Saturated fat intake linked to risk of inflammatory bowel disease – results of a case control study

A Bencke[1], DCK Roberts[1], R Batey[2]

[1]*School of Health Sciences, University of Newcastle, NSW, 2308 and*
[2]*Department Gastroenterology, John Hunter Hospital, NSW, 2305*

Objective – To determine the pre symptomatic dietary factors which predispose to the development of inflammatory bowel disease (IBD).

Design – Case control study of newly diagnosed cases with IBD matched (within 5 years of age, gender and geographic location) to randomly selected (electoral roll) multiple controls. Cases were recruited within 6 months of diagnosis from NSW and ACT by referral from gastroenterologists. Diet was assessed within 2 years of onset of symptoms prior to diagnosis using a 218 item food frequency questionnaire which included vitamin supplement use. Questions on potential confounders (education, work, nationality, supplement use) or effect modifiers (smoking, breastfed, oral contraceptive use, appendectomy and tonsillectomy) were included. Energy adjustment was used in the analysis and conditional logistic regression for matching.

Outcomes – Data from 107 case and 308 matched controls were useable for analysis. Education, work status, tonsillectomy, vitamin supplement use and alcohol use were not associated with IBD. Having ever smoked (prior to symptoms) was significantly associated with IBD, although current smoking was not. Having been breastfed was negatively associated with IBD, while OC use was positively associated with IBD. Median energy intake was higher ($P < 0.01$) in cases (11.4 MJ) than controls (10.0 MJ). Utilising energy adjustment by regression analysis resulted in total fat, and saturated fat intake being higher in cases than controls. Using energy adjusted nutrient intakes, conditional logistic regression produced odds ratios that were significantly higher for total fat, saturated and monounsaturated fat. Controlling for the effect modifiers/ confounders found in the univariate analysis left saturated and total fat intake as the only significant predictors of IBD (Odds ratio 2.96 and 2.23 respectively, highest versus lowest quartile).

	Quartile 1 (OR =1)	Quartile 2	Quartile 3	Quartile 4	Q 2 OR	Q 3 OR	Q 4 OR	95%C CI	Trend P
Total Fat (g)	< 81	81–95	95–106	> 106	1.39	1.79	2.43	1.22–4.82	0.010
Saturated (g)	< 32	32–37	37–43	> 43	1.30	1.91	2.64	1.34–5.19	0.003
Monounsaturated(g)	< 29	29–34	34–38	> 38	1.50	1.43	2.06	1.05–4.01	0.049
After adjustment*									
Total Fat (g)	< 81	81–95	95–106	> 106	1.37	1.91	2.23	1.08–4.63	0.026
Saturated (g)	< 32	32–37	37–43	> 43	1.66	2.03	2.96	1.41–6.20	0.007

*Three confounders controlled in model – oral contraceptive use, past smoking & breastfed less than 6 weeks.

Conclusions – Increased consumption of saturated and total fat in the diet prior to symptom appearance is related to the subsequent appearance of IBD. Calculation of the population attributable risk from this data suggests that about one third of cases could be avoided if the population reduced saturated fat consumption below the top quartile of intake.