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THE AETIOLOGY OF GALLSTONES – CAFFEINATED COFFEE IS ASSOCIATED WITH A REDUCTION OF SYMPTOMATIC GALLSTONES IN MEN: DATA FROM A UK PROSPECTIVE COHORT STUDY (EPIC-NORFOLK) USING 7-DAY FOOD DIARIES

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Introduction Caffeine and coffee may influence gallstone formation by stimulating gallbladder motility and reducing cholesterol saturation of the bile, although not all epidemiological studies have confirmed a protective effect of coffee. The aim of this study was to investigate the effect of caffeinated and decaffeinated coffee and caffeinated tea consumption in a prospective cohort study, for the first time using 7-day food diaries (7-DFDs) which are the most accurate feasible method of estimating dietary intake in large scale epidemiological studies.

Methods 25 639 participants (56% women), aged 40–74 years were recruited into the European Prospective Investigation into Cancer-Norfolk (EPIC-Norfolk) with 23 658 completing 7-DFDs at enrolment. The cohort was monitored for 14 years

for new symptomatic gallstones, with diagnoses confirmed by review of the clinical notes. The 7-DFDs recorded 1 week's diet including drink type, brands and volumes consumed. A representative sample of 3 970 and those with gallstone disease had their 7-DFDs coded by nutritionists using a computer program containing nutrient information on 11 000 food and drink items. A cohort analysis used Cox regression modelling to estimate HRs for men and women, comparing 1, 2 or 3+ cups (1 cup=250 ml) of caffeinated coffee and tea intake per day versus zero intake as well as a binary variable of any caffeinated coffee versus none and decaffeinated coffee versus none. The analyses were adjusted for the risk factors: age, body mass index, energy, alcohol and physical activity in men, and also parity and hormone replacement therapy use in women.

Results 177 women (mean age of diagnosis 66.5 years SD 9.5 years) and 90 men (64.2 years SD 9.2 years) developed symptomatic gallstones. In men, caffeinated coffee intake was associated with a decreased risk of symptomatic gallstones (3+ cups day vs zero intake HR 0.48, 95% CI 0.26 to 0.89) with a significant trend across categories (per 1 cup increase HR 0.79, $p=0.022$). Drinking any caffeinated coffee compared to zero consumption in men, the HR was 0.58 (95% CI 0.38 to 0.90, $p=0.015$). If all men consumed three or more cups of caffeinated coffee a day, then 26% of symptomatic gallstones could be prevented. No effects were found for tea and decaffeinated coffee consumption in men and any drink intake in women (any caffeinated coffee vs zero consumption HR 0.84, 95% CI 0.60 to 1.17, $p=0.30$).

Conclusion The data suggests that caffeinated coffee may reduce the risk of symptomatic gallstones in men but not in women. Coffee should be measured in future studies investigating the aetiology of gallstones in men.

Competing interests None.

Keywords aetiology, coffee, gallstones.