

# Abstract

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## **A pilot study of fecal serine-protease activity: a pathophysiologic factor in diarrhea-predominant irritable bowel syndrome.**

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**BACKGROUND & AIMS:** The pathogenesis of irritable bowel syndrome (IBS) remains only partially understood, and no specific or universally effective patient management procedure has been developed to date. Our study was designed to evaluate if colonic luminal serine-proteases may be a relevant pathophysiologic marker of IBS.

**METHODS:** Fecal samples of 38 IBS patients, 15 patients with ulcerative colitis (UC), and 15 healthy controls were studied. Fecal serine-protease activity was determined photometrically by using azocasein as a proteolytic substrate; fecal pancreatic elastase-1 and mast cell tryptase content were measured by enzyme-linked immunosorbent assay. Fecal secretory leukocyte protease inhibitor concentration was determined by enzyme-linked immunosorbent assay in control subjects and in patients with diarrhea-predominant IBS.

**RESULTS:** Fecal serine-protease activity was 3-fold higher in patients with diarrhea-predominant IBS than in both controls and IBS patients with either constipation or alternating bowel habits. Fecal serine-protease activity was not correlated with the frequency of bowel movements in all groups. Increased serine-protease activity also was detected in stools of UC patients. No significant difference was observed in the fecal mast cell tryptase and pancreatic elastase concentrations between all groups, or in the fecal secretory leukocyte protease inhibitor concentration between controls and diarrhea-predominant IBS patients.

**CONCLUSIONS:** Fecal serine-protease activity is increased markedly in patients with diarrhea-predominant IBS. This increase, however, is not coupled with changes in either mast cell tryptase or pancreatic elastase concentrations. Thus, serine-protease activity in the colon may be a pathophysiologic factor in the development of diarrhea-predominant IBS.

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