



Association between Dietary Inflammatory Index (DII) and Risk of Gastric Cancer and Validation of DII with Serum Concentration of Inflammatory Factors: Case-Control Study

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Background: Gastric cancer is the fourth major malignancy and the second leading cause of cancer-related deaths worldwide. Studies have shown that dietary components are implicated in the etiology of gastric cancer. The relationship between diet-related inflammation and the risk of gastric cancer has not been investigated.

Methods: We examined the ability of DII to predict the risk of gastric cancer in a case-control study conducted from December 2014 to May 2016. This included 82 cases and 95 controls, who attended specialized centers in Tabriz, Iran. DII scores were computed based on dietary intake assessed using a validate 168-item FFQ. Logistic regression models were used to estimate multivariable ORs adjusted for age, sex, BMI, education, smoking, alcohol, *H.pylori* infection, physical activity, aspirin/NSAID use and total caloric intake.

Results: When DII scores were analyzed both as a dichotomous variable and as a continuous variable. In the fully adjusted model, subjects with DII score >-1.77 , compared with subjects with $DII \leq -1.77$, had nearly 3.5 times higher odds of having gastric cancer ($OR_{DII > -1.77 \leq -1.77} = 3.39$; 95%CI=1.59, 7.22). When DII scores were fit as a continuous variable and controlling these same factors there was >2.5 increased risk of gastric cancer for each DII point ($OR=2.65$, CI=1.73-4.07). Also, for every one-unit increase in DII, there was a corresponding increase in hsCRP, TNF-alpha, IL-6 and IL-1b: $\beta=0.09$ (95%CI:0.006, 0.17); 0.16 (95%CI:0.05, 0.26); 0.16 (95%CI:0.06, 0.27) and 0.10 (95%CI:0.02, 0.19), respectively; and a corresponding decrease in IL-10: $\beta=-0.11$ (95%CI: -0.21, -0.005).

Conclusion: Subjects who consumed a more pro-inflammatory diet were at increased risk of gastric cancer compared to those who consumed a more anti-inflammatory diet.

Key words: Gastric Cancer, Inflammation, Dietary Inflammatory Index (DII), Nutritional Assessment, Inflammatory Factors