

ABSTRACT

Crohn's disease and ulcerative colitis are both entities of inflammatory bowel disease (IBD).

The nuclear transcription factor kappaB (NFκB) family consists of five different members, which are namely p65 (RelA), c-Rel, RelB, p50 and p52. NFκB has ability to promote the expression of various proinflammatory genes, to influence the course of mucosal inflammation and to mediate different cell-type specific effects.

Bilirubin is an endogenous substance with anti-oxidative and anti-inflammatory effects, which influences the process of inflammation and has protective effect.

This diploma thesis was aimed at conduction of methods of NFκB detection on paraffine tissue slices and observation of NFκB expression in large intestine walls of normobilirubin and hyperbilirubin rats (Gunn's variety) after chronic immunohistochemically-induced inflammation.

Eight Gunn's variety rats (G⁺) and eight Wistar's variety rats (K⁺) were used in this study, all after long time administration of dextrane-sulfate (DSS). For seven following days, DSS (in concentration of 2% w/v) was added into drinkable water for these rats, followed by 14 days of clear drinkable water (without DSS) administered to rats. This three-weeks long cycle was repeated twice (3 cycles in total were completed). Six rats of both varieties (6 G⁺ and 6 K⁺) without DSS administration were used as a control group.

Findings of immunohistochemical analysis showed detection of NFκB receptor in walls of large intestine cells of rats. Only slight nuclear NFκB reaction was found in all studied groups. This reaction appeared mostly in intestinal mucosa, in lamina propria cells, sometimes directly in epithelial cells.

There was no direct relationship between NFκB and DSS administration explicitly proved and also no difference between normobilirubin and hyperbilirubin rats observed. The fact that DSS do not induce significant inflammation reaction in large intestine wall of rat and that is not significantly affected by bilirubin level can be stated as a conclusion.