Abstract

Studies have shown fibers to be effective in reducing the appearance of aberrant crypt foci (ACF) in rodents. Objective: The goal of this study was to investigate the preventive effects of fructooligosaccharide (FOS) and inulin prebiotics on the appearance of ACF in mice. Materials and Methods: The techniques used were: RT-PCR to evaluate the gene expression of p16, p21, p54, cyclin D1 and cyclin E in the distal colon; the quantification of number of aberrant crypt foci (ACF) and measurement of catalase activity in the liver and distal colon. The animals were divided into five treatments (n=8); C-: AIN93M diet without fibers + DMH (1,2-dimethylhydrazine); INL: AIN93M diet with inulin; INLCA: AIN93M diet with inulin + DMH; FOS: AIN93M diet with FOS; FOSCA: AIN93M diet with FOS + DMH, during 15 weeks. Results: Inulin prevented the appearance of ACF in the proximal, middle and distal colon, compared to the control without fibers. In the middle and distal colon, FOS was also effective in preventing the incidence of ACF. This effectiveness may be attributed to the increased gene expression of p16 protein. Both prebiotics also decreased catalase activity in the distal colon, thus suggesting an antioxidant effect. Conclusion: These results suggest an antioxidant effect of prebiotics that may be attributed to the increased gene expression of p16.

Keywords

aberrant crypt, Prebiotics, prevention colon, p16 protein