Selenium and lung cancer: A systematic review, meta-analysis and meta-regression (Article)

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Abstract

Lung cancer is the most common cause of death in the world. Selenium is one of the elements that are recommended for the treatment of lung cancer. Therefore, in this study by carrying out a systematic review and a meta-analysis we tried to evaluate the relationship between selenium in serum, toenail and supplements and the risk of lung cancer. After searching the databases SID, Irandoc, Scopus, Pubmed and ISI Web of Science with the check-list of STROBE, 15 studies were estimated by meta-analysis. The variables affecting the heterogeneity of studies were determined by the method of moment base. The heterogeneity of studies was moderate (I² = 70.5%, P value <0.001). Hence the meta-analysis was conducted on the basis of the random effect model. The mean of ratio of lung cancer in studies of selenium supplements was equal to OR = 0.82 (95% CI: 0.47-1.42, P value = 0.5), in the studies of selenium in serum it was equal to OR=0.7 (95% CI: 0.45-1.07, P value = 0.1) and in the studies of selenium in the toenail it was equal to OR= 0.59 (95% CI: 0.28-1.24, P value = 0.17). Generally speaking, the risk of lung cancer is significantly reduced by selenium [OR = 0.71 (95% CI: 0.52-0.97, p value = 0.03)]. In fact the selenium reduces 29% of the risk of lung cancer, significantly. There was not observed any publication error in studies (Beggar’s test: z- value = 0.24; P value = 0.8). The meta-regression showed that the study location, the measurement of selenium and the type of study have a significant effect on heterogeneity. The results supported the lowering effect of selenium on the risk of lung cancer. © 2016, International Journal Of Pharmacy and Technology. All rights reserved.

Author keywords

- Lung cancer
- Meta-analysis
- Selenium
- Serum
- Supplement
- Systematic review
- Toenail