

Association between levels of Trimethylamine N-Oxide and cancer: A systematic review and meta-analysis

Adeleh Khodabakhshi

Kerman University of Medical Sciences, Iran

Abstract: Cancer is the second-leading cause of death in the world. The effects of Trimethylamine-N-oxide (TAMO), a small amine oxide generated by gut microbial metabolism from choline, betaine, and carnitine, on cancer are inconsistent. Therefore, this systematic review and meta-analysis summarize the effects of TAMO on incidence of cancer. A systematic search was carried out in PubMed, Scopus, Web of Science, and Embase. Data were pooled using the random-effects method and were expressed as weighted mean difference (WMD) and 95% confidence intervals (CI). The pooled results of 16 studies, including 5930 participants, showed that the association between TMAO levels and incidence of cancer is insignificant (Odds Ratio: 0.97, 95% CI: (0.64, 1.46), p-value= 0.871). Subgroup analysis showed that urinary TMAO levels were negatively associated with cancer incidence; in contrast, a direct and positive association was observed between serum TMAO levels and its incidence. However, “gender” and also the “TMAO measuring method” were the potential source of heterogeneity. Meta-regression analysis did not reveal any significant association between duration of studies, age, female ratio, subjects-control, and subjects-case. The present study demonstrates that serum TAMO levels were insignificantly associated with incidence of cancer.

Biography

Adeleh Khodabakhshi, was born in Iran. She received her Ph.D degrees in nutrition from Shahid Beheshti University of Medical Sciences in 2019. She is currently working at the nutrition department, Kerman University of Medical Sciences as an assistant professor. Her research interests include nutrition and cancer. She published 26 articles, in clinical nutrition journal with impact factor 7, European Journal of Clinical Nutrition IF= 4, nutrition journal IF= 3.3, nutrition and cancer journal IF= 2.6, and etc. Accord scopus index, her publication h-index is 6. She has been serving as a reviewer board member of several reputed journals such as nutrition and cancer journal and was invited as a speaker to many international congresses.

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