Dietary docosahexaenoic acid (DHA) and eicosapentanenoic acid (EPA) are both n-3 polyunsaturated fatty acids (n3 PUFAs) which have both anti-inflammatory and anti-carcinogenic activities, including inhibiting angiogenesis and tumour cell proliferation, and promoting apoptosis. The aim of this study was to conduct the first epidemiological investigation to determine if there is an inverse association between DHA and EPA intake and the risk of developing both Barrett’s oesophagus (BO) and oesophageal adenocarcinoma (OAC).

Methods A total of 25 659 men and women aged 40–75 years, were recruited between the years 1993 and 1997 into the European Prospective Investigation into Cancer (EPIC)-Norfolk cohort Study. At baseline, participants completed detailed 7-day food diaries which were coded by nutritionists. Subjects were then followed-up over subsequent years for the development of BO and OAC. A review of case notes confirmed these diagnoses. Dietary intakes were compared between cases and a random sample of 5 797 controls in a case-cohort analysis. Cox regression estimated the HR for both campesterol and total PS.

Results During follow-up, 104 patients were diagnosed with BO (80% men, median age 67.0 yrs [IQR 61.1–73.1] at diagnosis) after a median follow-up of 6.2 yrs (IQR 4.1–8.1). A further 63 patients developed OAC (53% men, median age 73.0 yrs [IQR 67.0–78.0] at diagnosis) after a median follow-up of 6.4 yrs (IQR 4.4–8.9). For BO, no significant associations were found with campesterol (HR 1.47, 95% CI 0.77 to 2.79) or total dietary PS (HR 1.28, 95% CI 0.70 to 2.33), in either sex. For OAC, in men, there were inverse associations with campesterol (HR 0.43, 95% CI 0.22 to 0.83, p=0.01) in a threshold manner, comparing the lowest quintile with a sumation of the top four quintiles of dietary intake. In women, for OAC, there were no such associations with campesterol (HR 2.13, 95% CI 0.44 to 10.15, p=0.34). Total PS intake (HR 0.71, 95% CI 0.38 to 1.35) was not significantly associated with OAC. For BO, no significant associations were found with either dietary DHA (HR 0.69, 95% CI 0.40 to 1.20, p=0.19) or EPA (HR 1.03, 95% CI 0.56 to 1.90, p=0.93). No gradient effects across quintiles were seen for either BO or OAC.

Conclusion Dietary DHA was associated with an approximate 50% risk reduction for OAC, although there were no significant effects for BO. The data support a role for dietary DHA in preventing the malignant transformation of BO to OAC, and therefore should be measured in future aetiological studies of OAC.

Competing interests None declared.

PWE-010 DIETARY CAMPESTEROL IS INVERSELY ASSOCIATED WITH THE RISK OF DEVELOPING OESOPHAEGAL ADENOCARCINOMA: A UK PROSPECTIVE STUDY IN THE EPIC-NORFOLK COHORT, USING INFORMATION FROM 7-DAY FOOD DIARIES

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Introduction Dietary phytosterols (FS), including campesterol, the most bioavailable of this group, are structurally similar to cholesterol, and are present in grain legumes, cereals, nuts and vegetable oils. Experimental studies have shown FS have several anti-carcinogenic effects, including inducing apoptosis and inhibiting both angiogenesis and cell proliferation. The aim of this study was to conduct the first epidemiological investigation to determine if an inverse association exists between FS intake and the risk of both Barrett’s oesophagus (BO) and oesophageal adenocarcinoma (OAC).

Methods A total of 25 659 men and women aged 40–75 years, were recruited between the years 1993 and 1997 into the European Prospective Investigation into Cancer (EPIC)-Norfolk cohort Study. At baseline, participants completed detailed 7-day food diaries which were coded by nutritionists. Subjects were followed-up over subsequent years for the development of BO and OAC. A review of case notes confirmed these diagnoses. Dietary intakes were compared between cases and a random sample of 5 797 controls in a case-cohort analysis. Cox regression estimated the HR for both campesterol and total FS.

Results During follow-up, 104 patients were diagnosed with BO (80% men, median age 67.0 yrs [IQR 61.1–73.1] at diagnosis) after a median follow-up of 6.2 yrs (IQR 4.1–8.1). A further 63 patients developed OAC (53% men, median age 73.0 yrs [IQR 67.0–78.0] at diagnosis) after a median follow-up of 6.4 yrs (IQR 4.4–8.9). For BO, no significant associations were found with campesterol (HR 1.47, 95% CI 0.77 to 2.79) or total dietary FS (HR 1.28, 95% CI 0.70 to 2.33), in either sex. For OAC, in men, there were inverse associations with campesterol (HR 0.43, 95% CI 0.22 to 0.83, p=0.01) in a threshold manner, comparing the lowest quintile with a sumation of the top four quintiles of intake. In women, for OAC, there were no such associations with campesterol (HR 2.13, 95% CI 0.44 to 10.15, p=0.34). Total FS intake (HR 0.71, 95% CI 0.38 to 1.35) was not significantly associated with OAC in either sex.

Conclusion Campesterol intake was associated with an approximate 55% risk reduction for OAC in men, although there were no significant effects in BO or for either condition in women. The data support a role for dietary campesterol, in preventing the malignant transformation of BO to OAC, and therefore these micronutrients should be measured in future aetiological studies of OAC.

Competing interests None declared.