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Interleukin-1 receptor antagonist knockout mice as a model of the inflammatory bowel disease

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The inflammatory cytokine Interleukin 1 (IL-1) is an important mediator of inflammation and tissue damage in inflammatory bowel disease (IBD). The activity of IL-1 is inhibited by a natural inhibitor: interleukin 1 receptor antagonist (IL-1Ra). The balance between IL-1 and IL-1Ra plays a vital role in diseases. We investigated whether inflammatory bowel disease could be induced spontaneously by the removal of IL-1Ra in mice. Histological staining was performed on BALB/C mice to characterize the morphology and enzyme activity of the small intestine from different ages and genotypes. Wild type mice served as a negative control. 20 well oriented villi/crypt units and villus width at midvillus in longitudinal tissue sections were measured in the jejunum and ileum. The number of goblet cells per villi was determined. Immuno histochemical staining was performed to localise and detect MUC2, MUC5AC, MMP2, MMP9, ADAMTS1, IL-1β and TNFα. The results showed that there was a significant decrease in the villi/crypts units' height in the jejunum and ileum whereas the width of the villi was increased in the jejunum and decreased in the ileum. The number of goblet cells per villi was increased in knockout mice compared with wild type mice. Research is ongoing for the analysis of the immunohistochemistry. We conclude that IL-1Ra knockout mice could act as a model for inflammatory bowel disease highlighting the importance of IL-1 in this disorder.

Biography

Rasha Hatem Saeed Dosh has completed her MSc from Al-Mustansiriyah University and worked as a Lecturer at University of Kufa College of Medicine/Iraq. She has published 4 papers in college of medicine journals. She is currently a second year PhD student at Sheffield Hallam University/UK.

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