Report on the national case-control study of bowel cancer

The analysis had to be repeated due to an error found on double checking the results. In addition, the analysis was complicated by the finding of important interactions between some of the exposure variables. However, the first of several manuscripts describing the results has been submitted for publication and distribution of information about the results of the study are embargoed until publication.

The main findings were:

Significantly increasing risk

Increased body mass index (BMI) at 20 years of age.
Consumption of processed meat.
Consumption of some other red meats.
Consumption of bread.
Family history of bowel cancer.
Being male.
Being a past smoker, but not a current smoker.
Increased amount of cigarettes ever smoked, but this was reduced and no longer significantly associated with risk, with increasing alcohol consumption.

Significantly reducing risk

Modest consumption of vegetables, but more than one serving of vegetables per day did not appear to further reduce risk.
Consumption of milk.
History of vigorous exercise inducing breathlessness and amount of sports participation, but not lesser levels of exercise.
A previous lower GI endoscopy procedure within the 20 years before diagnosis, or receipt of the control questionnaire, was associated with about an 80-85% reduction in risk of bowel cancer.

Comments

The relationship of bowel cancer with fruit consumption was non-linear, as has been reported by the World Cancer Research Fund, but with a suggestion that modest consumption of fruit may be associated with an increased risk of bowel cancer in New Zealand. A non-linear increased risk with the consumption of dairy products was found, but with significantly reduced risk from milk consumption.

As food groups are not specific molecular exposures, their interpretation is not straightforward and, to some extent, will probably need to differ in New Zealand compared to other countries. This may be due to the effect of diet on the bacterial colonisation of the colon, if the type of bacteria present are shown to be a contributor to the onset of adenomas of the colon and bowel cancer.

Funding for the epigenetic analysis of the tissue of the patients in this study is currently being sought, through a Cancer Society research proposal, to assess the pattern of molecular differences of bowel cancer in New Zealand and their relationship to the exposures that we have found to alter bowel cancer risk in New Zealand.

The study was a fundamental building block to establish effect prevention of bowel cancer in New Zealand. All results will acknowledge BCNZ's significant

contribution and, of course, be provided to BCNZ.

Research Associate Professor Brian Cox

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