

Clinical Update

New doubts about the diet-and-cancer connection

Schatzkin A, Lanza E, Corle D, Lance P, Iber F, Caan B, et al. Lack of effect of a low-fat, high-fiber diet on the recurrence of colorectal adenomas. Polyp Prevention Trial Study Group. *N Engl J Med* 2000;342:1149-55.

Background

Colorectal cancer is the second most common cancer and the second leading cause of death from cancer in Canada. Over 30 years ago, Burkitt¹ proposed that a high-fibre diet among Africans reduces their risk of colorectal cancer. Since then, much more evidence has accumulated that supports a pathogenetic role of diet in this disease. Observational studies, however, have been inconsistent in demonstrating benefit from a high-fibre diet.

Question

Does a low-fat, high-fibre diet reduce the risk of colorectal adenomas, the precursor lesion of colorectal cancer?

Design

This randomized controlled trial enrolled 2079 patients in 8 US centres. All subjects had had one or more colorectal adenomas removed within 6 months before randomization; none had a history of colorectal cancer. Those assigned to the intervention group received intensive counselling to follow a diet low in fat (20% of total calories) and high in fibre (18 g per 1000 kcal) and fruits and vegetables (3½ servings per 1000 kcal). Members of the control group followed their usual diet. A colonoscopy was repeated 1

year after randomization to remove any adenomas missed at the baseline colonoscopy. A final colonoscopy was then performed 4 years after randomization. The primary end point was the recurrence of adenomas seen at the final colonoscopy; secondary end points were the number, size, location and histologic features of the recurrent adenomas. The endoscopists and pathologists were blinded to each subject's group assignment.

Results

Of the subjects enrolled, 1905 (91.6%) completed the study. Those in the intervention group largely attained their dietary goals, whereas those in the control group continued to consume comparatively higher levels of dietary fat and lower levels of fibre, fruits and vegetables. The incidence of recurrent adenomas was 39.7% in the intervention group and 39.5% in the control group; the unadjusted risk ratio was 1.00 (95% confidence interval [CI] 0.90–1.12; $p = 0.98$). There was no significant difference between the groups in the incidence of advanced adenomas (≥ 1 cm in size or $\geq 25\%$ villous elements or evidence of high-grade dysplasia, including carcinoma). Colorectal cancer was diagnosed in 10 subjects in the intervention group, as compared with 4 in the control group; the difference was not statistically significant (unadjusted risk ratio 2.5; 95% CI 0.8–7.9; $p = 0.19$).

Commentary

This study represents the largest clinical trial examining dietary intervention

in the prevention of colorectal cancer. As found in another study involving supplementation with wheat-bran fibre,² published simultaneously, there was no reduction in the risk of recurrent adenomas or, by inference, colorectal cancer with a diet low in fat and high in fibre, fruits and vegetables. One cannot definitively conclude, however, that dietary modification is ineffective in preventing colorectal cancer. For example, subjects in the intervention group may have exaggerated their self-reported dietary changes, the dietary targets may have been too modest, or the period of follow-up may have been too short to demonstrate benefit.

Practice implications

A diet low in fat and high in fibre, fruits and vegetables does not appear to reduce the risk of recurrent colorectal adenomas over the short term, but such a diet may still be advisable for other health reasons.^{3,4} — Benjamin H. Chen

The Clinical Update section is edited by Dr. Donald Farquhar, head of the Division of Internal Medicine, Queen's University, Kingston, Ont. The updates are written by members of the division.

References

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