

Protective effects of diets enriched with fish oil and grape seed extract on acetic acid induced colitis in Rat

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Abstract

Background and Objective: Ulcerative colitis is a chronic inflammatory bowel disease in which free radicals play an important role in its pathogenesis. It is supposed that diet enriched with Omega 3 fatty acid and antioxidant compounds can be effective in the treatment of this disease. Grape seed extract contains potent antioxidant compounds. The aim of the present study was to evaluate possible useful effects of fish oil and grape seed extract enriched diets on the reduction of colonic damage and inflammation in acetic acid induced colitis.

Materials and Methods: In this experimental study 50 male adult Wistar rats were randomly divided into five groups (n=10). Fish oil group (F group) received 1.6 ml fish oil, grape seed group (G group) received 50 mg/kg grape seed extract and fish oil + grape seed group (FG group) received 1.6 ml fish oil + 50 mg/kg grape seed extract orally for 1 month. Rats in control group (C group) and colitis group (Co group) received distilled water. After 1 month colitis induced in groups with intrarectal administration of 1ml acetic acid (4%) to induce ulcerative colitis. The control group received intrarectal saline. Two days after the induction of colitis the degree of tissue injuries and inflammation were assessed by macroscopical and histopathological scores of colonic mucosa.

Results: Acetic acid administration induced ulcers, inflammation and severe crypts damages in mucosal tissue of the colon. The rats with colitis in the FG group showed significantly less macroscopic, microscopic damages and inflammation in colonic tissues compared with those in colitis group. However treatment with grape seed extract and fish oil did not result in any significant improvements in macroscopic and microscopic scores.

Conclusion: The result of this study showed that fish oil and grape seed extract enriched diets before colitis induction play a protecting role against damages due to acetic acid induced colitis.

Keywords: Fish oil, Acetic acid, Colitis, Grape seed extract

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