Abstract

The present study was designed to evaluate the effects of three nonsteroidal antiinflammatory drugs (NSAIDs) with varying cyclooxygenase selectivities on the small intestinal biochemical composition, function and histology during 1, 2 dimethylhydrazine (DMH) administration. Sprague Dawley male rats were divided into five different groups viz: Group 1 (control, vehicle treated), Group 2 (DMH-treated, 30 mg/kg body weight/week in 1 mM EDTA saline, subcutaneously), Group 3 (DMH + aspirin-60 mg/kg body weight), Group 4 (DMH + celecoxib-6 mg/kg body weight), Group 5 (DMH + etoricoxib- 0.64 mg/kg body weight). After six weeks of treatment, brush border membrane was isolated from the jejunum segment of all the groups and changes in the associated enzymes such as sucrase, lactase, maltase, alkaline phosphatase, membrane lipid composition, fluorescence polarizations of diphenylhexatriene, pyrene excimer formation, histological changes and surface characteristics were studied. The results indicated a significant alteration in the enzyme activity as well as changes in the structure and function of the intestine in the presence of the procarcinogen, DMH, which suggests the possible chemopreventive efficacy of NSAIDs against the intestinal cancer.

Keywords

Aspirin, Celecoxib, Dimethylhydrazine, Etoricoxib, Fluorescence, Membrane lipid, Rat small intestine, Histology, Scanning electron microscopy.