The expression of apoptosis-related proteins in patients with ulcerative colitis

Niewiarowska K.¹, Gryko M.², Pryczynicz A.¹, Famulski W.³, Czyżewska J.⁴, Kemona A.¹, Lebelt A.⁵, Piekarska-Dymicka V.⁴, Jagodzińska D.¹, Guzińska-Ustymowicz K.¹*

¹. Department of General Pathomorphology, Medical University of Białystok, Poland
². 2nd Department of General and Gastroenterological Surgery, Medical University of Białystok, Poland,
³. Department of Medical Pathomorphology, Medical University of Białystok, Poland
⁴. Department of Clinical Laboratory Diagnostics, Medical University of Białystok, Poland
⁵. Department of Human Anatomy, Medical University of Białystok, Poland

ABSTRACT

Purpose: Recent literature data indicate a key role of apoptosis in the pathogenesis of inflammatory bowel disease. The aim of the study was to evaluate the expression of Bax, Bid, Bcl-2 and Bcl-xl in non-dysplastic and dysplastic epithelium in inflamed mucosa of patients with ulcerative colitis. Methods: The study consists of 18 patients with diagnosed ulcerative colitis. The expression of proteins was determined immunohistochemically. Results: Lack of Bax expression in normal epithelium of the inflamed intestinal mucosa (94.4%) and a weak expression of this protein were found in dysplastic glandular cells (67%). The Bax expression of dysplastic epithelium correlates with reduced severity of chronic inflammation (p<0.005). Bid expression in non-dysplastic glands was found in 67% of cases vs. 16% in dysplastic epithelium that was associated with the occurrence of epithelial erosions or ulcers (p<0.05). Moderate cytoplasmic expression of Bcl-xl was noted in 27.7% of patients in normal epithelium and in 66.1% within dysplastic lesions. Bcl-xl expression in dysplastic glandular cells correlated with the presence of neutrophils in the lamina propria (p<0.05). Conclusions: The immunohistochemical expressions of Bax, Bcl-2 and Bcl-xl increase and Bid protein expression decreases in dysplastic glandular tubes as compared to non-dysplastic intestinal epithelium in inflamed mucosa, which may suggest an imbalance of controlled cell death in ulcerative colitis. Key words: Ulcerative colitis, Bcl-xl, Bax, Bid, Bcl-2