Rates of Testicular Cancer are Rising Among Racial/Ethnic Minorities

Among minorities, Asian/Pacific Islander men experienced the greatest increase in the incidence of testicular germ cell tumors.

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Between 2001 and 2016 in the United States, Asian/Pacific Islander men experienced the greatest increase in the incidence of testicular germ cell tumors (TGCT), followed by Hispanics and American Indians/Alaska Natives, according to a study published in Cancer Epidemiology, Biomarkers & Prevention, a journal of the American Association for Cancer Research.

TGCT is the predominant form of testicular cancer, which is the most frequently occurring cancer among men between the ages of 15 and 44 years in the U.S. The incidence of TGCT has been increasing since the mid-20th century, but the underlying reasons for the increase remain unclear. "While risk factors are not well understood, TGCT is known to be associated with other male reproductive disorders. As such, increases in incidence can be indicative of problems in male reproductive health," explained Armen Ghazarian, PhD, MPH, first author on the study and a program director in the Division of Cancer Control and Population Sciences at the National Cancer Institute (NCI) at the National Institutes of Health.

TGCT is most common among men of Northern European ancestry; however, a previous study from Ghazarian and colleagues revealed that rates increased among Hispanic men between 1998 and 2011. "We have long known of the risk among men of Northern European ancestry, but the results of our previous study highlighted that rates were increasing among other racial/ethnic groups as well," said Ghazarian. The latest study builds on this work.

"We expanded our analysis to include data from across the U.S.," noted Katherine McGlynn, PhD, MPH, senior author on the study and a senior investigator in the Division of Cancer Epidemiology and Genetics at NCI. "The goal was to determine if similar trends persisted in the more recent data. Monitoring trends is critical to building a better understanding of potential risk factors."

In this study, Ghazarian and McGlynn examined TGCT incidence data from the United States Cancer Statistics public use databases. The analysis included data on TGCT cases reported between 2001 and 2016 from registries in all 50 states and the District of Columbia.

The authors found that the incidence of TGCT was highest among non-Hispanic white men,

followed by Hispanics, American Indians/Alaska Natives, Asians/Pacific Islanders, and non-Hispanic Black men.

While the incidence of TGCT increased across all racial/ethnic groups during this period, the authors found that Asian/Pacific Islander men experienced the greatest increase, with an annual percent change (APC) of 2.47, meaning that the incidence increased by 2.47 percent each year. All other racial/ethnic groups experienced annual rate increases as well: Hispanics APC = 2.10, American Indians/Alaska Natives APC = 1.71, non-Hispanic blacks APC = 1.28, and non-Hispanic whites APC = 0.41.

The authors also examined differences in TGCT incidence by geographic region as defined by the U.S. Census Bureau. They found that Asian/Pacific Islander, Hispanic, and American Indian/American Native men had the highest incidence of TGCT in the West, while non-Hispanic Black and non-Hispanic white men had the highest incidence in the Northeast.

While significant increases in incidence among Hispanic men were observed in all geographic regions, significant increases in incidence were observed for Asian/Pacific Islander men in the West, non-Hispanic Black men in the South, and non-Hispanic white men in the Northeast and Midwest. However, Ghazarian cautioned that these results may partially reflect the distribution of different racial/ethnic groups across the country.

A previous study examining global trends did not find similar increases in TGCT incidence in Asian countries. “Given the differences in trends, it would be interesting to examine U.S. trends using data on the birthplace of Asian/Pacific Islander men, as there could be an interplay between genetic and environmental risk factors,” noted McGlynn. In her ongoing work, she aims to understand the contribution of environmental exposures, such as endocrine-disrupting chemicals, on TGCT risk.

“I hope the results from this study will increase awareness of TGCT among men of all racial/ethnic groups,” said McGlynn. “While incidence remains highest among non-Hispanic white men, it is becoming increasingly clear that this disease does not just affect men of European ancestry.”

A limitation of the study was that all Asian/Pacific Islanders were examined as a single group rather than by individual ancestry. This was also the case for Hispanic men. These groupings prevented the examination of whether risk was specific to men of certain ancestries. Another limitation was the lack of data regarding birthplace; incidence trends could be different for men who emigrated to the U.S. compared to men of the same racial/ethnic group who were born in the U.S.

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