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ABSTRACTS

Adjuvant Colon Cancer

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Fiber as Protective Factor for Colon Polyps

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Background: Colorectal cancer (CRC) is the third leading cause of death in the United States. The change in incidence patterns observed in populations previously considered at low risk for CRC suggests that environmental factors, including those related to diet, contribute to the etiology of this disease. It has been documented that the majority of colorectal cancers arise in adenomatous polyps. Although most colon polyps are harmless, some turn cancerous over time and as many as 30% to 40% of middle-aged and older adults may have one or more colon polyps. It is estimated that as much as one third to one half of colon cancer risk, and one fourth to one third of distal colon adenoma risk, might be avoidable by modification of dietary and life-style habits. Factors that have shown the most consistent protective effect against adenomas in epidemiologic studies include, among others, dietary fiber contained in fruits, vegetables, and grains. Because colonic polyps are so common in the industrialized world, prevention should play an important role.

Methods: This is a cohort study to compare the association between fiber intake from fruits, vegetables, and grains, and the risk of physician-diagnosed colon polyps among 2,818 non-Hispanic white cohort members who had undergone colonoscopy. Subjects participated in two cohort studies, the Adventist Health Study-1 (AHS-1) in 1976 and again in the Adventist Health Study-2 (AHS-2) in 2002-2005. Dietary information was obtained from the self-administered questionnaire from the AHS-1, while outcome was assessed from the AHS-2. Logistic regression analysis was used to estimate the period risk of incident cases of polyps with adjustment for age, gender, BMI, physical activity, and alcohol and meat intake.

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Results: A total of 441 incident cases of colon polyps were identified. After adjusting for age, sex, BMI, physical activity, alcohol and meat, total fiber intake was inversely associated with the risk of colon polyps (RR for highest vs. lowest quartile = 0.705, 95% CI 0.505–0.984; $P = .04$, and RR for third-quartile vs. lowest quartile = 0.889; 95% CI 0.651 – 1.213; $P = .45$). This association showed a dose-response effect (P value for trend = .04). Analyses of various foods showed a protective effect of fiber contained in vegetables (RR for highest vs. lowest quintile = 0.649, 95% CI 0.453 – 0.930; $P = .018$). Individuals with 1-<4 times/week vs. >4 times/week of meat consumption had an inverse association with colon polyps (RR=0.587, 95% CI 0.403-0.856; $P = .0056$).

Conclusions: In this population with a high proportion of lacto-ovo-vegetarians, individuals who consumed low amounts of fiber, especially fiber contained in vegetables, and high amounts of meat, had higher risk of developing colon polyps. This relationship seems to have a dose-effect response.