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ePoster Viewing

New and not so new antibiotics

DAPTOMYCIN FOR CARDIAC INFECTIONS: DOCUMENTED CARDIAC IMPLANTABLE ELECTRONIC DEVICES (CIED) /CARDIAC CIRCULATORY DEVICES (CCD) INFECTIONS AND OPERATED INFECTIVE ENDOCARDITIS (EI). A 43-CASE SERIES.

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Objectives: Daptomycin provides extensive coverage of Gram-positive cocci, which represent most cases of infective endocarditis (IE). Early surgery for IE, involving valvular implantation, can reduce embolic events and mortality, but requires effective empiric antibiotic treatment. CIED-related infections are a growing problem, and CCD-related infections an emerging one. Little clinical evidence for daptomycin's activity against these infections has been reported to date. The aim of the study was to evaluate microbiologically documented cases of cardiac infections with material involvement and surgically treated IE, with daptomycin used as empiric or curative treatment.

Methods: We conducted a retrospective observational study in two centres (Lille and Lens, France) with cardiac surgery and CIED implantation activity for 3 years (2010-2012). Data from patients with IE microbiologically documented infections cases treated with daptomycin (n=20) were: 85% male, median age 58 years, 60% of comorbidities (respiratory, renal, hepatic chronic diseases, or diabetes mellitus). CIED/CCD infections patients (n=23): 65% male, median age 68 years, and 39% of comorbidities. 61% of CIED infections were related to pacemakers, 30% to defibrillators, 8,6% to circulatory assistance devices (heartmate). Table 1 summarizes the pathogens for infections.

Table 1: Pathogens for infections

(* existence of polymicrobial infections)

IE cases , N=20 CIED/CCD cases, N=23

MSSA	35%	4%
Coagulase Negative <i>Staphylococci</i> (CoNS)	35%	65% (including 73% of MR CoNS)
MRSA	15%	
<i>Streptococci</i>	20%	
<i>Enterococci</i>	15*	4%
<i>Corynebacterium</i>		9%
Gram-Negative bacilli		4%*

Results: Daptomycin ≈ 8mg/kg for operated IE was used as empiric therapy in 14 cases, as curative treatment in 9 patients; or both. For CIED/CCD infections, empiric therapy with secondary de-escalation was done in all cases but one (95%). All cause mortality for patients with operated IE was 25% at 6 months. No patient presented relapse on implanted material. For patients with CIED/CCD infections, failure was observed in four cases (17%), including 3 relapsing infections. Mortality was 13%, including one patient with cardiac circulatory assistance.

Conclusion: Experimental data show that daptomycin impairs biofilm formation, and provides rapid bacterial killing. Therefore it is suggested it coul 'protect' foreign bodies from infection when material is implanted during a septic process. This could have special impact in cardiac surgery, through lowering the rate of relapsing infection on implanted valves and in order to 'secure' early surgery. Numerous pathogens are involved in cardiac infections: MSSA is currently the most frequent but Meticillin Resistant -MR- species (MRSA and MR CoNS) are found in CIED infections and healthcare associated IE, a rising entity. The efficacy of daptomycin on CoNS with high MIC to vancomycin could explain

reported results on CIED infections/endocarditis where these pathogens are frequent. Daptomycin could be used as empiric treatment in IE with urgent surgery, and in documented cases of MR pathogens infections with high vancomycin MIC.