EDITORIAL

The Canary in the Coal Mine of Coronary Artery Disease

PEERING INTO THE FUTURE OF THE HEALTH AND longevity of a population has been a subject of interest for centuries for actuaries and demographers who follow and forecast trends in these statistics. The method most often used to make such forecasts is to examine recent trends in observed health characteristics and mortality data in a selected population and then perform a linear extrapolation of past trends into the future under the premise that the future will be like the past. The predictive power of this method is limited when health and mortality conditions are in a state of flux, which is most often the case, but sometimes this is the only way to get a sense of what the future holds. However, every once in a while a novel source of data surfaces that makes it possible to peer into the future in a fundamentally different and far more revealing way. That is the case with the study by Nemetz et al[1] in this issue of the *Archives*.

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What is unique about the study by Nemetz et al[1] is that it gives us a glimpse into the future of heart disease by examining the autopsy findings of more than 3237 younger residents of Olmsted County, Minnesota, from 1981 to 2004 who died from extrinsic (eg, non–aging-related) causes of death, such as accidents, homicide, and suicide. Their observation that the grade of coronary artery disease (CAD) declined from 1981 to 1995 was not surprising, given well-established trends in CAD prevalence and mortality expressed at later ages during this time. What caught our attention, and what should be obvious to readers, was the reversal or worsening of the grade of CAD after 2000, implying that the trend toward declining CAD prevalence is not just decelerating, it has already ended. More important, what this observation may foretell is that in the coming decades the age at onset of CAD could shift to younger ages and the death rate rise.

Previous studies suggest that incidence[2,3] and mortality[4] from CAD in the United States[2,4] and Olmsted County,[3] the site of the study by Nemetz et al,[1] decreased through the end of the 1990s. Declines in the 1990s were smaller than in the 1980s,[3] suggesting that the possible reversal in trends since 2000 reported by Nemetz et al[1] may be an extension of this observation. If so, the reversal in trends in young adults today could precede that in older individuals in the future. A recent article by Ford et al[4] estimated that approximately 47% of the decline in CAD deaths from 1980 to 2000 was attributed to treatments, whereas 44% of the decline was caused by changes in risk factors. However, these improvements were partially offset by 8% and 10% increases in deaths from obesity and diabetes mellitus, respectively.

If an increase in the incidence of CAD begins to emerge, it will be important to identify the underlying factors contributing to these trends. It is possible that obesity has a stronger negative effect on CAD when the disease is expressed early in life because the late-onset expression may be attenuated more effectively with aggressive therapies for hyperlipidemia and hypertension.[5,6] Recent National Health and Nutrition Examination Survey data[7] also indicate that there have been marked continued increases in obesity among men and children in the United States. In the context of these recent studies and trends, the study by Nemetz et al[1] underscores the importance of focusing prevention efforts on lifestyle factors among younger generations, including continued efforts to decrease smoking and encouraging healthy diets and moderate physical activity, before clinical symptoms of CAD have an opportunity to be expressed. These are compelling findings, but a true sense of this phenomenon would require going beyond these period data and assessing CAD grade among successive cohorts passing through the same age windows. The sample sizes of this study do not permit such an analysis, but it is nevertheless reasonable to hypothesize from the results of this research[1] that CAD rates could rise among future cohorts of middle-aged and older persons. This limited examination of the autopsies of Olmsted County residents may be representative only of this unique segment of the American population, but the results are alarming enough to alert public health officials to begin monitoring younger cohorts for early signs of CAD with much greater vigilance.

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