

Prevalence of Superantigenic *Staphylococcus Aureus* and Toxigenic *Clostridium Difficile* in Patients with IBD

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Background & Objectives: Inflammatory bowel disease (IBD) can be subdivided in ulcerative colitis (UC) and Crohn's disease (CD). Prolonged course of UC disease in acute phase among hospitalized patients is related to change of intestinal normal flora and overgrowth of pathogenic bacteria. In this study we aimed to investigate prevalence of overgrown superantigenic *S. aureus* and toxigenic *C. difficile* in patients with UC.

Methods: 50 colonic biopsies and 50 fecal samples were collected from patients under colonoscopy. Clinical diagnosis of IBD was confirmed by pathological findings. Suspensions of homogenized tissue and stool samples were cultured on selective media for *C. difficile* and *S. aureus*. After the biochemical identification, their colony counts were detected. PCR were done on the extracted DNAs of *S. aureus* for superantigenic genes *sea*, *seb*, *sec*, *sed* and *see* and also on extracted DNA samples of *C. difficile* for toxin encoding genes of *tcdA* and *tcdB*.

Results: 50 colonic biopsies and 50 fecal samples (13 control and 37 case), *S. aureus* and *C. difficile* were isolated from 16% and 8% of the samples, respectively. All of the isolates belonged to hospitalized patients with UC. PCR on all the *S. aureus* and *C. difficile* isolates showed positive results for *sea* and *tcdA* and *tcdB* genes, orderly. Counting of grown colonies represent overgrowth of these bacteria in a count of CFU /gram of stool samples and of tissue suspensions.

Conclusion: Our findings showed significant relationship between simultaneous presences of toxigenic strains of *S. aureus* and *C. difficile* in hospitalized patients with IBD. Prolonged course of UC disease and poor response to conventional therapy in these patients could be due to induced immunological and pathological responses had been initiated by release of large quantities of toxins from these bacteria.

Keywords: Superantigenic *Staphylococcus aureus*; Toxigenic *Clostridium difficile*; IBD