Background & aims
Infections of cardiovascular implantable electronic devices (CIEDs) represent a serious disease whose incidence is constantly growing, and require a complex multidisciplinary management.
Aim of our study is to describe our experience in treatment and outcome of CIEDs.

Patients' characteristics
• Tot. observed episodes: 87
• Tot. pts: 84, male 69%, age median 76 years (range 36-92)
• 83.8% new episodes, 51.7% relapses
• 81% pts had ≥1 previous CIED revision
• Type of infected CIED: PM 41.7%, ICD 58.3%
• Risk factors: heart failure 44%, CKD 35.7%, diabetes mellitus 33.3%, COPD 17.9%, oral anticoagulant tx 23.8%, previous hospitalization 29.8%

Criteria for clinically significant isolates
Lead tips ≥ 1 isolate of any pathogen
Blood cultures ≥ 2 isolates of other pathogens concordant to species & D.S.T.
• ≥ 1 isolate of other pathogens concordant to isolate(s) from lead tips as to species & D.S.T.

Microbiological investigations
• Positive cultures:
  • Pre-extraction blood cultures: 36.4% (26.3% without endocarditis)
  • Pre-extraction pocket samples: 72.3%
  • Lead fragments: 73.8% (72.7% in pts with pocket infection only)
  • Intra-extraction pocket samples: 55.2% (28.6% in pts without local signs of infection).
• Etiology: Gram positive: 85.2%, (67.9% CoNS); Gram negative: 19.8%; Fungi: 7.4%. Polymicrobial infection: 44.4%

Antimicrobial resistance of Staphylococcus spp. isolates

Management, safety and outcome
• Treatments were overall well tolerated (interruption/switch in 13.8%)
• Median therapy duration following CIED extraction: 3 weeks for pocket infection only (70.5% with positive lead culture); 4.6 weeks for endocarditis
• Complete device extraction: 92% of cases.
• Successful outcome at ECG 80 (92%)
• Relapse (median follow-up: 18 months): 1 (1.5%)
• Failures: 3 (3.6%) (pts who did not undergo CIED removal)
• Deaths before the EOT: 4 (4.6%) (not directly related to CIEDs)

Conclusions
A proper management of CIEDs, based on extensive microbiological investigations, adequate antimicrobial therapy, and complete CIED removal, in the context of a multidisciplinary approach, allows to obtain high rates of success, even in frail and relapsing patients.