

## Relationship Between tcdA and tcdB Genes of Clostridium difficile with Duration of Diarrhea in Elderly Patients

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**Abstract :** Background: Clostridium difficile has two main virulence factors, namely TcdA and TcdB. TcdA encoded by the tcdA gene acts as an enterotoxin, pro-inflammatory and fluid accumulation, while TcdB encoded by the tcdB gene is cytotoxic, causes disruption of the actin cytoskeleton, and causes disruption of tight junctions in colon cells. This study aims to explore the relationship between the tcdA and tcdB genes and the duration of diarrhea in elderly patients. Method: This research was an observational analytic with a prospective cross-sectional with samples of elderly diarrhea patients who met the inclusion criteria in Denpasar City health service facilities from 1 December 2022 until 30 June 2023, and then their feces were analyzed using the real-time PCR method. Results: In this study, 40 elderly diarrhea patients met the inclusion criteria and in accordance with the minimum sample size, 28 (70%) men and 12 (30%) women. 5 patients (12.5%) had a history of azithromycin, 4 (10%) levofloxacin, 17 (42.5%) ciprofloxacin, 8 (20%) metronidazole, 1 (2.5%) cefoperazone, 5 (12, 5%) doxycycline. Comorbids, namely 13 (32.5%) type II diabetes mellitus, 4 (10%) chronic kidney disease, 10 (25%) malignancies, 7 (17.5%) urinary tract infections, 3 (7.5%) immunocompromised, 2 (5%) cardiac heart failure, and 1 (2.5%) acute on chronic kidney disease. The overall diarrhea duration average was 5 days. 8 samples (20%) were positive for 16s rRNA, and there was no significant difference in diarrhea duration with negative samples ( $p=0.166$ ). The relationship between the tcdA gene and the duration of diarrhea could not be performed because all samples were negative. Likewise, relationship analysis between the coexistence of tcdA and tcdB could not be performed. There was no significant difference between tcdB positive 3 (7.5%) and negative with diarrhea duration ( $p=0.739$ ). Conclusion: There is no significant relationship between the presence of the 16s rRNA and tcdB C. difficile genes with the duration of diarrhea in elderly patients.

**Keywords :** clostridium, difficile, diarrhea, elderly, tcdA, tcdB

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