

ABSTRACT

Clostridium difficile Infections in Trinidad and Tobago

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This cross-sectional study was carried out from October 2012 to September 2013, to investigate the prevalence of *Clostridium difficile* infection from suspected patients in the Trinidad adult population. This was carried out at three of the five major regional hospitals: San Fernando General Hospital (SFGH), Eric Williams Medical Sciences Complex (EWMSC) and the Port-of-Spain General Hospital (POSGH). A total of 164 patients were surveyed using a questionnaire; their fecal samples were collected and analyzed. The fecal samples were analyzed using: Enzyme Immunoassay (EIA), culture, standard bacteriological test for morphology, and polymerase chain reaction (PCR) test for toxin genes. DNA sequencing was also carried out.

A total of 23 fecal samples were positive for toxigenic *Clostridium difficile*. The commonest risk factors for *Clostridium difficile* infection were prior antibiotic use (35%), an extended hospital stay (78%) and an underlying disease (100%)

From the patients surveyed at the EWMSC, 15% (8/54) were positive for toxigenic *C. difficile*, those from the SFGH 14% (12/84), and those from the POSGH 12% (3/26). Three (3) toxin A+B+ and 15 A-B+ isolates were recovered. Agar dilution sensitivity tests showed highest susceptibility to Meropenem and Piperacillin/Tazobactam (87%). The highest resistance was seen with Cefotaxime (93%).

The trend and demographics of *C. difficile* could be used as an important epidemiological tool to characterize and differentiate strains from the different hospitals based on agar dilution and PCR technique. Both EIA and PCR are important, fast and effective tools in detecting toxigenic *C. difficile*. However, EIA has its advantage of being able to detect *C. difficile* and its toxins directly from stool in a short period of time. PCR on the other hand is more sensitive, specific, cheap, and is able to detect the presence of *C. difficile* from stool as well as the toxin genes of the organism.

Key words: *Clostridium difficile* infection, toxigenic *Clostridium difficile*, nosocomial diarrhea, toxin A gene, toxin B gene, housekeeping gene (*tpi*), antibiotic susceptibility testing.