Abstract

The etiology of colorectal cancer (CRC) involves the interaction of cell molecular changes and environmental factors, with a great emphasis on diet components. But the paths connecting lifestyle characteristics and the colorectal carcinogenesis remain unclear. Several risk factors are commonly found in western diets, such as high concentrations of fat and animal protein, as well as low amounts of fiber, fruits and vegetables. A large number of experimental studies have found a counteractive effect of fiber on neoplasia induction, especially in relation to fermentable fiber (wheat bran and cellulose). Epidemiological correlation studies have also indicated that a greater ingestion of vegetables, fruit, cereal and seeds is associated to a lower risk for colorectal neoplasia. Moreover, beneficial properties of fiber (especially from vegetable sources) were documented in more than half of case-control studies. Nevertheless, recent epidemiological data from longitudinal and randomized trials tended not to support this influence. Future research should evaluate what sources of fiber provide effective anti-neoplastic protection, carrying out interventional studies with specific fibers for longer periods. Red meat, processed meats, and perhaps refined carbohydrates are also implicated in CRC risk. Recommendations to decrease red meat intake are well accepted, although the total amount and composition of specific fatty acids may have distinct roles in this setting. Current evidence favors the substitution of long and medium-chain fatty acids and arachidonic acid for short-chain fatty acids and eicosapentaenoic acid. Excess body weight and excess energy intake inducing hyperinsulinemia have been also associated to CRC, as well as personal habits such as physical inactivity, high alcohol consumption, smoking and low consumption of folate and methionine. Thus, current recommendations for decreasing the risk of CRC include dietary measures such as increased plant food intake; the consumption of whole grains, vegetables and fruits; and reduced red meat intake.

Keywords

Colorectal cancer, epidemiology, risk factors, fiber.