

Abstract

Background: *Clostridium difficile* associated diarrhea (CDAD) was increasing in most of the countries including United States, United Kingdom, India, other Western and South East Asian countries over the past two decades. No studies have been done in Sri Lanka to determine the proportions of antibiotic associated diarrhoea due to *Clostridium difficile*. *Clostridium difficile* associated diarrhoea was not routinely diagnosed in Sri Lanka. Therefore the extent of its prevalence, epidemiological pattern and complications were not known and the affected patients may have been grossly under treated. As CDAD was not diagnosed, no preventive measures were taken to curtail the infection spreading in hospitals among patients. This study will therefore offer reliable and valuable material to the clinician to assists in decisions regarding management of CDAD and control of the spread of disease in health care institutions. Further, this study would invariably contribute to the reduction of morbidity and mortality associated with CDAD and also to reduce the health care costs in hospitals in Sri Lanka.

Methods: We performed a descriptive, cross sectional study of 100 patients admitted to National Hospital of Sri Lanka (NHSL), Colombo South Teaching Hospital-Kalubowila (CSTH) and Teaching Hospital Karapitiya (THK) during the period of 1st July 2007 through 28th February 2009. Patient demographic data and clinical data were collected using an interviewer administered questionnaire. Faecal toxin detection for both *Clostridium difficile* toxin A and B was performed using an Enzyme Linked Immuno Sorbant Assay (ELISA) [(DRG[®] Clostridium Toxin A+B (EIA-4203) – DRG International, Inc, USA.], in the Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayawardenepura.

Results: Four out of 100 specimens were positive for the toxin A or B by the ELISA. Two patients were from CSTH, one was from THK and one was from NHSL. Overall proportion of *Clostridium difficile* toxin positivity was 4%. When considering the individual hospitals the proportions were 8.3 %, 3.0% and 2.3% at CSTH, THK and

NHSL respectively. Rates of CDAD were 0.01/1000 discharges, 0.008/1000 discharges and 0.004/1000 discharges at THK, Csth and NHSL respectively in 2008. Male and female proportions were equal in the toxin positive group. All four patients were from ICUs. All four patients had acquired the disease during their hospital stay.

Conclusions: This study is, to our knowledge, the first study done in Sri Lanka to determine the proportions and rates of CDAD. In conclusion, this study showed that hospital acquired CDAD is seen in our country even though the proportions and rates remain very low in the three selected hospitals when compared to the other countries. Even though we could not analyze the risk factors due to very small proportions of positive cases, it seems that old age and use of cephalosporins, carbapenems, extended spectrum penicillins and macrolides would be associated with CDAD. We could not compare the toxin detection with toxigenic cultures or tissue culture cytotoxin assay (Gold standards) due to financial constraints. Future plans should include studies which compares several methods for identification of CDAD to decide on a best method for rapid and reliable diagnosis of CDAD in Sri Lanka. Diagnosis of CDAD in our country will be very essential as the rates might go up in future with the uncontrolled use of broad spectrum antibiotics as we do not have good antibiotic policies. Further, this information will be useful to implement proper infection control measures to prevent spread among hospitalized patients which in turn will definitely reduce the health care costs. Infection control measures related to CDAD should be highlighted as the modes of transmission are not familiar to the clinicians and nursing staff currently.