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Poster abstract submission

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Poster title

Multidrug–resistant Gram–positive cocci as etiological factors of cardiac implantable electronic devices–related infections; data from the EXTRACT registry

Poster abstract

INTRODUCTION Lifetime risk of cardiac implantable electronic device (CIED)–related infections is 3.35%. Effective antibiotic therapy reduces patients' morbidity and mortality.
OBJECTIVE To assess the prevalence of multidrug–resistant (MDR) Gram–positive cocci in CIED infections.
METHODS Data come from the EXTRACT registry (ClinicalTrials.gov ID NCT05775783), comprising 703 transvenous lead extraction (TLE) procedures. Blood samples and intraoperative swabs from the generator pocket and endocardial leads were collected in 209 participants with evidence of CIED infection (Figure 1).
RESULTS Of participants, 107 (51.2%) had an isolated pocket infection (PI), 55 (26.3%) PI with bacteremia/endocarditis (IE), and 47 (22.5%) isolated bacteremia/IE. Of 263 Gram-positive cocci, S. aureus (62, 23.6%), coagulase-negative staphylococci (CoNS) (177, 67.3%), Streptococcus spp. (8, 3.0%), Enterococcus spp. (15, 5.7%), and Aerococcus viridans (1, 0.4%) were cultured. Among 6.5% S. aureus, methicillin resistance was observed and co-occurred with macrolides/lincosamides (100%), fluoroquinolones (100%), or linezolid (25.0%) resistance. The frequency of MDR strains was 8.1%. CoNS exhibited methicillin resistance in 55.9%, with co-resistance to macrolides (73.2%), lincosamides (51.0%), fluoroquinolones (56.1%), aminoglycosides (41.4%), tetracyclines (29.6%), and cotrimoxazole (29.3%). The prevalence of MDR CoNS was 46.9%. All methicillin-resistant staphylococci were vancomycin-susceptible. Among viridans group streptococci, resistance to lincosamides and β-lactams was observed (40.0% for both), with 50.0% co-resistance. High-level resistance to aminoglycosides (HLAR) was mainly in E. faecalis

(83.3% to gentamicin, 85.7% to streptomycin), along with levofloxacin co-resistance (66.7%). Resistance to β-lactams was observed only in E. faecium (100.0%), with HLAR (50.0%) and vancomycin vanB-type co-resistance (50.0%).
CONCLUSIONS Increased MDR among Gram-positive cocci requires the use of more expensive, toxic, or pharmacokinetic suboptimal antibiotics, complicating the treatment of severe infections.
KEYWORDS cardiac implantable electronic device; gram-positive cocci; infective endocarditis; drug-resistance; pocket infection
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Fig.1. A. Pocket erosion. B. Lead-related infective endocarditis (arrows indicate endocardial lead vegetations).

Research topic

Epidemiology

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