Carbohydrate quantity and quality affect the risk of endometrial cancer: a systematic review and dose-response meta-analysis

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Abstract

Objective: Data on the association of glycemic index (GI) and glycemic load (GL) with risk of endometrial cancer up to 2012 have been summarized in a meta-analysis.

Methods: The online databases were searched for relevant publications up to May 2018. Overall, 8 prospective cohort and 5 case-control studies were included in the systematic review and meta-analysis. Two reviewers independently screened literature according to the inclusion and exclusion criteria. Results: Subgroup analysis revealed a significant positive association between dietary intake of total carbohydrate and risk of endometrial cancer after combining estimates from 3 prospective cohort studies with ≥10 years' duration of follow-up (Combined effect size: 1.29, 95% CI: 1.09-1.53, P = 0.003) and when 3 prospective cohort studies with sample size of ≥50,000 participants were combined (Combined effect size: 1.24, 95% CI: 1.08-1.43, P = 0.002). In addition, a non-linear dose-response relationship was found in this regard after considering estimates from prospective cohort studies (Pnonlinearity = 0.002). Combining effect sizes from case-control studies showed a significant positive association between GI and risk of endometrial cancer; such that in linear dose-response analysis, a 10 unit increase in GI was associated with 4% greater risk of endometrial cancer. However, this association was not significant in prospective cohort studies (P > 0.50).Conclusions: Although dietary intake of total carbohydrate, GI and GL were not significantly associated with risk of developing endometrial cancer, we did find positive association in some subgroups. We found a significant positive non-linear association of GI and GL with risk of endometrial cancer.

Keywords: "Carbohydrate"; "endometrial neoplasms"; "glycemic load"; "glycemic index"; "diet"