



THYROID CANCER

Thyroid cancer over-diagnosis is a result of screening programs in South Korea

BACKGROUND

Thyroid cancer diagnoses in South Korea increased 15-fold between 1993 and 2011, and South Korea now has the world's highest rate of thyroid cancer. In 1999, a government-funded national cancer screening program in South Korea led to the widespread use of ultrasound to screen for thyroid cancer in people without any symptoms. It is unclear whether the rise in thyroid cancer diagnoses in South Korea represents over diagnosis due to increased screening or whether there has been a true increase in the number of thyroid cancers. The aim of this study was to examine the increase in South Korean thyroid cancer diagnoses.

THE FULL ARTICLE TITLES:

Park S et al Association between screening and the thyroid cancer “epidemic” in South Korea: evidence from a nationwide study. *BMJ* 2016;355:i5745. doi: 10.1136/bmj.i5745.

SUMMARY OF THE STUDY

The National Epidemiologic Survey of Thyroid cancer (NEST) sampled the national Korean Central Cancer Registry to select a representative group of Korean thyroid cancer patients with a diagnosis in 1999, 2005, or 2008. There were 3342 such patients in 1999, there were 12,659 in 2005, and there were 26,890 in 2008.

Cases were randomly selected from 24 hospitals, with the number of cases selected proportional to the number of cases diagnosed in each year. Data was collected from medical records for each case included age; sex; cancer size, stage, and histology; the presence of lymph node spread and distant metastases; and the method of cancer detection (by ultrasound screening, clinically detected based on symptoms, or unspecified). Cancers were categorized as local, regional, or distant.

A total of 5796 patients were included. Women comprised 84.5% of patients, and the average age was 46.9 years. Most cancers (94.9%) were papillary cancers. The average thyroid cancer size discovered decreased from 21.5 mm in 1999, to 13.6 mm in 2005, to 10.5 mm in 2008. As expected, cancers detected by ultrasound screening were smaller than clinically detected cancers.

The percentage of cancers detected by ultrasound screening increased from 15% in 1999 to 56% in 2008. The proportion of regional thyroid cancers was 48% in 1999 and increased to 59% by 2008; the proportion of localized disease did not change (34% in 1999 and 36% in 2008); and the proportion of distant disease decreased from 5.4% to 1.3%.

The frequency of ultrasound screening detected cancers <1 cm increased from 0.27 per 100,000 people in 1999 to 15 per 100,000 people in 2008. The incidence of clinically detected cancers <1 cm increased from 0.49 per 100,000 people in 1999 to 4.88 per 100,000 people in 2008. The incidence of clinically detected cancers >3 cm did not change, while the incidence of ultrasound screening detected cancers >3 cm increased from 0.17 in 1999 per 100,000 people to 0.61 per 100,000 people in 2008.

Cancers <2 cm accounted for 94.4% of the overall increase in thyroid cancers detected. In general, the frequency of ultrasound screening detected cancer increased 8.4-fold from 1999 to 2008, while the incidence of ultrasound screening detected regional cancer increased 38.2-fold, mostly due to an increase detection of lymph node involvement. A total of 97.1% of the increase in thyroid cancer incidence was due to increased detection of local and regional cancers.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The current high incidence of thyroid cancer in South Korea is largely due to increased detection of small local or regional cancers. Given that the vast majority of the increase in South Korea's rate of thyroid cancer diagnosis consisted of ultrasound screening detected small cancers, this argues in favor of over diagnosis, although the rate of clinically detected cancers did increase by 18.7% over the same period and an increase in true cancer incidence cannot be definitively ruled out.

In general, the vast majority of patients diagnosed with thyroid cancer do very well and relatively few actually die of the disease. Because of this, the main concern about

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ultrasound screening of asymptomatic patients is that cancer may be identified that may never have grown or cause any problems, thus leading to unnecessary testing and treatment. The updated 2015 American Thyroid Association guidelines recommend against fine needle biopsy of thyroid nodules less than 1 cm in size and suggest consideration of active surveillance rather than surgery for very-low-risk cancers.

— Ronald B. Koppersmith, MD, FACS

ATA THYROID BROCHURE LINKS

Thyroid Nodules: <http://www.thyroid.org/what-are-thyroid-nodules>

Thyroid Surgery: <http://thyroid.org/patients/patient-brochures/surgery.html>

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

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer: the most common type of thyroid cancer. There are 3 variants of papillary thyroid cancer: classic, follicular and tall-cell.

Thyroid Ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and

characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

Lymph node: bean-shaped organ that plays a role in removing what the body considers harmful, such as infections and cancer cells.

