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ORIGINAL RESEARCH COMMUNICATION

Heme and non-heme iron consumption and risk of gallstone disease in men[1,2,3]

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Background: Excessive iron intake can promote biliary cholesterol crystal formation in experimental studies. The absorption of heme iron is more complete than that of non-heme iron in humans; however, the effect of long-term consumption of heme and non-heme iron on the risk of gallstones is unknown.

Objective: The objective of the study was to examine long-term iron intake in relation to the occurrence of gallstone disease.

Design: We prospectively studied intakes of heme and non-heme iron and the risk of gallstone disease in a cohort of 44 758 US men from 1986 to 2002. Iron consumption was assessed by using a validated semiquantitative food-frequency questionnaire. Newly diagnosed gallstone disease was ascertained biennially.

Results: We documented 2468 incident cases of symptomatic gallstones during 597 699 person-years of follow-up. The age-adjusted relative risks (RRs) for men with intakes of heme iron and non-heme iron, when the highest and lowest quintiles were compared, were 1.21 (95% CI: 1.06, 1.37; *P* for trend = 0.0008) and 1.02 (95% CI: 0.90, 1.16; *P* for trend = 0.45), respectively. After adjustment for multiple potential confounding variables, when extreme quintiles were compared, the multivariate RR of heme iron intake was not significantly changed and remained significant with a dose-response relation (RR = 1.21; 95% CI: 1.03, 1.42; *P* for trend = 0.01), and that of non-heme iron intake was not significant (RR = 1.14; 95% CI: 0.99, 1.31; *P* for trend = 0.18).

Conclusion: Our findings suggest that a higher consumption of heme iron is associated with a greater risk of gallstone disease among men.

Key Words: Iron • gallstone • gallbladder • heme iron • non-heme iron • men