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Levothyroxine and lung cancer in females: The importance of oxidative stress

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Abstract

Background: Levothyroxine (LT_4) treatment can lead to iatrogenic hyperthyroidism and oxidative stress (OS) that can cause discomfort. OS is also recognized as one of the causes of chronic diseases and cancer.

Methods: The prevalence of breast, colorectal, gastric and lung cancer in 18 Italian Regions during 2010 was correlated with the sales of LT_4 in 2009. The prevalence was analyzed for females, between 30 to 84 years old. This age range corresponds to more than 80 % of the consumers of the drug and to about 99 % of all malignant cancers. The correlation between sales of LT_4 and cancers was determined with the technique of Density Ellipses. The age and smoking contribution for lung cancer was determined with the Sequential test.

Results: No significant correlation was seen between LT_4 sales and breast, colorectal and gastric cancers. A significant correlation was instead found for lung cancer ($p< 0.05$) corrected for smoking and age.

Conclusions: LT_4 consumption in Italy is about 0.7 boxes/women/year. There is a correlation between lung cancer and LT_4 treatment and OS caused by LT_4 supplementation can be one of the causes. Although we cannot exclude that dysthyroidism needing LT_4 supplementation might be the ground for lung cancer itself and measuring OS could be helpful in avoiding excessive use of the drug.

Biography

Prof. Umberto Cornelli was graduated in Medicine at the University of Milan in 1969. He started his collaboration with the Loyola University Medical School of Chicago in 1982 and has been studying oxidative stress. In 2001 he received an honorary degree in Science from the Loyola University of Chicago for his contribution to the study on senile dementia. From 2002 to 2008 was the president of SENB (European Society of Biological Nutrition. From 1968 to 2012 he was the author of about 200 publications, 4 books and 14 patents for drugs, food supplements, and analytical methods.