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Chemopreventive effects of Coltect, a novel dietary supplement, alone and in combination with 5-aminosalicylic acid in 1,2-dimethylhydrazine-induced colon cancer in rats.

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Abstract

Objectives: Coltect is a novel dietary supplement containing curcumin, green tea and selenomethionine. Previous reports have suggested that these agents can prevent colorectal cancer (CRC). The present study examined the chemopreventive effect of Coltect alone or combined with 5-aminosalicylic acid (5-ASA) using the 1,2-dimethylhydrazine (DMH) model in rats.Methods: The effect of Coltect was examined on HT-29 CRC cells by growth inhibition assay. Apoptosis was determined by annexin V-FITC/PI staining. Male rats were injected with DMH in vivo and treated with Coltect 150 mg/kg, 5-ASA 50 mg/kg or their combination, by oral gavage. Aberrant crypt foci (ACF) were identified by methylene blue staining. Results: HT-29 cells exhibited a dose-dependent response to Coltect. Part of the growth inhibition can be explained by the induction of mild-moderate apoptosis in cancer cells (28%) compared with the untreated cells (10%). In the in vivo model, the average number of ACF was divided into small (1-3 crypts) or large (\geq 4 crypts). The Coltect compound reduced the number of small and large ACF similarly to 5-ASA (40% reduction). This reduction was amplified by combining the two agents (70% reduction). Conclusion: Coltect inhibits the growth of colon cancer cells, induces apoptosis and inhibits ACF development. Furthermore, it augments the growth inhibitory effect of 5-ASA in vivo. This may be clinically important since this safe dietary supplement-drug combination can be administered as a chemopreventive regimen for the treatment of CRC.



