

Catheter related infections in hemodialysis: single centre experience

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OBJECTIVES

Optimal vascular access (VA) is vital for hemodialysis (HD) patients. The best VA remains arterio venous fistula (AVF) but its creation is not always feasible and often a central venous catheter (CVC) remains as permanent access particularly in ancient patients or in patients with cardiovascular comorbidities. The aim of our retrospective study is to evaluate the infection rate of CVC, bacteriologic analysis and correlation with CVC characteristic (site, cuffed or not and time of CVC in place).

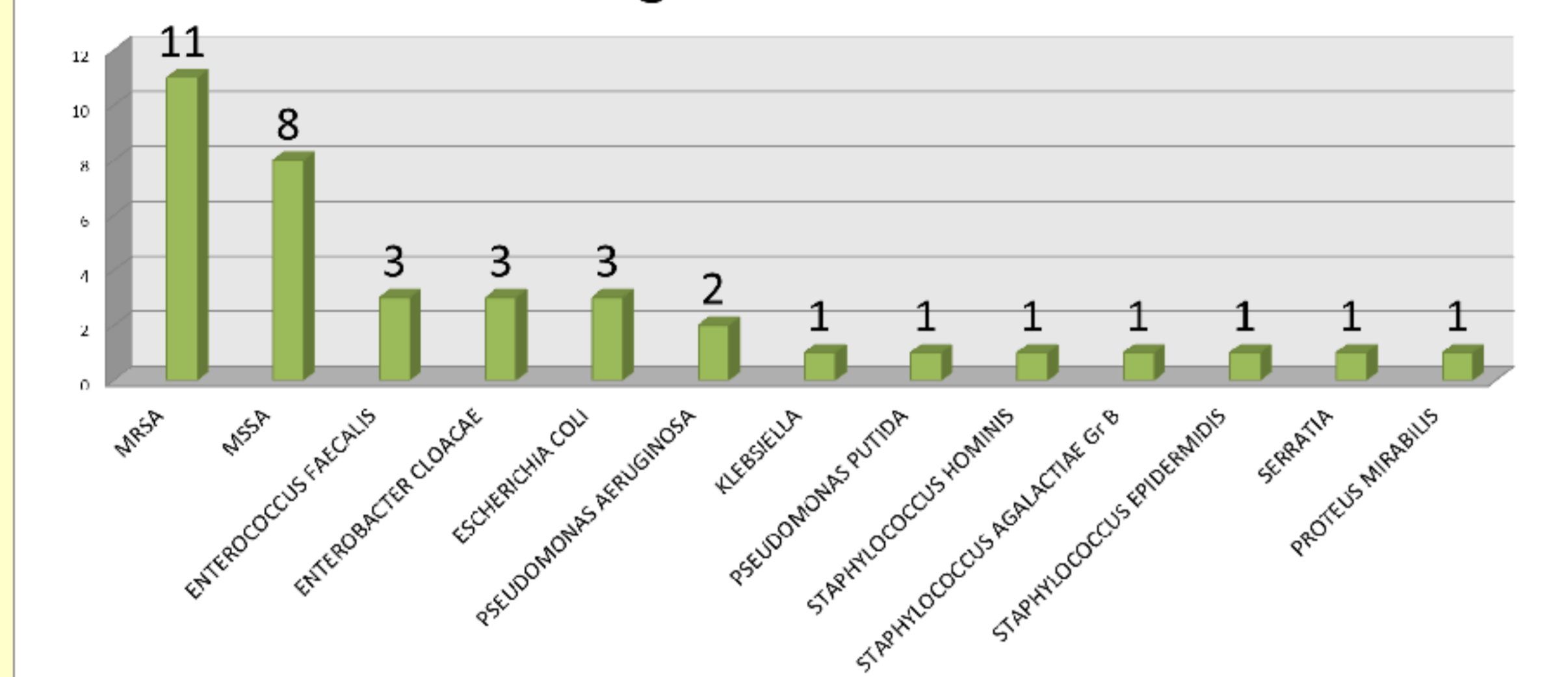
METHODS

During 5 years, from January 2009 to December 2013, 322 CVC were placed in 170 patients (mean aged 72+/-16 years). 255 CVC were temporary catheter (tCVC) and 67 CVC were cuffed catheter (cCVC). CVC were placed by nephrologist in internal jugular vein and femoral vein. Each CVC was followed until it was removed or until the end of the study. CVC were followed up for 26590 days. 194 of them were placed in jugular vein (60 %) , 128 (40%) in femoral vein . The diagnosis of infection was based on clinical evidence and positive blood culture with no sign of other infection site. We also evaluated the exit site/tunnel infection (ESI/TI) rate. Even rates were calculated per 1000 catheter days.

RESULTS

Mean tCVC duration was 28 days and 228 days for cCVC. Catheter related bloodstream infection (CRBI) were developed in 37 cases, ESI/TI were developed in 29 cases. Incidence for CRBI were 1,4 /1000 days catheter and ESI/TI were 1,1 /1000 days catheter. Rates of CRBI in tCVC were 2,8 episodes /1000 days catheter and 0,7 episodes /1000 days catheter in cCVC. ESI/TI rates were 0,7 episode/1000 days catheter in tCVC and 1,2 episodes/1000 days catheter in cCVC. In ESI/TI the most common organism isolated was Staphilococcus epidermidis (45%), in CRBI the most common organism isolated were MRSA (29%) and MSSA (21%). The majority of CVC infections (80%) were cleared with systemic antibiotics and lock therapy.

CRBI
organism isolated



CRBI rate

tCVC : 2,8 episodes/1000 days catheter
cCVC : 0,7 episodes/1000 days catheter

ESI/TI rate

tCVC : 0,7 episodes/1000 days catheter
cCVC : 1,2 episodes/1000 days catheter

CONCLUSIONS

Our data suggest an high survival rate and a low rates of CRBI in cCVC . Infections were successfully treated with conservative therapy in most cases. These data justify cCVC use in hemodialysis, especially in ancient patients with poor vascular assets. The active involvement of nurses and doctors and the promotion of lifelong learning interventions, based on scientific evidence, relating to the supervision of the infection risk, may contribute to the reduction of the infection rate. A nursing care standard protocol can prevent CVC related infection and contribute to an early diagnosis.

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