

Bacteremia due to *Enterococcus faecalis* and cardiac device-associated lead infection: a case report

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Background

Infections after placement of cardiac implantable electronic devices (CIEDs) are devastating complications associated with substantial morbidity and mortality. CIED pocket infection is usually suspected based on local signs at the generator pocket site while cardiac device-associated lead infection may only manifest with fever and positive blood cultures. Case History: A 78-year-old man presented to our hospital with fever and oliguria. The patient had recently been treated with ceftriaxone for a urinary tract infection. He had a medical history of chronic renal failure, severe post-ischemic dilated cardiomyopathy, prophylactic implantation of implantable cardioverter defibrillator (ICD), allergy to ampicillin. At admission laboratory data showed worsening serum creatinine (3.23 mg/dL), leukocytosis (21.260/ μ L) and elevated inflammatory markers (CRP 6.73 mg/dL; procalcitonin, 3.3 ng/mL).

Abdominal ultrasonography:cholelithiasis and bilateral renal cysts. The patient started an empirical therapy with tigecycline and metronidazole with improved of inflammatory indices. Urine culture was negative.Vancomycin-resistant *Enterococcus faecalis* was isolated from blood cultures. The patient underwent a normal transthoracic echocardiogram (TTE) to investigate potential infective endocarditis (IE) and a transesophageal echocardiogram (TEE) due the high clinical suspicion. TEE showed a voluminous mobile mass adhering to the ventricular catheter of the device on the atrial side, suggestive of cardiac vegetation. The patient

was a candidate for cardiac implantable electronic device (CIED) extraction and started antibiotic therapy with daptomycin and linezolid.

Discussion

Not every patient with a CIED who develops bacteremia has underlying CIED lead infection. The distinction is important for the different therapeutic approach. Treatment of CDRI generally requires extraction of CIED while bacteremia in patients with uninfected cardiac device can be treated with antibiotics alone. Among patients with bloodstream infection the risk of underlying CIED lead infection depends on several factors: age, glomerular filtration rate, immunocompromised state, procedure number and type (revision/upgrade), duration and source of bacteremia and the type of microorganism isolated in blood cultures. The risk of CIED infection among patients with bacteremia varies by type of organism involved. Several evidences have shown that the risk of heart-related infection is higher in patients with bacteremia due to *Staphylococcus aureus*. Other pathogens include other gram-positive cocci and Gram-negative bacteria. CIED risk is lower in patients with bacteremia due to Gram-negative bacilli species. *Enterococcus faecalis* is the third leading cause of infective endocarditis following staphylococcal and streptococcal species. Population- based studies have shown that up to 25% of patients with community-acquired *E. faecalis* bacteremia have infective endocarditis. In all patients with CIED and *Enterococcus faecalis* bacteremia, IE and CIED infection should be suspected.