



THYROID CANCER

Repeated dental x-rays without neck shielding increases risk of thyroid cancer

BACKGROUND

Exposure of the thyroid to radiation at a young age is a well-established risk factor for the development of thyroid cancer. Currently, diagnostic x-ray procedures are a leading source of exposure to radiation in the United States. Further, dental x-rays are likely the most common source of radiation to the thyroid. There have been prior studies that have examined the link between dental x-rays and thyroid cancer with mixed results. It is currently standard procedure in the United States to provide thyroid shielding to patients when taking dental x-rays. The purpose of this study was to determine the risk of thyroid cancer in relation to various diagnostic radiation tests.

THE FULL ARTICLE TITLE

Neta G et al. A prospective study of medical diagnostic radiography and risk of thyroid cancer. *Am J Epidemiol* 2013;177:800-9. Epub March 15, 2013; doi: 10.1093/aje/kws315.

SUMMARY OF THE STUDY

This study looked at 75,494 radiology techs being followed since 1982 and looked at questionnaires collected in 1994-1998 and 2003-2005 of self-reported personal medical information regarding x-ray tests received and whether they developed thyroid cancer. The diagnostic x-ray procedures that potentially involve radiation exposure to the thyroid gland included x-rays of the skull, cervical spine, head and neck, chest, and thoracic and lumbar spine; dental x-rays; mammograms; barium swallow examinations; angiograms; and upper gastrointestinal tract series.

A total of 251 techs developed thyroid cancer (0.03%) of which 187 were papillary thyroid cancer. The average age of the techs was 38 years and all subjects were older than age 22 at entry into the study. Techs that

developed thyroid cancer were more likely to be female, nonsmokers and obese.

An increased number and frequency of dental x-ray examinations was associated with an increased risk of all types of thyroid cancer. The increase in thyroid cancer risk from dental x-rays was associated with exposure before 1970 (when thyroid shielding was not practiced), but there was no evidence that the increased risk was associated with childhood or adolescent exposure. No other diagnostic radiation exposure was associated with an increased risk of thyroid cancer. In addition, radiotherapy to the head was associated with a 2.7-fold increased risk of thyroid cancer.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Repeated dental x-ray examinations before 1970 in this population and radiotherapy to the head are associated with increased risk of thyroid cancer. This is likely due to the lack of thyroid shielding prior to 1970. As always, patients should minimize radiation exposure by only having necessary tests and utilizing a lead apron with thyroid shield when getting dental x-rays.

— Ronald B. Koppersmith, MD, FACS

ATA THYROID BROCHURE LINKS

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>

Childhood Head and Neck Irradiation: <http://www.thyroid.org/pediatric-endocrinology>

ABBREVIATIONS & DEFINITIONS

Dental x-rays: x-ray studies taken of the teeth looking for cavities during a visit to the dentist