

THIS CPD/CEU EXERCISE IS PRESENTED UNDER THE THISTLE QA SERVICE PROVIDER NO : MT00025. IT IS DESIGNED TO TAKE PLACE WITHIN YOUR OWN LABORATORY AS A SMALL GROUP ACTIVITY LASTING APPROXIMATELY ONE HOUR. PLEASE ENSURE THAT YOU KEEP A REGISTER OF THOSE TAKING PART IN THIS EXERCISE AND SUBMIT YOUR APPLICATION FOR 1 CEU POINT ON THE APPROPRIATE HPCSA FORM, ALONG WITH THE RELEVANT THISTLE QA PARTICIPATION CERTIFICATE SENT TO YOUR LAB WITH YOUR EQA KIT AND INSTRUCTIONS.

Cycle 19 Organism 3

The causative organism was *Corynebacterium jeikeium*.

Overview

Corynebacterium jeikeium is a bacterial species designating strains formally named coryneform group JK (*Corynebacterium* group JK) as described in the first clinical cases implicating these bacteria¹. *Corynebacterium jeikeium* are classified as lipophilic corynebacteria which are fastidious, slow-growing bacteria that form small non-haemolytic colonies on standard media, but demonstrate enhanced growth with the addition of lipids to the culture medium. This group includes the significant human pathogens *Corynebacterium jeikeium* and *Corynebacterium urealyticum*².

Corynebacterium jeikeium was initially described in 1976 as a highly resistant coryneform bacteria causing severe sepsis in patients with haematologic malignancies and profound neutropenia. The organism was also found in a patient with a ventricular CSF shunt³. In 1979 it was designated as CDC group JK, and in 1988 the designation was revised to *Corynebacterium jeikeium*. The organism colonizes the skin of hospitalised patients, especially those treated with multiple antibiotics.

Microbiology

Corynebacterium jeikeium is a pleomorphic Gram-positive rod, which varies in form from coccobacilli to bacilli and some appear club shaped. They are non-haemolytic and form small grey-white colonies. This species is characterized within the genus *Corynebacterium* by its inability to reduce nitrate to nitrite and the production of acid from glucose but not from sucrose. Furthermore, these bacteria show a lipid requirement for growth, which can be supplied by serum or Tween 80⁴.

Pathogenicity

Corynebacterium jeikeium is a cause of severe infections in hospitalised patients⁵. Predisposing factors for infection include immunocompromised states such as malignancies, neutropenia, and AIDS⁵. Other risk factors include the presence of indwelling medical devices. Infectious processes include septicaemia from infected intravascular devices, native and prosthetic valve endocarditis, CSF shunt infections, meningitis and prosthetic joint infections^{6,7}.

Treatment

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TESTING

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Corynebacterium jeikeium is resistant to many antibiotics, including penicillins, cephalosporins, and aminoglycosides, and there is inducible resistance to macrolides⁸. The organism remains susceptible to vancomycin, which is the recommended treatment.

References

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3. Hande, KR., *et al.* Sepsis with a new species of *Corynebacterium*. Ann Int Med. 1976; **85**:423-426
4. Riley, PS., *et al.* Characterization and identification of 95 diphtheroid (group JK) cultures isolated from clinical specimens. J Clin Microbiol. 1979; **9**:418-424
5. Young, VM., *et al.* The emergence of coryneform bacteria as a cause of nosocomial infections in compromised hosts. Am J Med. 1981; **70**:646-650
6. Murray, BE., *et al.* Diphtheroid prosthetic valve endocarditis. A study of clinical features and infecting organisms. Am J Med. 1980; **69**:838-848
7. Johnson, A., *et al.* *Corynebacterium jeikeium* meningitis and transverse myelitis in a neutropenic patient. Eur J Clin Microbiol Infect Dis. 1992; **11**: 473474
8. Williams, DY., *et al.* Identification of clinical isolates of nondiphtherial *Corynebacterium* species and their antibiotic susceptibility patterns. Diagn Microbiol Infect. 1993; **17**: 23-28

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CPD Questions.

1. Why is *Corynebacterium jeikeium* classified under the lipophilic corynebacteria?
2. Describe the morphology and colonial characteristics of *Corynebacterium jeikeium*?
3. Name the different infections caused by *Corynebacterium jeikeium*?
4. What antibiotic(s) is recommended to treat infections caused by *Corynebacterium jeikeium*?

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