Applied Mechanics and Materials Vols. 295-298 (2013) pp 560-563
Online available since 2013/Feb/13 at www.scientific.net

doi:10.4028/www.scientific.net/AMM.295-298.560

Antibacterial susceptibility patterns and characterization of clinical isolates of Elizabethkingia meningoseptica in Henan province, China

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Keywords: genotyping; *Elizabethkingia meningoseptica*; antimicrobial resistance.

Abstract. This study aimed to provide insight into antimicrobial susceptibility and homology of *Elizabethkingia meningoseptica* in a hospital environment. Samples from environmental surfaces and the hands of medical staff were screened for *E. meningoseptica* and antimicrobial susceptibility testing was performed; Pulsed-Field Gel Electrophoresis (PFGE) was employed to subtype *E. meningoseptica* strains; The resistant genes were detected by PCR. In total, six isolates of *E. meningoseptica* were collected from 280 samples. Antimicrobial susceptibility testing revealed that all of the six strains displayed multiresistance, showing resistance to more than three different classes of antibiotics. The strains were separated into five different PFGE patterns. The *sul*II gene was detected in four of the strains. Our data show that multiresistant *E. meningoseptica* strains exist in the hospital environment and susceptibility testing revealed that vancomycin was the most effective antibiotic. These results have practical significance for treatment of *E. meningoseptica* infection.

Introduction

Elizabethkingia meningosepticum (also known as *Flavobacterium meningosepticum* and *Chryseobacterium meningosepticum* [1]) is a specie of opportunistic pathogen, which is widespread in nature [2]. Decreased immunity often causes infection, especially in the intensive care unit (ICU), where it often causes popular infection and even outbreaks. With wide and long term application of high efficient broad-spectrum antimicrobial agents in recent years, drug-resistant strains are increasing. Multi-drug resistant *Elizabethkingia meningosepticum* was isolated from a hospital and hands of its medical staff in this study. The distribution, drug resistance spectrum of these multi-drug resistant strains, homology and drug resistance genes were analyzed. This study can provide basis for the basis for the rational use of antimicrobial agents, the development of effective infection prevention and control strategies.

Materials and methods

Sample. Randomly sampling was carried out at ICU, obstetrical department, orthopedics department and operating room in one hospital in Henan province from May to September in 2011. A total of 280 samples were collected, including the hands of medical staff and ward surface environment (such as bed sheet, foot pedal of bed, bedside cabinets, light switches, treatment center, instrument table, multi-function device and cabinet for sterile material frame).

Strain isolation. Samples were inoculated to the ordinary broth agar medium and then placed in the incubator under 37°C for 48 h.

Strain identification. The automatic bacterial identification system-VITEK 2 provided by French bioMérieux Corporate was used to identify strains.

Drug susceptibility testing. Kirby-Bauer (K-B) method was applied and the results were assessed in accordance with the 2010 standards of the American Clinical Laboratory Standards Institute (CLSI).