Possible Protective Effects of Quercetin and Sodium Gluconate Against Colon Cancer Induction by Dimethylhydrazine in Mice.

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Abstract:

Micronutrients in food have been found to have chemopreventive effects, supporting the conclusions from epidemiologic studies that consumption of fresh fruits and vegetables reduces cancer risk. The present study was carried out to evaluate the role of quercetin (Q) and sodium gluconate (GNA) supplementation separately or in combination in ameliorating promotion of colon tumor development by dimethyl-hydrazine (DMH) in mice. Histopathological observation of colons in mice treated with DMH showed goblet cell dysplasia with inflammatory cell infiltration. This pathological finding was associated with significant alteration in oxidative stress markers in colon tissues and carcinoembryonic antigen (CEA) levels in plasma. Mice co-treated with GNA and Q showed mild changes of absorptive and goblet cells and inflammatory cell infiltration in lamina propria, with improvement in oxidative stress markers. In conclusion, findings of the present study indicate significant roles for reactive oxygen species (ROS) in pathogenesis of DMH-induced colon toxicity and initiation of colon cancer. Also, they suggest that Q, GNA or the combination of both have a positive beneficial effect against DMH induced colonic cancer induction in mice.

Keywords:

Colon cancer model oxidative stress histopathology Quercetin Sodium gluconate

Published In:

Asian Pacific Journal of Cancer Prevention, 16, 5823-5828