

CATHETER DURATION AND RISK OF CLABSI IN CRITICALLY ILL PATIENTS

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AIM

Central catheters are vital for the care of hospitalized and critically ill patients, as they provide reliable venous access for clinical activities such as blood sampling, infusion of medications, and hemodynamic measurement. However, they are also the leading cause of healthcare-associated bloodstream infections and are frequently implicated in life-threatening illnesses. The aim of the present study was to determine whether longer duration of catheter placement was related to an increase in the rate of central line-associated bloodstream infections (CLABSIs) for central venous catheters (CVCs) and peripherally inserted central catheters (PICC).

METHODS

We performed a retrospective study of patients from all hospital units, who had a CVC or PICC inserted and developed a CLABSI between January 1, 2014, and September 30, 2015.

RESULTS

A total of 70 CLABSI cases were identified, 52 of them associated with CVCs and 18 with PICC lines, over 20,884 catheter days (9774 CVCs, 11,110 PICC). The rate of PICC-associated CLABSI was 1.62 per 1000 catheter-days (average PICC catheterization, 22.78 days). The rate of CVC-associated CLABSIs was 4.80 for catheter duration of 2-10 days, 5.22 for 11-20 days, and 6.48 for >20 days. The CLABSI pathogen distribution in CVCs and PICCs are presented in Charts 3, 4. The time distribution of multidrug resistant organisms of CLABSI in CVCs are presented in Chart 1.

References: Sengupta A¹, Lehmann C, Diener-West M, Perl TM, Milstone AM. Catheter duration and risk of CLA-BSI in neonates with PICCs. *Pediatrics*. 2010 Apr;125(4):648-53.

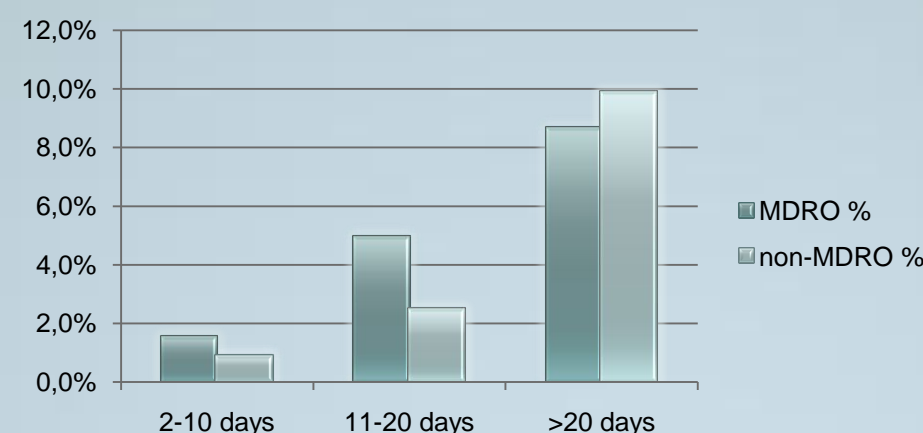
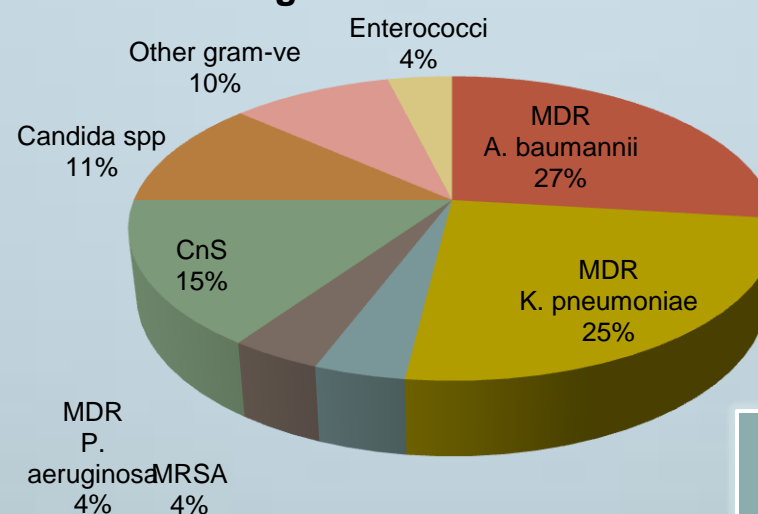


Chart 1. Time distribution of % MDROs in CVCs CLABSI

	2-10 days	11-20 days	>20 days	PICC
# of cath	904	202	81	639
Cath. Days	4585	2874	2315	11110
CLABSI rate	4,80	5,22	6,48	1,62
CLABSI %	2,43%	7,43%	18,52%	2,82%

Chart 3. Pathogen distribution in CLABSIs of CVC



CLABSI rate

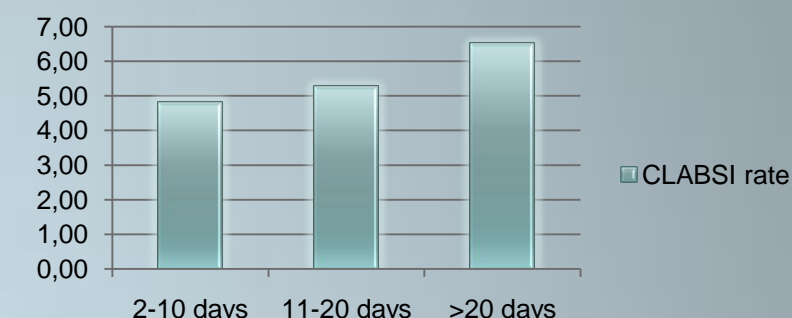
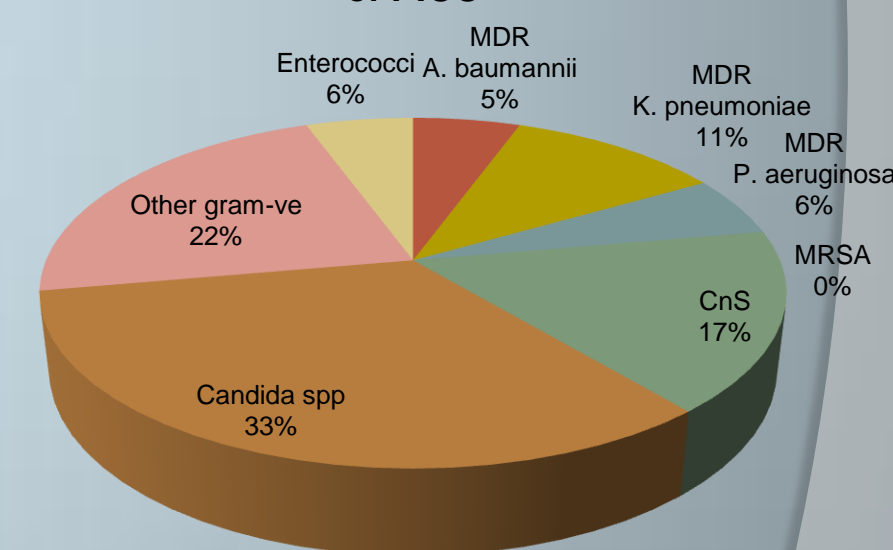


Chart 2. Time distribution of CLABSIs rate in CVCs

Chart 4. Pathogen distribution in CLABSIs of PICC



CONCLUSIONS

In the CLABSI rate originated from CVCs, our data show a gradual increase for longer duration of catheter placement. PICC lines were associated with significantly lower CLABSI rates, despite the longer average duration of placement. Apart from skin pathogens, MDROs are also present in CLABSIs epidemiology in countries where antimicrobial multidrug resistance remains an urgent public health concern.