EDITORIAL COMMENT

Poverty and Mortality in Patients With Acute Coronary Syndromes

A Search for Answers and a Call for Action*

W. Douglas Weaver, MD, FACC,* Charles Maynard, PhDF‡
Detroit, Michigan; and Seattle, Washington

The finding by Rao et al. (1), published in this issue of the Journal, that lower income was associated with worse 30-day and 6-month mortality or recurrent nonfatal myocardial infarction in patients with acute coronary syndromes is not a new finding, nor is it a surprising one (1–3). Notably, 45% of the study group had annual incomes <$20,000, which is the cutoff for the lowest income group. Patients in this group were older females, mostly non-white, not married, and had fewer years of education and non-professional occupations. In addition, these individuals had excess dia-

The finding by Rao et al. (1), published in this issue of the Journal, that lower income was associated with worse 30-day and 6-month mortality or recurrent nonfatal myocardial infarction in patients with acute coronary syndromes is not a new finding, nor is it a surprising one (1–3). Notably, 45% of the study group had annual incomes <$20,000, which is the cutoff for the lowest income group. Patients in this group were older females, mostly non-white, not married, and had fewer years of education and non-professional occupations. In addition, these individuals had excess dia-

betes, hypertension, congestive heart failure (CHF), and were smokers. While lower income was associated with decreasing use of cardiac medications, cardiac catheterization, and percutaneous coronary intervention in unadjusted comparisons, these findings were no longer evident in multivariate analysis.

A distinctive aspect of this study was that self-reported income at the individual level was collected; previous studies have inferred individual income from aggregate measures of income, a process that can result in significant measurement errors of income. Poverty is determined by income level in the U.S. Yet income level is determined by a complex web of characteristics, including race, gender, age, marital status, education, occupation, retirement status, and the availability of health insurance. Furthermore, societal factors such as government policies (e.g., minimum wage, cost of living increases for Social Security recipients) and labor market conditions also affect income and ultimately those defined as living in poverty. The forces that create poverty are beyond the control of any one individual and are often the result of both social policy and the free market system.

Poverty affects people of all ages, but those younger than 5 years and older than 75 years are particularly vulnerable. In this study, the median age of the lowest income group was 65 years indicating that many in this group were retired, receiving Social Security and/or possibly pensions, and Medicare. The fact that lowest income group included many older individuals underlines the fact that the pensions collected, if any, were minimal. A significant proportion of this group was female and not married, indicating that many did not have the financial and emotional support of a spouse. How can these individuals survive on such small incomes, given the costs of housing and prescription drugs, not to mention food and the other necessities of life?

When looking at unselected registries of patients with myocardial infarction in the large Seattle MITI study and also in a population of patients with heart failure treated by our health system in Detroit, others, including ourselves, have observed that the subset of patients with lower incomes, older women and African Americans, have a higher mortality rate than other groups, even after adjustment for common associated risk factors (4,5). The question is not if these groups do worse, it is why—does it reflect the underlying severity of illness or does it reflect a difference in the process of care instead?

There is likely a tangled web of reasons that have not been adequately addressed in this or other studies. An important but difficult question to consider is whether poverty leads to poor health, or whether poor health in turn leads to poverty? There are several factors that may explain the increasing difference in mortality from one to six months for the lowest income group; these include inadequate follow-up care as well as noncompliance with prescribed treatment, although the latter seems unlikely in the setting of a randomized trial. Also there was a relatively high proportion of low-income patients with symptoms of CHF, an important predictor of mortality. Congestive heart failure, the end result of many heart diseases, is increasing in prevalence, and associated with both poor short and long-term mortality. In short, it seems likely that part of this variance is related to a greater burden of disease in lower income patients and cannot be adequately explained by multivariate analysis.

Although process of care was not associated with income in this study, access to medical care in general may be a possible reason for the mortality disparity. It is also important to recognize that patients in this study were part of a randomized trial and as such their care may have better than for comparable patients not enrolled. In a study of socio-economic variations in responses to chest pain in Scotland, patient interviews revealed that those most socially deprived perceived a greater vulnerability to heart disease based on their own family histories and risk factors. This did not result in these individuals seeking more medical care; on the contrary, these individuals were less likely to seek medical care for chest pain, as they felt their physicians might chastise them for their risk behaviors (6).
Another possible reason for higher mortality in the lowest income group is the relative income hypothesis; that is, life expectancy is worse in societies where the income distributions are more disparate (e.g., U.S.) than they are in societies where they are more equal (e.g., Scandinavian countries) (7). According to this theory, low-income individuals in a society with more equal distribution of income will generally have better than life expectancy than similar individuals in a country with greater disparity in income. In summary, what have we learned and what actions are required? Patients with lesser income more often have greater co-morbidity than those of greater means and are often poor because of their diseases. Many of these individuals are African Americans with underlying hypertensive heart and kidney disease, diabetic patients, and older women, particularly widows, with non-coronary CHF. No matter the explanation, it is time for us to reduce the variability in the care we deliver to both those who have and those who have not. We are almost devoid of standardized, systematic evaluation and treatment plans—in Detroit we would not build an automobile that way—and yet our current hospital and office information infrastructure to do the right thing at the right time is rudimentary. This failing is a current focus of many American College of Cardiology (ACC) quality and educational initiatives including the recent Guidelines Applied to Practice initiatives and the online clinical education programs being developed by the ACC. Lastly, the minimum level of care that we, as a society, have decided to make generally available is currently inadequate and will not change unless the experts among us vocally object and become politically active. It’s time for all of us to evaluate and minimize the variability in our own practices and to focus effort in a way that improves the health care of all.

Reprint requests and correspondence: Dr. W. Douglas Weaver, Henry Ford Heart & Vascular Institute, 2799 W. Grand Blvd., K-14, Detroit, Michigan 48202-2608. E-mail: wweaver1@hfhs.org.

REFERENCES