Temporal Trends in Thyroid Cancer Incidence in California—Letter

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Horn-Ross and colleagues (1) recently reported on increasing thyroid cancer (TC) incidence in California neighborhoods, which was not explained by immigration in various racial groups. TC incidence is also increasing in Ontario, with significant regional variability (2). National Canadian data have suggested increased TC incidence in regions with the highest prevalence of foreign-born individuals (3). We explored whether the prevalence of immigrants and racial minorities could explain Ontario regional TC incidence, using publicly available data in women.

The female, age-adjusted TC incidence rate and number of cases were obtained for each of the 14 Ontario Local Health Integration Network (LHIN) regions from 2007 Cancer Care Ontario data (4). Immigrant and racial data from 2006 were retrieved from a government-sponsored report (5). The relationship between explanatory variables and TC incidence was assessed through separate Poisson regression models, with female TC case count being the response variable and the expected number of cases for each LHIN used as an “offset” term. An overdispersed (or quasi-Poisson) model was used, allowing for the possibility that variation in the case counts is more substantial than predicted by sampling error. To account for non-normally distributed data, risk estimates were described as relative rates for interquartile ranges (IQR, the difference between the 25th and 75th percentiles), and their respective 95% confidence intervals (CI) (based on SEs, with an implicit assumption of spatial independence of intervals). R software (R version 3.0.2, R Foundation for Statistical Computing) was used.

The total number of TC cases reported in Ontario women in 2007 was 1,639 (mean incidence 23.5/100,000; ref. 4). The highest TC incidence was in and around Toronto (i.e., Central, Toronto Central, Mississauga Halton, and Central East LHINs), with many of these regions reporting some of the highest prevalence rates for new immigrants or visible minorities. The relative rate for IQR of age-adjusted TC risk was 1.90 (95% CI, 1.73–2.10), according to the regional percentage of immigrants. The relative rate for IQR for TC risk, according to the percentage prevalence of visible minorities, was 1.75 (95% CI, 1.59–1.92).

Our preliminary observations on the relationship between Ontario female TC incidence and immigrant/visible minority status need to be confirmed. Differences in study design (including lack of individual-level data on trends over time in our analysis), immigration patterns, and healthcare system funding, may explain why our findings contrast with that of Horn-Ross and colleagues (1).

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No potential conflicts of interest were disclosed.

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