J Gastrointest Dig Syst 2018, Volume 8
DOI: 10.4172/2161-069X-C4-074

Expression of the inflammatory regulator A20 correlates with disease activity in ulcerative colitis patients

Jaishree Paul[1], Ishani Majumdar[1] and Vineet Ahuja[2]
[1]Jawaharlal Nehru University, India
[2]All India Institute of Medical Sciences, India

An aberrant immune response arising from intolerance towards luminal antigens and commensal microflora is a hallmark of UC. Transcription factor NF-κB is a major regulatory component influencing mucosal inflammation during disease condition. A20 *(TNFAIP3-* tumor necrosis factor alpha-induced protein 3 is an endogenous negative regulator of the NF-κB cascade. A20 forms a ubiquitin editing complex with the association of its partner molecules- *ITCH, RNF11* and *Tax1BP1* for its activation. Here, we have explored the expression of the above molecules in inflamed mucosa of UC patients vs. controls. mRNA expression of A20 significantly up regulated but negatively correlated with disease activity. However, mRNA levels of *ITCH, RNF11* and *Tax1BP1* significantly down-regulated with the severity of disease. Interestingly, all the four genes exhibited significant down regulation at protein level in patient's samples. NF-κB binding activity was traced to mRNA expression of the p65-subunit of NF-κB and *MAST3*. We observed significant increase in p65 mRNA expression and down-regulated *MAST3* expression. These observations suggested that A20 level is regulated by increase in expression of NF-κB. Down-regulation of A20 observed in patient samples correlated with the significant up-regulation of p65 sub-unit of NF-κB. This was further validated with *iNOS* gene, an inflammatory marker and with inhibitors of apoptosis, cIAP2 and XIAP as well as mediators of anti-apoptotic signals TRAF1 and TRAF2. We conclude that decreased expression of A20 and its partner molecules contribute to inflammation process by up-regulating the expression of NF-κB and further confirmed that up-regulation of apoptosis inhibitors probably create micro-environment for colorectal cancer.

jpaul33@hotmail.com