

Association between dietary vitamin C intake and risk of esophageal cancer: A dose-response meta-analysis.

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Abstract

While several epidemiological studies have investigated the association between vitamin C and risk of esophageal cancer, the results remain inconsistent. In the present study, a meta-analysis was conducted to assess the impact of dietary vitamin C intake on esophageal cancer risk. Online databases were searched up to March 29, 2015, for studies on the association between dietary vitamin C intake and esophageal cancer risk. Pooled risk ratios (RRs) or odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using a random-effects model. Dose-response analyses were performed using the method of restricted cubic splines with four knots at percentiles of 5, 35, 65 and 95% of the distribution. Publication bias was estimated using Egger's tests and funnel plots. In all, 15 articles were included in this meta-analysis, including 20 studies, containing 7063 controls and 3955 cases of esophageal cancer. By comparing the highest vs. the lowest categories of vitamin C intake, we found that vitamin C was inversely associated with the risk of esophageal cancer [overall OR = 0.58, 95% CI = 0.49-0.68, $I(2) = 56%$]. A linear dose-response relationship was found. With an increase in dietary vitamin C intake of 50 mg/day, the risk of esophageal cancer statistically decreased by 13% (OR = 0.87, 95% CI = 0.80-0.93, $p(\text{linearity}) = 0.0002$). In conclusion, our analysis suggested that the higher intake of dietary vitamin C might have a protective effect against esophageal cancer.

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