



THYROID CANCER

Cold climate is a risk factor for thyroid cancer

BACKGROUND

The incidence of thyroid cancer has increased between 1988 and 2005. Some of this increase is likely due to an increase in diagnostic imaging studies, which would pick up small thyroid cancers that are not otherwise apparent. While the number of small thyroid cancers is increasing, so are thyroid cancers of all sizes, so imaging is not the only cause. Other possible causes include environmental factors such as some chemicals as well as a general increase in exposure to ionizing radiation. Non-ionizing radiation from cell phones has also been implicated. Some studies have shown that temperature may play a role in the incidence rates of thyroid cancer. The aim of this study was to examine the relationship between thyroid cancer incidence and the average temperature in 50 US states.

THE FULL ARTICLE TITLE

Lehrer S, Rosenzweig KE. Cold Climate Is a Risk Factor for Thyroid Cancer. *Clin Thyroidol* 2014;26:273–276.

SUMMARY OF THE STUDY

Data on the incidence of thyroid cancer, average temperature by state, high-impact exposure to nuclear radiation by state, cell-phone subscriber data and mean elevation/latitude of the 50 US states were analyzed. The study found that there was a significant correlation between average temperature by state and incidence of

all thyroid cancers - the colder the climate, the higher the incidence of thyroid cancer. This correlation was found to be unrelated to ionizing radiation exposure, cell-phone use and latitude. Living in a cold climate state, such as Alaska, doubles the risk of thyroid cancer as compared with living in a warm state such as Texas. There was no significant correlation between thyroid cancer incidence and elevation/latitude.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

In view of significant climate changes, there is an increased risk of heat-related and cold-related expected deaths in the years to come, with the elderly being most at risk. These climate changes may also affect the incidence patterns of thyroid cancer and other cancers. Whether the increase incidence of thyroid cancer in colder regions is due to a deleterious effect of the cold weather or a protective effect of hot weather is unclear. Further research studies are needed to determine whether the temperature-cancer trend persists in other regions within each state as well as other regions of the world.

— Maria Papaleontiou, MD

ATA THYROID BROCHURE LINKS

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

DEFINITIONS AND ABBREVIATIONS

Incidence: The occurrence, rate or frequency of a disease.

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.

Latitude: The angular distance of a place north or south of the earth's equator.