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Dalbavancin as a treatment option for *Rothia aeria* endocarditis

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Sir,

In this letter, we present two cases of significant bacteremia caused by *Rothia aeria* from a focus of suggestive or possible infective endocarditis.

Case 1: A 22-year-old woman with cyanotic congenital heart disease (ventricular septal defect and pulmonary artery atresia) who had previously experienced 4 episodes of streptococcal endocarditis. She was admitted with fever and persistent bacteremia caused by *R. aeria* (6/6). Although TEE did not observe vegetations, the CT showed septic pulmonary embolisms and the patient was treated for IE with ceftriaxone 2g IV/24 h for 28 days with complete recovery.

Case 2: A 65-year-old man with a prosthetic aortic valve was admitted for a febrile status and a left caudate nucleus ischemic stroke. *R. aeria* was detected in repeated blood cultures. The TEE did not see vegetations, but the PET-CT showed focal deposits on the prosthesis and the diagnosis of late prosthetic endocarditis was established. He received ceftriaxone 2g/d IV + rifampin 600mg/d for 14 days. Dalbavancin was proposed to continue, but he preferred to complete 6 weeks with amoxicillin 1g/6h orally + rifampicin 600 mg/d orally, that were successful.

The species of the genus *Rothia* are Gram-positive, facultative anaerobic, pleomorphic bacteria that normally colonize the oral cavity and respiratory tract [1]. The genus currently comprises 15 species, of which only *R. mucilaginosa*, *R. dentocariosa* and *R. aeria* have been described as human pathogens [2]. Originally associated with periodontal disease, numerous cases of invasive infections have also been described, such as bacteremia, endocarditis, meningitis, peritonitis, etc. Neutropenia has traditionally been considered the main risk factor for the occurrence of these infections, although numerous cases

have also been reported in non-immunocompromised patients.

Of all the infections it causes, the most frequent and important are infectious endocarditis (IE). The involvement of *Rothia* spp. in this pathology is due to its ability to form biofilms on both native and prosthetic valves [3].

Recently published studies have changed the therapeutic approach to IE. After an inpatient intravenous treatment phase of 7-10 days, it is possible to complete treatment at home in OPAT programs once the blood culture has become negative and clinical stability has been achieved [4]. Dalbavancin is a semi-synthetic lipoglycopeptide that has been shown to be effective against Gram-positive organisms in vitro. Its half-life in vivo is between 149 and 250 hours, making this agent an ideal candidate for the treatment of infections requiring prolonged antimicrobial therapy as consolidation therapy [5] and could be used as an alternative to OPAT for this indication [6]. A recently published review analyzed the potential efficacy of dalbavancin in the treatment of IE [7], concluding that although there is evidence of efficacy between 72% and 100%, the published study series are still sparse and show considerable methodological differences. Furthermore, there is no information on the efficacy of this antibiotic in the treatment of infections caused by *Rothia* spp.

The POET study showed that in patients with left-sided endocarditis caused by Gram-positive cocci who were in a stable condition, switching to oral antibiotic treatment was not inferior to continued intravenous antibiotic treatment [8]. They recommend a combination of two active drugs with good oral bioavailability. The systematic review of *Rothia* spp IE by Francioni *et al.* [9] described that 97% of isolates were sensitive to penicillin and 92% to rifampicin. Therefore, a combination of amoxicillin with rifampicin, as recommended in the POET study for streptococci with a MIC for penicillin of < 1 mg/L, could be a sequential treatment for IE due to *Rothia* spp., as occurred in case 2.

From a microbiological point of view, the diagnosis is tra-

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ditionally made by isolating the bacteria in two or more separate blood cultures. The presence of these bacteria in blood cultures as contaminants and in the company of other microorganisms is frequent, so that it is not always easy to clearly link the presence of *Rothia* spp. to a specific clinical picture. Furthermore, the growth difficulties of this genus often lead to negative blood cultures, making them one of the 5% of IE cases in which the etiologic agent is never identified [10]. Another additional difficulty in diagnosis is the performance of susceptibility tests. CLSI recommends performing susceptibility tests for this genus by microdilution, but has not validated breakpoints and recommends using those of *Corynebacterium* [11]. EUCAST, on the other hand, has no validated protocols for this genus in its documents, so PK-PD breakpoints should be used [12]. However, the two isolates from our patients had very low MICs for dalbavancin (E-test MIC =0,064 mg/L for the case 1 and E-test MIC =0,094 mg/L for the case 2), which leads us to believe that this antibiotic could be used as a therapeutic option.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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