Coffee consumption and risk of nonaggressive, aggressive and fatal prostate cancer--a dose-response meta-analysis.

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Abstract

BACKGROUND: Existing epidemiological evidence is controversial regarding the possible associations between coffee consumption and risk of prostate cancer (PCa) by aggressiveness of the disease.

MATERIALS AND METHODS: We conducted a random-effects dose-response meta-analysis to assess the relationships between coffee consumption and nonaggressive, aggressive and fatal PCa risk. Studies were identified by a search of Medline and Embase databases to 15 July 2013. We carried out separate analyses by grade (Gleason score: low-grade, high-grade) and stage (TNM staging system: localized, advanced) of the tumors. Nonaggressive tumors were defined as low-grade or localized, while aggressive tumors were defined as high-grade or advanced.

RESULTS: Eight studies (three case-control and five cohort) were included in this meta-analysis. Gleason 7 tumors were classified as high-grade in one study, while in another study, Gleason 7(4 + 3) tumors were classified as high-grade and Gleason 7(3 + 4) as low-grade. In the remaining four studies, Gleason 7 tumors were excluded from the analyses or analyzed separately. The pooled relative risk (RR) for a consumption increment of 3 cups/day was 0.97 [95% confidence interval (CI) 0.92-1.03] for low-grade PCa (n = 6), 0.97 (95% CI 0.94-0.99) for localized PCa (n = 6), 0.89 (95% CI 0.78-1.00) for high-grade PCa (n = 6), 0.95 (95% CI 0.85-1.06) for advanced PCa (n = 6) and 0.89 (95% CI 0.82-0.97) for fatal PCa (n = 4). No evidence of publication bias was observed. Heterogeneity was absent or marginal (I² range = 0-26%), with the only exception of the analysis on advanced PCa, where moderate heterogeneity was observed (I² = 60%). When restricting the analyses only to those studies that defined high-grade tumors as Gleason 8-10, the inverse association became slightly stronger [RR: 0.84 (95% CI 0.72-0.98); n = 4].

CONCLUSIONS: Results from this dose-response meta-analysis suggest that coffee consumption may be inversely associated with the risk of fatal PCa. No clear evidence of an association with PCa incidence was observed.

KEYWORDS: coffee, dose–response meta-analysis, epidemiology, prostate cancer

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