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Inflammatory Bowel Disease

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ACTIVATION OF SMAD 2 AND 3 IN COLONIC MUCOSA OF PEDIATRIC PATIENTS WITH CROHN'S DISEASE

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Objectives and Study: Transforming growth factor beta (TGF b) plays a crucial role in decreasing intestinal tissue-damaging immune responses, however, at the same time, induces collagen synthesis. SMAD 2 and 3 are key molecules in TGF b signaling pathway and they strongly contribute to the profibrotic effect of TGF b. Our aim was to investigate whether TNF- α , which is a central growth factor in intestinal inflammation, may alter the TGFb induced SMAD 2,3 phosphorylation in children with Crohn's disease (CD).

Methods: The phosphorylation of SMAD 2 and 3 in the inflamed and non-inflamed colonic mucosa of children with newly diagnosed CD (n=13) compared to healthy controls (n=10) was investigated by Western blot analysis. In addition, we investigated the expression of SMAD 2 and 3 by FACS analysis in HT-29 cell lines treated with TNF- α and cells treated with TNF- α and SMAD inhibitors.

Results: The protein level of phosphorylated SMAD 3 in the inflamed mucosa of children with CD increased compared to controls and non-inflamed mucosa of CD patients. Phosphorylation of SMAD 2 was similar in the inflamed and non inflamed mucosa of children with CD and also in the mucosa of healthy controls. In TNF- α treated HT-29 cell we found increased phosphorylation of SMAD2 and 3.

Conclusion: Our results suggest that TNF- α may participate in the increased activation of SMAD3 in the mucosa of CD children. Since SMAD 3 play a central role in tissue fibrosis in different organs our results may also suggest that TNF- α induced activation of SMAD 3 may contribute to intestinal fibrosis as well.

Disclosure of Interest: None Declared