## ABSTRACT

**Background:** *Clostridium difficile* infection is common in hospitalized patients following antibiotic usage. Infection with *Clostridium difficile* comprises 20% to 30% of cases related to antibiotic associated diarrhea with mortality rates of upto 25% in elderly patients.

**Objectives**: The proposed study is aimed at determining the rate of isolation of *Clostridium difficile* along with the rate of toxin production among the isolates obtained in a tertiary care centre.

**Methodology:** Faecal specimens of patients suspected of having *Clostridium difficile* infection were cultured on anaerobic blood agar and cycloserine cefoxitin fructose agar to identify growth along with antigen detection by rapid enzyme immunoassays. Toxin production was determined by the rapid enzyme immunoassay and PCR for the positive samples.

**Results:** *C. difficile* was isolated in 10.37% of the samples by culture. Rapid assay for GDH Ag showed a sensitivity and specificity of 92.9% and 99.2% respectively ($p < 0.05$) when compared to culture. Two of these samples were toxin positive by rapid assay and four were toxin positive by PCR.

**Conclusion:** Although culture is the gold standard for diagnosis, it is time consuming and not feasible in resource limited settings. 26.7% of the cultured isolates were identified as toxigenic strains by PCR. PCR is highly sensitive and specific but expensive. In such a scenario, rapid assays can serve as effective screening tests for

diagnosis of the disease with our results showing a sensitivity and specificity of 92.9% and 99.2% respectively. This can be followed by testing for toxin production.

**Keywords:** *Clostridium difficile,* Antibiotic associated diarrhea, Cycloserine-cefoxitin fructose agar, Rapid membrane enzyme immunoassay, tpi gene, toxin A, toxin B