

ANALYSIS AND COMMENTARY ● ● ● ● ●

For people who are prejudiced against smoking, as I am, these results are disquieting. In November 2012 the Chancellor of UCLA announced that UCLA will become a tobacco-free campus starting April 2013, and I welcomed this plan. The authors reference five studies that showed an inverse association of thyroid cancer and smoking, mainly case-control studies, so their finding is not novel. How can the findings be explained? Smoking is associated with reduced serum TSH levels based on an analysis of the third National Health and Nutrition Examination (NHANES III) data (1). Smokers had a reduced frequency of elevated serum TSH, and within the normal range of serum TSH, smokers had a twofold increase in the incidence of low-normal TSH (0.1 to 0.4 mU/L) as compared

with nonsmokers. Abundant data exist showing that higher serum TSH is associated with increased frequency of malignancy in patients with thyroid nodules (2). Could TSH suppression by smoking prevent the development of cancer in thyroid cells that harbor oncogenic mutations?

Another possibility is that the broad array of cancers and vascular diseases induced by smoking causes deaths and, in a sense, prevents the development of other diseases, such as thyroid cancer.

Because of the very large number of subjects in the WHI, trivial differences become significant, such as the taller height and younger age of the patients with thyroid cancer. One major limitation is that the data from this study apply only to postmenopausal women.

References

1. Belin RM, Astor BC, Powe NR, Ladenson PW. Smoke exposure is associated with a lower prevalence of serum thyroid autoantibodies and thyrotropin concentration elevation and a higher prevalence of mild thyrotropin concentration suppression in the third National Health and Nutrition Examination Survey (NHANES III). *J Clin Endocrinol Metab* 2004;89:6077-86.
2. McLeod DS, Watters KF, Carpenter AD, Ladenson PW, Cooper DS, Ding EL. Thyrotropin and thyroid cancer diagnosis: a systematic review and dose-response meta-analysis. *J Clin Endocrinol Metab* 2012;97:2682-92. Epub May 23, 2012; doi: 10.1210/jc.2012-1083.