



THYROID CANCER

Dental x-rays may be associated with an increased greater risk of thyroid cancer

WHAT IS THE STUDY ABOUT?

Large amounts of radiation exposure are associated with higher risk of thyroid cancers. This can be seen after radiation therapy for other cancers that may have included the thyroid in the radiation field. Smaller amounts of radiation — for example from dental x-rays — may also be associated with cancers. Some studies have shown that dentists, dental assistants and x-ray workers have increased risk of thyroid cancer. Because dental x-rays are a common source of radiation to the neck, understanding whether dental x-rays are associated with greater risk of thyroid cancer impacts public health. This study was performed to assess whether there is an association between dental x-rays and thyroid cancer.

THE FULL ARTICLE TITLE:

Memon A et al. Dental x-rays and the risk of thyroid cancer: a case-control study. *Acta Oncol* 2010;49:447-53.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to determine whether exposure to dental x-rays was associated with higher risk of thyroid cancer.

WHO WAS STUDIED?

The study evaluated 626 individuals in Kuwait: 313 patients < 70 years of age with a diagnosis of thyroid cancer identified from the national cancer registry and 313 individuals without thyroid cancer identified from primary health care clinics of similar age, gender, nationality and geographic residence as those with thyroid cancer.

HOW WAS THE STUDY DONE?

All individuals were interviewed to obtain information about demographics, diet, family medical history, gynecologic history and medical history. The medical history included assessment of exposure to diagnostic x-rays of head, neck and chest; dental x-rays and radiotherapy. Information about the thyroid cancer was obtained from the Kuwait cancer registry. The association of dental x-ray exposure with risk of thyroid cancer was calculated, taking into account upper body (head, neck and chest) non-dental x-rays.

WHAT WERE THE RESULTS OF THE STUDY?

Of the patients with thyroid cancer, 76% were women and 55% were Kuwaiti nationals. Seventy percent of the non-Kuwaiti patients with thyroid cancer were from Arab countries. The median age at diagnosis was 35 years in women and 38 years in men. The most common type of thyroid cancer was papillary thyroid cancer, occurring in 83% of the patients with thyroid cancer.

There was a two-fold higher risk of thyroid cancer among individuals exposed to dental x-rays compared to those who had never undergone dental x-rays. Among patients with thyroid cancer, 33% reported dental x-rays compared to 18.3% among matched individuals. There was a higher risk of thyroid cancer with greater numbers of dental x-rays, with as much as a five-fold higher risk in individuals reporting 10 or more dental x-rays. Among individuals <25 years of age, about 27% of patients diagnosed with thyroid cancer had received dental x-rays compared to 18% of the matched individuals without thyroid cancer. Among individuals <20 years of age, about 22% of patients diagnosed with thyroid cancer had received dental x-rays compared with none of the matched individuals.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

This study is consistent with prior studies performed in Sweden that demonstrated a higher risk of papillary thyroid cancer among women who reported previous dental x-rays. The findings are also consistent with prior studies that show that the link between radiation exposure and thyroid cancer is greater among individuals at younger ages at the time of radiation exposure. Other studies have also suggested an increased risk of thyroid cancer among dentists/dental assistants and x-ray workers.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study raises the possibility that low-dose radiation exposure from dental x-rays may be associated with thyroid cancer. This reinforces the importance of following American Dental Association recommendations that dental practices shield the thyroid during dental x-rays.

— Ruth Belin, MD



THYROID CANCER, continued

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer — the most common type of thyroid cancer.

Follicular thyroid cancer — the second most common type of thyroid cancer.

Ionizing radiation — radiation that can damage cells, causing cell death or mutation. It can originate from radioactive materials, x-ray tubes or specialized machines. It is invisible and not directly detectable by human senses.