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Editorial

Trends in Cardiovascular Disease Mortality: Can We Prevent PRECISELY?

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▸ See the article "Thirty-six Year Trends in Mortality from Diseases of Circulatory System in Korea" in volume 51 on page 320.

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It is well known and encouraging that the death rate of cardiovascular disease (CVD) is decreasing in the West and other advanced countries due to improvement in treatment and prevention of CVDs and their related risk factors. In Korea, cardiovascular risk factors at population level have decreased significantly and the rapid development of treatment for CVD has significantly reduced the mortality rate even after acute myocardial infarction and stroke.[1-3] Key drivers for this change include improved quality of primary care, enhanced provider capacity, enhanced tobacco control policies and active use of essential drugs for treatment and prevention.

In this issue of *Korean Circulation Journal*, Baek et al.[4] have made good use of data from the Korean Statistical Information Service to analyze time trends in Korea for a 36-year period. They calculated crude and age-standardized CVD mortality rates using the direct standardization method, with sex- and 5-year age interval-specific 2018 Korean population structure as the standard population. The authors observed that CVD mortality in Korea was remarkably decreased over the last 36 years. But they emphasized the recent rise in the absolute number of deaths from CVD, especially heart failure, calls for attention in the prevention and management of CVD and its sequelae. These statistics and research provide a direct basis for establishing strategies to disease management, prevention, and treatment. However, important limitations of these studies and statistics should also be clearly recognized. Whether disease and death codes have changed over the past 36 years and whether the pattern of doctors entering disease and death codes has changed should be considered when these statistics are interpreted. The authors have described a limitation in their paper, mentioning that a previous study has examined the accuracy of death statistics and reported that the overall accuracy rate of statistics about causes of death is 91.9%.[5,6] In addition, the Korean Standard Classification of Diseases was revised five times during the study period. Major changes in the coding system could have affected mortality rates of diseases. Thus, efforts are needed to match disease codes and corresponding rates of actual diseases. In addition, appropriate interpretations according to the degree of discrepancy are needed.

We should keep in mind that differences in death patterns between developed and underdeveloped countries can be applied to different economic classes in the same country. One should not fall into the trap of average when analyzing changes of death patterns by

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The data generated in this study is available from the corresponding author upon reasonable request.

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class. Recent data have shown a decrease in CVD mortality in all economic groups, although those with the lowest economy show the least decrease.[7] Gender differences are also important and worrisome. In an assessment of possible plateaus of CVD mortality reduction, the pace of improvement in CVD mortality seems to be starting to decrease and can even be reversed among young women.[7] This phenomenon may not always be explained by gaps in risk factor burdens. An assessment of cardiovascular health disparities has demonstrated that disparities by sex, education level, and socioeconomic status are pervasive.[8] In fact, disparities were common in all risk factors examined. An assessment of the cardiovascular health gap using a national survey of adults in the United States showed that differences in race/ethnicity, gender, socioeconomic status, educational level and geographical location were widespread.[9] A recent unpublished our analysis has shown a high cardiovascular mortality in patients with low economic power even with the same blood pressure. We can fall into the trap of average if we ignore real health disparity.

It is important to study how recently developed and used wearable sensors can affect CVD. We believe that all types of digital tools, not just sensors can provide new opportunities for the prevention of CVD if they are used appropriately. However, it is important to note that even these digital devices are not likely to be applied well to those who are economically disadvantaged, who are under-educated, or the elderly. Biased application of these devices can lead to another health disparity. It is necessary to think about whether human touch beyond digital devices is needed to improve CVD prevention. Strategies for prevention should be devised by selecting patients who need direct help from HUMAN.

In conclusion, research on the analysis of mortality rates from CVD is an essential step in providing important information on strategies for preventing CVD. We need more sophisticated analysis and interpretation as well as means to eliminate differences between disease codes and actual diseases. The analyzed death statistics should be interpreted without falling into the trap of the mean and we should consider DISPARITIES in health. The application of new digital devices should be actively considered. More PRECISE prevention is required when we deal with focusing on low socioeconomic classes.

REFERENCES

1. Kim HK, Ahn Y. Mortality trends of cardiovascular disease in Korea; big challenges in ischemic heart disease. *Korean Circ J* 2015;45:192-3.
PUBMED | CROSSREF
2. Lee SW, Kim HC, Lee HS, Suh I. Thirty-year trends in mortality from cerebrovascular diseases in Korea. *Korean Circ J* 2016;46:507-14.
PUBMED | CROSSREF
3. Jeon YW, Kim HC. factors associated with awareness, treatment, and control rate of hypertension among Korean young adults aged 30–49 years. *Korean Circ J* 2020;50:1077-91.
PUBMED | CROSSREF
4. Baek J, Lee H, Lee HH, Heo JE, Cho SM, Kim HC. Thirty-six year trends in mortality from diseases of circulatory system in Korea. *Korean Circ J* 2021;51:320-32.
CROSSREF
5. Won TY, Kang BS, Im TH, Choi HJ. The study of accuracy of death statistics. *J Korean Soc Emerg Med* 2007;18:256-62.
6. Choi EK. Cardiovascular research using the Korean National Health Information Database. *Korean Circ J* 2020;50:754-72.
PUBMED | CROSSREF

https://doi.org/10.4070/kcj.2021.0016

7. Allen K, Gillespie DO, Guzman-Castillo M, Diggle PJ, Capewell S, O'Flaherty M. Future trends and inequalities in premature coronary deaths in England: modelling study. *Int J Cardiol* 2016;203:290-7.
PUBMED | CROSSREF
8. Allender S, Scarborough P, O'Flaherty M, Capewell S. Patterns of coronary heart disease mortality over the 20th century in England and Wales: Possible plateaus in the rate of decline. *BMC Public Health* 2008;8:148.
PUBMED | CROSSREF
9. Mensah GA, Mokdad AH, Ford ES, Greenlund KJ, Croft JB. State of disparities in cardiovascular health in the United States. *Circulation* 2005;111:1233-41.
PUBMED | CROSSREF