



**IMMUNOHISTOCHEMICAL STUDIES (EXPRESSION OF THE KI-67 MARKER) IN
THE ACUTE AND CHRONIC PERIOD OF NONSPECIFIC ULCERATIVE COLITIS**

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Abstract: In practical medicine of Uzbekistan, immunohistochemical (IHC) studies have begun to be widely used as an innovative method that allows for more accurate pathohistological diagnostics. This examination allows for the detection of changes at the cellular level in tissues, in particular, the localization and expression of antigens. In our study, the expression of the proliferative marker Ki-67 in the epithelial cells of the large intestine mucosa was studied using an immunohistoprocessor Leica Bond (Austria).

purpose

Assessment of immune inflammatory processes in nonspecific ulcerative colitis (NUC) and determination of the level of expression of the Ki-67 marker in the mucous membrane and mesenchymal cells.

Materials and methods.

Biopsy materials were taken from the mucous membrane of the colon. IHC studies were conducted using the Ki-67 marker. The results were evaluated by the localization and intensity of immune cells. Ki-67 protein is a sign of cell proliferation and is used in immunohistochemical research. Ki-67 protein is associated with cell proliferation. In the interphase stage, only the nucleus of the Ki-67 antigen is detected in the cell, and during cell division, most of it migrates to the surface of the chromosomes.

Ki-67 protein is observed in each active phase of the cell cycle (G-1, G-2 and mitosis), while it is not observed in the non-proliferating phase (G-0). The Ki-67 protein increases sharply in the mitotic progression of cells.

Positive expression in the cell nucleus was determined, and the positive expression of all cells was calculated as a percentage.

- 1) 10% - low,
- 2) 10-20% - moderate,
- 3) 20% more is considered a high degree of expression.

Results.

Marker Ki 67 is a marker that determines cell proliferation during exacerbation of chronic nonspecific ulcerative colitis, and G1, C, G2, M are expressed to varying degrees (light, medium, and strong liver color) in all active periods of the cell. From the initial phase of cell activation G1 to the M phase, this marker was highly expressed and was clearly manifested in the metaphase of mitosis. In the initial phase of G1, the Ki-67 marker is located in the centromere of the satellite DNA and in the telomere of the chromosome.

In the middle phases of cellular proliferative activation in chronic NUC, the Ki-67 marker was expressed in the nucleolus, and in the G2 phase - in the karyoplasm. A constant accumulation of

a large number of nucleic acids responsible for proliferative activity in the intranuclear space in the epithelium of the gland and in the nuclei of the covering epithelium in chronic NAFL manifested itself in the emergence of a high level of positive expression of the Ki-67 marker. In our study, during the exacerbation of NUC, the proliferative activity of the epithelium of the mucous membrane and mesenchymal cells of the sublayer was high, which was $8.14 \pm 1.12\%$ in the control group and $36.1 \pm 4.56\%$ in the study. The positive expression of the Ki-67 marker was manifested by high activity in the epithelium of the mucous membrane and mesenchymal cells, staining the nuclei of these cells by the marker.

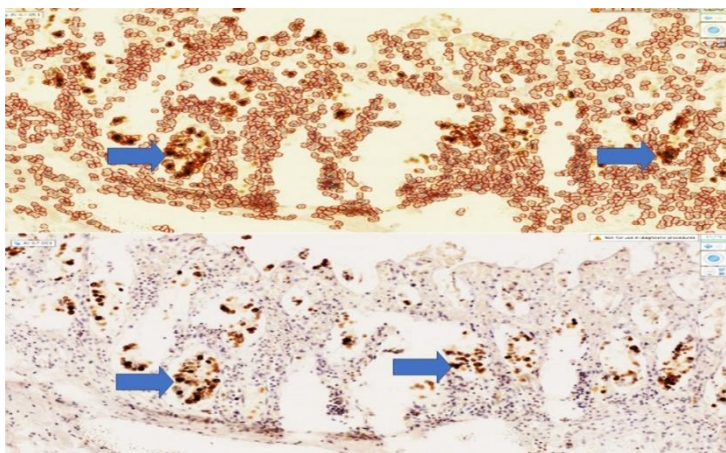


Figure 1. *Low positive expression of the Ki-67 marker in the mucous and submucosal structures in the acute phase of chronic nonspecific ulcerative colitis. Positive reaction in the nucleus of the glandular epithelium of the mucous membrane, dark brown staining. It was scanned in the QuPath-0.4.0.ink. program and the expression level was determined. Dye by the Dab chromogen method. Cat. white. 10x10.ob*

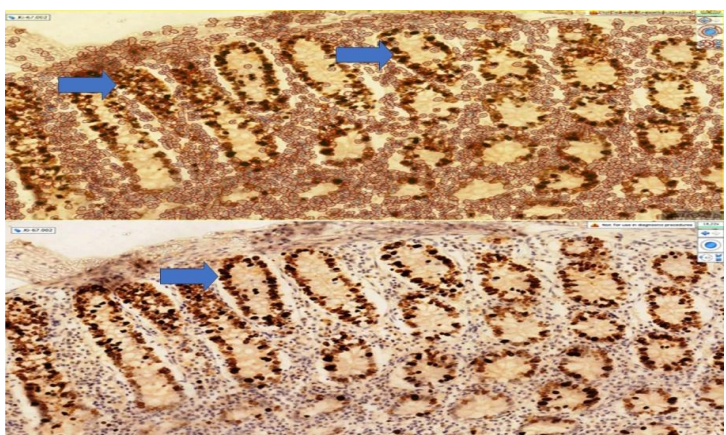


Figure 2. *Moderate positive expression of the Ki-67 marker in the structures of the mucous membrane in the chronic period of nonspecific ulcerative colitis. Positive reaction in the nucleus of the glandular epithelium of the mucous membrane, dark brown staining. It was scanned in the QuPath-0.4.0.ink. program and the expression level was determined. Dye by the Dab chromogen method. Kat. 10x10.*



Conclusion.

Immunohistochemical studies in NUC are important for assessing the level of inflammation, controlling the effectiveness of differential diagnosis and treatment. In our study, when examining the mucous membrane with the Ki 67 marker in nonspecific ulcerative colitis, a low indicator of proliferative activity was found in cells that underwent alteration and were in a state of necrobiosis in the acute period. This was manifested in the form of moderately positive expression in immunohistochemical studies. In our study, 2 cases of low positive expression were identified, which is also explained by the transition to the proliferative phase of the acute period.

References

1. Odze R., Goldblum J. Surgical Pathology of the GI Tract. 2019.
2. Kumar V., Abbas A. Robbins Basic Pathology. 2022.
3. Rutter M. et al. Colitis pathology and biomarkers. J Clin Gastroenterol. 2020.
4. Brown I. Ki-67 in gastrointestinal pathology. Modern Pathology. 2018.