CDC Definitions Greatly Underestimate Liver-Related Mortality in Seniors

A new classification system may more accurately reflect liver-related death trends in the United States.

November 12, 2019 By Benjamin Ryan

The standard Centers for Disease Control and Prevention (CDC) definition of liver-related mortality considerably underestimates its prevalence, in particular among senior citizens, according to a new study.

Researchers behind the study compared the CDC definition with a new, updated definition that previous research has found has a 93% accuracy in positively identifying cirrhosis and a 98% accuracy in doing the same for liver-related complications.

Connor Griffin, MD, of Baylor University Medical Center in Dallas, presented findings from the analysis at The Liver Meeting, the Annual Meeting of the American Association for the Study of Liver Diseases, this week in Boston.

The study relied on 1999 to 2017 data related to chronic liver disease in the CDC National Death Index. The investigators adjusted the mortality rates for age and standardized them to the national population according to the 2000 U.S. Census.

The study authors found that the liver-related mortality rate during the study period as a whole was 47% higher using the updated definition compared with relying on the CDC definition. In other words, the CDC definition captured just 65% of the liver-related deaths according to the new definition.

The liver-related mortality rate per 100,000 people in 2017 according to the CDC versus the updated definition broke down as follows:

overall, 10.9 versus 16.0 deaths
males, 14.5 versus 22.3 deaths
females, 7.6 versus 10.4 deaths
whites, 11.7 versus 16.5 deaths
Asians, 3.7 versus 10.2 deaths
African Americans, 7.3 versus 14.3 deaths

Latinos, 14.3 versus 21.7 deaths
15- to 64-year-olds, 13.4 versus 16.6 deaths
those older than 65 years, 31.5 versus 57.4 deaths.

This meant that compared with the new definition, the CDC definition captured 68% of the 2017 cases overall, 36% of the liver-related deaths among Asians, 51% of deaths among African Americans, 66% of deaths among Latinos, 77% of deaths among whites, 55% of deaths among seniors, 80% of deaths among non-seniors, 65% among males and 73% among females.

Between 1999 and 2017, the overall liver-related annual mortality rate per 100,000 people increased from 9.6 to 10.9 deaths according to the CDC definition and from 14.7 to 16.0 deaths according to the new definition.

Breaking down the progression of annual liver-related mortality rates according to sex, the study authors found that among men, between 1999 and 2017, the overall annual average percentage change in the rate was 1.6% and between 2008 and 2017, this rate was 3.1%. By comparison, the corresponding respective figures for women were 0.4% and 1.7%.

The liver-related mortality rate driven by cirrhosis remained higher than that for deaths driven by hepatocellular carcinoma (HCC, the most common form of liver cancer) throughout the study period. However, liver-related mortality driven by liver cancer increased at a faster rate, at a 1.6% average annual percentage increase compared with a rate of 0.4% for cirrhosis. By 2017, the age-adjusted liver-related mortality rate per 100,000 people was 27 liver cancer–driven deaths and 22 cirrhosis-driven deaths.

Among males, the average annual percentage change during the study period was 1.9% among seniors and -3.0% among nonseniors. Among females, the corresponding respective figures were 0.7% and 1.6%.

All races experienced average annual percentage increases except Asians, who historically have had the higher liver-related mortality rates but have recently been surpassed by Latinos in that regard. The average annual percentage change was 1.1% among Latinos, 2.4% among Blacks, 2.4% among whites and -1.8% among Asians.

“Recognition of differences by gender, etiology and race is important to tailor resource allocation, policy decisions and public awareness,” the study authors concluded.

To read the conference abstract, click here.
