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Study finds advanced thyroid cancer rate in some California counties is well above national average

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A team of UCLA researchers found that there are several parts of California where, in a high percentage of people with thyroid cancer, the disease is already at an advanced stage by the time it is diagnosed.

The research was led by Dr. Avital Harari, a member of the UCLA Jonsson Comprehensive Cancer Center and assistant professor of surgery.

Approximately 63,000 people were diagnosed with thyroid cancer nationwide last year, and according to the National Cancer Institute, the incidence of thyroid cancer has increased across racial, ethnic and gender lines over the past several decades. When detected early, thyroid cancer is treatable and even curable. However, survival rates are much lower for people who are diagnosed at advanced stages of the disease.

The UCLA scientists examined county-by-county data from the California Cancer Registry for 27,000 people who had been diagnosed with thyroid cancer from 1999 to 2008. To ensure that they were comparing similar population sizes, the researchers grouped together some smaller counties for the analysis.

Nationally, about 29 percent of people with thyroid cancer have advanced-stage disease by the time it is diagnosed, according to data from the NCI's surveillance, epidemiology, and end results program, also

known as SEER. Of the 47 geographical areas the UCLA researchers analyzed, 20 had significantly higher percentages than that, ranging from 33 percent (Orange County) to 51 percent (for the combination of Alpine, Amador and Calaveras counties).

Overall, in 35 percent of Californians with thyroid cancer—6 percentage points higher than the national average—the disease has reached the regional and/or distant metastatic stage, meaning that it has spread beyond the thyroid to other tissues in the neck, regional lymph nodes or other parts of the body, by the time it is diagnosed.

According to the UCLA findings, the California counties (or combined county groups) where people were most likely to have advanced thyroid cancer at the time of diagnosis were:

- Alpine, Amador and Calaveras (combined): Disease was advanced in 51 percent of those with thyroid cancer
- Imperial: 48 percent
- Sutter: 45 percent
- San Francisco: 41 percent
- Santa Barbara: 40 percent

Southern California counties outside of the top five were San Bernardino, which ranked 12th (37 percent of people with thyroid cancer had advanced-stage disease), San Diego (13th, 36 percent), Los Angeles (14th, 35 percent), Fresno (17th, 34 percent), Ventura (18th, 34 percent) and Orange (20th, 33 percent).

The counties with the highest percentages of people with advanced cancer were not grouped together in any obvious geographic pattern, meaning that none of the larger regions within the state seem to have a higher risk for the disease than any other.

Harari said it is not clear why the incidence of advanced-stage thyroid cancer is that much higher in California than the national average, but her research suggests there might be an environmental component.

"California has the largest amount of farmland in the country, so this type of exposure could very well contribute to our thyroid cancer rates," she said.

However, the only known environmental risk factor for thyroid cancer is radiation exposure, and that alone is unlikely to fully explain the phenomenon.

The next stage of Harari's research will evaluate possible links between thyroid cancer and exposure to pesticides and radon.

The study was published online by the *Journal of Surgical Research*.

More information: Avital Harari et al. Increased rates of advanced thyroid cancer in California, *Journal of Surgical Research* (2015). DOI: 10.1016/j.jss.2015.10.037

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