CENTRAL VENOUS CATHETER ASSOCIATED BACTEREMIA BEFORE AND AFTER IMPLEMENTATING INFECTION CONTROL GUIDELINES

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Objective: The aim of the study was to determine incidence of bacteremia caused by central venous catheters (CVCs) insertion in cardiac surgeries and to assess the effect of implementing CDC infection control guidelines on incidence of CVC colonization and bacteremia through health education of the medical and paramedical staff.

Subjects and methods: 225 patients with different cardiac surgeries were studied in the National Heart Institute (NHI). For each patient, the distal 4 - 5 cm of the catheter and blood sample were cultured for quantitative and qualitative diagnosis of organisms causing infections. Total leucocytic count, lactate dehydrogenase (LDH) and total protein (TP) were done in all cases. CDC guidelines for prevention of hospital associated infection were implemented through strict hand hygiene, patient skin antisepsis preparation (role of anesthesiologist), and environmental cleaning and disinfection in the operating room were carried out correctly. The intervention was done by health education with direct observation of medical and paramedical staff, written guidelines and posters.

Results:
From 225 patients, 37 (16.4%) patients developed catheter colonization with negative bloodstream infection (>15 colonies) out of them 12 (5.3%) had positive catheter colonization and catheter-bloodstream infection (CR-BSI) with the same organism. There was significant increase in leucocytic count and LDH in cases developed CR-BSI. Staphylococcus aureus was the leading cause of catheter colonization (54.1%) and bloodstream infection (33.4%), followed by methicillin resistant staphylococcus (MRSA) (10.8% and 25% respectively). The mean duration of catheter insertion was 4.2 +/- 1.3 and 7.9 +/- 4.0 days in CVC colonization and CR-BSIfection respectively. After implementation of CDCs guidelines, bacterial colonization in catheter decreased from 25.6% to 11.8% and in blood culture from 12.2% to 3.4% with a statistical significant difference before and after the implementation (P<0.05).

Conclusions:
Implementation of CDC infection control measures significantly reduces CVC colonization and CR-BSI.