Source Identification of Nosocomial Outbreak of Pseudomonas aeruginosa by Pulsed Field Gel Electrophoresis Analysis

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ABSTRACT

Introduction: Pseudomonas aeruginosa frequently causes nosocomial outbreaks. Accurate identification of the source is very crucial to allow more targeted and cost effective infection control intervention.

Objective: The objective of this study is to describe a Pseudomonas aeruginosa outbreak in a general intensive care unit of a tertiary teaching hospital in Malaysia.

Methods: Pulsed field gel electrophoresis (PFGE) was carried out to the strains with the same antibiogram.

Results: PFGE done confirmed that strains isolated from patients were identical with the strains isolated from fentanyl, morphine and water used for dilution of medication.

Outbreak progress: The outbreak was initially thought to be associated with dialyses water as five out of seven patients had haemodialysis done within one week before the outbreak started. The outbreak was controlled within 2 weeks following several intervention measures which include cohorting of patients, work restrictions for staff, enforcements of an alcohol-based antiseptic, review of infection control policies and improvement of ICU procedures.

Conclusions: We conclude that, PFGE is an important tool in outbreak investigation for a more targeted intervention. It is recommended that PFGE is done to all strains isolated during outbreak to determine the relatedness of the strains, thus more targeted and effective infection control measures can be implemented.

KEY WORDS

nosocomial, Pseudomonas aeruginosa, outbreak, PFGE

INTRODUCTION

Pseudomonas aeruginosa is the most frequent nosocomial pathogen that is responsible for infections and outbreak in patients in intensive care units (ICU). It is also among the most common gram negative organism causing nosocomial bacteraemia in ICU. P. aeruginosa is generally acquired from the environment, and person-to-person spread occur rarely. Contaminated respiratory care equipment, irrigating solutions, catheters, infusions, dilute antiseptics, cleaning solutions, and even soaps have been reported as vehicles of transmission. Nosocomial infection is an important cause of morbidity, mortality and indirectly...