PWE-025

DOCOSAHEXANOIC ACID AND EICOSAPENTAENOIC ACID IN THE AETIOLOGY OF CROHN'S DISEASE: DATA FROM A EUROPEAN PROSPECTIVE COHORT STUDY (EPIC)

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S S M Chan*; on behalf of 'The IBD in EPIC Study' Investigators *Department of Gastroenterology, James Paget University Hospitals NHS Foundation Trust, Gorleston, UK*

Introduction Docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) are both n-3 polyunsaturated fatty acids which possess anti-inflammatory properties, including

biological effects on genetic expression, immune cell function and the production of inflammatory eicosonoids. The aim of this investigation was to conduct the first prospective cohort study to determine if low dietary intakes of these nutrients were associated with the development of incident Crohn's disease.

Methods A total of 229 702 healthy participants aged 30–74 years of age were recruited in a prospective cohort study (EPIC – European Prospective Investigation Into Cancer) who were resident in either: Sweden, Denmark, The Netherlands, Germany or The UK. At baseline, participants completed food frequency questionnaires from which their intakes of both DHA and EPA was determined. The cohort was followed up between 1992 and 2004 to identify those who developed Crohn's disease, with each diagnosis medically confirmed by a review of the medical notes. Each case was matched with four controls for gender, age at recruitment and centre and the analysis performed using conditional logistic regression, adjusted for smoking and total energy intake.

Results In the cohort, 84 participants developed incident Crohn's disease (64% women) at a mean age of 59.8 years (SD=9.8 years). The four higher quintiles of DHA intake were all negatively associated with the development of Crohn's disease, with odds ratios of similar magnitudes, with two reaching borderline statistical significance (OR=0.47 95% CI=0.20 to 1.10, $p=0.08$ for 3rd highest vs lowest quintile). There was threshold effect for DHA with a summation of the four higher quintiles, compared to the lowest quintile (daily intake of >0.07 g/day, showing a negative association (OR=0.50, 95% CI=0.25 to 1.02, $p=0.06$). There were no associations with dietary EPA intake (Trend HR=0.93, 95% CI=0.74 to 1.17, $p=0.53$).

Conclusion The data suggest a potential protective effect for a threshold level of dietary DHA in the aetiology of Crohn's disease, although longer follow-up time is required to accrue more cases and precisely define the effect size. DHA should be measured in future aetiological studies of this disease and could be assessed as a dietary treatment in clinical trials of patients.

Competing interests None.

Keywords Crohn's disease, docosahexaenoic acid, eicosapentaenoic acid, n-3 polyunsaturated fatty acids.