

## THE ROLE OF CYTOKINES IN THE DEVELOPMENT OF IRRITABLE BOWEL SYNDROME

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Currently, intestinal functional disorders are the most common pathology among patients with a gastroenterological profile [1].

According to the Rome IV criteria, irritable bowel syndrome (IBS or irritable bowel syndrome) is recurrent abdominal pain that occurs at least once a week, associated with changes in defecation, stool frequency and shape. It is a functional disorder of the intestine manifested by diarrhea. These signs should be observed during the last three months in a patient with a disease duration of 6 months [2,3,4,5].

**The purpose of the study** it consists in evaluating the status of pro-inflammatory and anti-inflammatory cytokines in various forms of irritable bowel syndrome.

**Research material and methods.** The study was conducted in the department of gastroenterology of the multidisciplinary medical center of Bukhara region, and 157 patients treated in the inpatient setting with IBS were selected. The diagnosis of IBS was made based on IV Rome criteria.

All patients underwent esophagogastroduodenoscopy (FUGINON. FUGI FILM EPX-2500, 2014, Japan; FUGI FILM-EG-530PF, 2014, Japan), colonoscopy (FUGI FILM-EG-530FL, 2014, Japan), stool examination for dysbacteriosis, ultrasound examination of internal organs (Vivid S-60, 2014, Norway), cytokine analysis - IL-1 $\beta$ , IL-4, IL-6, IL-10,  $\alpha$ -TNF (Vektor-Best reagents) and fecal calprotectin (De medi tec reagents) were examined.

**Research results.** A comparative analysis of inflammatory and anti-inflammatory cytokines in patients with IBS revealed increased levels of pro-inflammatory cytokines - IL-1 $\beta$ , IL-6,  $\alpha$ -TNF and anti-inflammatory cytokines - IL-4 and a decrease in IL-10 was found. When analyzing cytokines among the types of IBS, it was found that the amount of inflammatory cytokines increased significantly in the refractory type compared to the non-refractory type ( $p < 0.05$ ). When the types of diarrhea and constipation were compared, insignificant deviations were found. The amount of pro-inflammatory cytokines differed between the groups. A significant decrease in the level of IL-10 was found in non-refractory IBS with constipation predominance ( $p < 0.05$ ),

The levels of pro-inflammatory - IL-1 $\beta$ , IL-6,  $\alpha$ -TNF and anti-inflammatory - IL-4 and IL-10 cytokines were analyzed. Elevated levels of pro-inflammatory cytokines IL-1 $\beta$ , IL-6, and  $\alpha$ -TNF were more common in refractory IBS than in nonrefractory IBS. Decreased levels of the pro-inflammatory cytokines IL-4 and IL-10 were similarly more marked in refractory IBS.

Thus, the literature sources and the results of personal research showed that in irritable bowel syndrome, which is considered a functional disease of the intestine, the imbalance of cytokines is considered to be of great importance, especially this imbalance is characterized by a decrease in the amount of anti-inflammatory cytokine IL-10. Such changes indicate the importance of cytokines in the pathogenesis of functional disorders, as well as the importance of systemic immune-inflammatory mechanisms in the development of IBS. Since the imbalance of cytokines manifests the dynamics and intensity of immune disorders in functional diseases of the gastrointestinal tract, the assessment of cytokine status is of important diagnostic and prognostic importance.

**Conclusion.** In both types of IBS, the levels of pro-inflammatory cytokines - IL-1 $\beta$ , IL-6 and  $\alpha$ -TNF were reliably increased. Anti-inflammatory cytokines - IL-4 and IL-10 decreased.

### References

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