial catheter infections in the ICU obtained from patients treated for septic shock. The secondary endpoint was to compare the incidence of arterial catheter infections and aetiology between surgical and neutropenic post-chemotherapy patients treated for septic shock in the ICU.

Results and Discussion

In all 74 tested catheters no fungi were found; there were 10 cases of Gram-positive catheter infections and 1 case of Gram-negative infection (*P. aeruginosa*). In the neutropenic the infection rate was 2.56 per 100 catheter days; in the surgical – 1.13 per 100 catheter days. There were 20 deaths in the entire series, but among these there were only 4 cases of arterial catheter infection – 2 surgical patients and 2 neutropenic chemotherapy patients.

Materials and Methods

A prospective study was performed on a 74 patient case series (40 men, 34 women; mean age 62.4, median age 64) who were admitted to a 12-bed ICU of a tertiary reference oncological teaching hospital between 01.01.2015 to 31.12.2016 and in whom the arterial catheter had been indwelling for over 48 hrs. In these patients routine microbiological testing of removed arterial catheters was performed. 50 pts were admitted due to post-surgical septic complications (50 cases), 24 due to septic neutropenic chemotherapy complications.

Conclusion(s)

Arterial catheter infection does not appear to be a significant risk of catheter-derived blood stream infection. There is twofold difference between the likelihood of arterial catheter infection between septic surgical patients and septic neutropenic post-chemotherapy patients. We intend to continue this study on a prospective basis focusing on possible risks in neutropenic patients.

Reference(s): "Bacteremia related with arterial catheter in critically ill patients" F. Esteve et al., 2011