Cancer Incidence and Types Vary Among American Indians and Alaska Natives

Rates show significant variation by geographic regions for these groups than for whites.

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The nation's American Indian and Alaska Native (AI/AN) population faces higher risk of many cancers than white Americans, with considerable variation among regional groups, according to results published in Cancer Epidemiology, Biomarkers & Prevention, a journal of the American Association for Cancer Research.

"Our data show that the American Indian and Alaska Native (AI/AN) population has substantially higher rates for some cancers than white Americans, including lung, liver, kidney, colorectal and stomach cancers. Cancer incidence rates for many cancers also differ by geographic area," said the study's lead author, Stephanie C. Melkonian, PhD, an epidemiologist at the Centers for Disease Control and Prevention (CDC), Division of Cancer Prevention and Control.

Melkonian explained that geographic differences in cancer rates may be due to environmental, behavioral, or socioeconomic factors that differ for each group by area. However, most U.S. cancer statistics present American Indians and Alaska Natives as one large group. "Nationally aggregated data presents an incomplete picture because it obscures geographic differences in cancer incidence rates," she explained.

To further examine cancer incidence rates and trends within the AI/AN population, Melkonian and colleagues assessed data from the CDC's National Program of Cancer Registries and the National Cancer Institute's Surveillance, Epidemiology, and End Results Program from the years 2010-2015. They restricted their analyses to areas known as purchased/referred care delivery area counties, which encompass or are adjacent to federally recognized tribal lands. Approximately 53 percent of the U.S. AI/AN population lives in one of these counties.

The researchers linked data from these cancer registries to Indian Health Services patient registration databases to identify cancer cases in the AI/AN population in six geographic areas: the Northern Plains, Alaska, Southern Plains, Pacific Coast, East, and Southwest regions.

Among men, the study showed that liver cancer was more than twice as common in the AI/AN

population than in whites. Kidney and stomach cancer incidence was significantly higher for AI/AN men than white men in four out of six AI/AN regions.

Among women, liver cancer incidence was more than three times higher for the AI/AN population than for whites. AI/AN women also had higher rates of lung, colorectal, kidney, cervical, and stomach cancer.

The study also showed significant increases in incidence rates for many of these cancers over time. Liver cancer increased 3.3 percent annually for AI/AN males and 4.5 percent annually for AI/AN females between the years 1999-2015. During this time, kidney cancer rates increased 2.4 percent and 1.6 percent annually for AI/AN males and females, respectively. While colorectal cancer incidence rates decreased by 1.1 percent annually for AI/AN males, there were no observed decreases for AI/AN females. Breast cancer incidence rates increased by 0.9 percent annually in AI/AN females. The differences in overall cancer incidence rates between AI/AN and white populations have grown over time.

“The data shows that the prevalence of certain cancer risk factors varies geographically, and is higher in the American Indian/Alaska Native population in some regions. Some important cancer risk factors include obesity, commercial tobacco use, and viral hepatitis,” Melkonian said. “However, some of the regional differences we discovered through our updated data were of most interest.”

Other key regional differences:

- Despite decreasing trends in colorectal cancer incidence, rates of colorectal cancer were higher in the AI/AN population in most regions, with the highest being in the Northern Plains, Southern Plains, and Alaska.
- Overall breast cancer rates were lower for AI/AN women than for white women, however, significant variation occurred across the country. The East, Southwest, and Pacific Coast had much lower breast cancer rates for AI/AN women, while Alaska and the Southern Plains had considerably higher rates than white women.
- Gastric cancer, which is more common in the AI/AN population than in the overall U.S. population, had more elevated rates in the Southwest and Alaska. Melkonian said H. pylori infection is a leading risk factor for gastric cancer.

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“These data can guide us on how to design tailored interventions to screen for and prevent many of these common cancers,” she said.

Melkonian noted that one limitation of the study is the potential for misclassification of AI/AN status. Also, AI/AN individuals living in urban areas may be underrepresented in the data.

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