Short Communication

Recurrent Adenomatous Polyps and Body Mass Index


Abstract

Interest in risk factors for the recurrence of adenomatous polyps derives from the use of recurrent adenomas as surrogate end points in longitudinal studies of invasive colorectal cancer. In this case-control study, the effect of increased body mass index (BMI) on the risk of recurrent adenomas was investigated. Subjects consisted of patients seen at three colonoscopy practices in New York City, all of whom had a previous history of adenomas. On index colonoscopy, recurrent cases had an adenoma, whereas controls were normal. Men and women were analyzed separately, with different logistic models developed using backward elimination from a full model containing the covariates age at diagnosis, age-at-highest-weight, pack-years of smoking, activity level, energy intake, and fat and fiber intake. Men in the upper quartiles of BMI were at greater risk of recurrent adenomas. In a model which controlled for age at diagnosis, age-at-highest-weight, activity level, pack-years of smoking and kilocalories, the estimated odds ratios were 2.2, 1.9 and 1.9 respectively for the second, third and fourth quartiles compared to the first quartile. Only the estimate for the second quartile was found to be statistically significant. No effect was observed for women, even in a model which controlled for age at diagnosis, age-at-highest-weight, pack-years and total fat. Obesity may play a role in adenoma recurrence. Confirmation of this finding would have important implications for possible prevention strategies in the future.

Introduction

Obesity is a potentially modifiable life-style factor which has been suggested as a risk factor for both colorectal cancer (1-10) and newly diagnosed adenomatous polyps (10-13). As adenomas are generally thought to be precursor lesions for most cases of colorectal cancer (14), their recurrence has often served as a surrogate end point for invasive cancer in intervention trials. This study examined the relationship between obesity or increased body mass index and recurrent adenomas; an association would suggest a way to decrease the risk of recurrence and possibly of colorectal cancer itself.

Subjects and Methods

Population. The subjects of this case-control study were patients seen at three colonoscopy practices in New York City from April 1986 to March 1988 who were 35-84 years of age; resided in New York, New Jersey or Connecticut; were English or Spanish speaking; and had a colonoscopy extending at least to the splenic flexure. Of 2750 colonoscopy patients seen during this time period, 2334 (85%) were eligible. Of these, 1892 (81%) completed questionnaires by telephone (71%) or mail (29%) on demographic characteristics, medical history, lifestyle, family history, and the Block food frequency questionnaire (15). The remaining 19% refused or were unreachable.

Within the context of this analysis, only the 545 persons with a self-reported history of adenomas were studied. A recurrent case was defined as a person with an adenoma on index colonoscopy. Persons with a normal index colonoscopy comprised the controls. Pathology reports for adenoma histories were obtained for a random sample of 100 cases and controls and diagnosis confirmed in 97. There were 139 male and 59 female cases, and 198 male and 149 female controls found among the 1892 eligible participants. Subjects with a history of inflammatory bowel disease or colorectal cancer were excluded. For most of the subjects of this particular analysis, i.e., the recurrent cases and the controls, the index colonoscopy was performed as a routine surveillance procedure, generally in the absence of symptoms.

BMI\(^1\) was computed using the formula for Quetelet's index (16): \[\text{BMI} = \frac{\text{weight(kg)}}{\text{height(m)}^2}\]. The weight was the subject's self-reported highest lifetime weight. Highest lifetime weight was chosen rather than current weight since current weight may be depressed due to the presence of disease. Highest lifetime weight was missing for three male cases, two female cases and one male control. Subjects were also queried as to their physical activity level in both leisure and work activities, relative to other people of their age and sex, and characterized themselves as "very active", "somewhat active", "somewhat inactive" and "inactive".

Statistical Analysis. Men and women were analyzed separately using the SAS program "proc logistic". Each group was divided into quartiles of BMI based on the respective controls. An initial model (model 1) used age at diagnosis and age-at-highest-weight as covariates. A "full" model (model 2) also controlled for pack-years of smoking, activity level, energy intake (in kilocalories), and fat and fiber intake (in grams).

\(^1\) The abbreviation used is: BMI, body mass index.
female cases in the study \((n = 57)\), may have resulted in a null finding for women.

This study is potentially limited by the retrospective recall of weight, age-at-highest-weight and dietary habits. Selection bias is a possibility, however, as cases and controls were both drawn from the same three colonoscopy practices, the bias should apply to all subjects equally. The amount of weight change since the first diagnosis of adenoma as well as its clinical characteristics are unknown and may be important. In addition, we cannot know from these analyses whether the timing and/or the duration of high BMI is detrimental to a patient’s digestive health.

References
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