Impact of Comorbidities on Economic and Health Outcomes for Patients With Cardiovascular Disease

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In an era of increasing economic concern and increasing burden of chronic disease, studies on the economic impact of cardiovascular disease (CVD) and comorbidity are extremely important. In this issue of the Journal, Schofield et al demonstrate that multiple comorbidities are common among cardiovascular patients, and the number of morbidities is negatively associated with economic productivity such as labor force participation, incomes and amount of tax being paid. Depression was one of the most important comorbidities that strongly influenced labor force participation in patients with CVD.

Economic and Health Outcomes of Multiple Comorbidities

Chronic comorbidities are common in cardiovascular patients, especially in elderly patients with heart failure (HF). The study by Schofield and colleagues showed that almost 80% of Australian patients with CVD had at least 1 comorbidity, and approximately 40% had 3 or more comorbidities. Other studies show similar trends or even report worse data. For example, in a study using data on US Medicare beneficiaries, nearly 40% of HF patients aged 65 or older, had ≥5 comorbidities, ≥70% had 3 comorbidities, and only 4% had no comorbidities at all. These findings suggest that considerable attention should be paid toward designing treatment and care for patients with multiple comorbidities.

More importantly, with the increasing number of comorbidities, cardiovascular patients had lower rates of labor force participation, lower incomes, lower amount of tax being paid, and higher amounts of government transfer income, which indicates that comorbidities make patients more financially vulnerable and lead to loss of productivity. Comorbidities do not only cause a reduction in the actual work force, but also lead to a reduction in work hours for patients and increased early retirement. Given the economic impact of the rapid aging of the population and lower birth rates than in the past, an efficient societal system to secure and promote workforce participation for patients with multiple comorbidities is necessary.

In addition to the aforementioned consequences for society, comorbidity also has a considerable impact on the personal economy and welfare of patients and their families, and may lead to poor health outcomes. A study of 29,620 patients hospitalized...
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with acute coronary syndrome showed that comorbidities were strongly associated with mortality. In another study of HF patients, the risk of hospitalization increased with the incremental number of comorbidities, such as chronic obstructive pulmonary disease, renal failure, and diabetes mellitus.

Although cardiovascular patients with multiple comorbidities mostly are excluded from clinical trials, we need to realize that patients in the real world often suffer from comorbid conditions that challenge the implementation and tolerability of guideline-directed therapy. Sophisticated pharmacological therapies, disease management programs, and patient education have been developed in an attempt to prevent progression of specific chronic conditions. However, clinical needs among cardiovascular patients with multiple comorbidities may be different from those without them. For example, multiple comorbidities such as renal failure and chronic obstructive pulmonary disease may complicate self-care behaviors such as taking medication, diet management, and symptom monitoring.

Considering these findings, healthcare providers should pay more attention to a holistic community network model for cardiovascular patients with multiple comorbidities, rather than a single illness-oriented model based on hospitals, which allows patients to return their preexisting social and health status, and to self-manage their condition. To ensure continuity of disease management in complex patients, a chronic care model might be more suitable than a single-disease focused management program (Figure).

Depression and CVD

CVD and depression are currently the 2 most common causes of disability in developed countries. Depression is more common in patients with CVD than in the general community; for example, 20% of patients hospitalized with myocardial infarction and more than 40% of patients with HF are reported to suffer from depressive symptoms.

Noteeworthy, Schofield and colleagues report that patients with comorbid depression had a greater than 20-fold risk of being out of the labor force than those without depression, which confirmed earlier findings that coexisting depression was associated with work place absenteeism, diminished or lost productivity. Depressive depression and elevated depressive symptoms are also independent risk factors for morbidity and mortality, as well as important factors influencing the quality of life of cardiovascular patients. These findings indicate that depression has a significant negative impact on economic as well as patient-reported outcomes.

Both biological and behavioral mechanisms have been proposed in order to explain the link between depression and adverse outcomes. As to biological pathways, depressed patients with CVD have higher levels of biomarkers that are found to predict cardiac events or promote atherosclerosis such as neurohormonal activation. Certain behaviors and social characteristics in depressed patients also contribute to the development and progression of their heart disease. These include non- or poor adherence to self-care behaviors such as diet, exercise, medication, and tobacco use, as well as social isolation. Insufficient adherence to self-care behaviors and social isolation are important risk factors for adverse outcomes among patients with CVD.

Although the evidence-based treatment and care for CVD patients with depression is still under development, antidepressant drugs, cognitive behavioral therapy, and physical activity such as aerobic exercise and cardiac rehabilitation can be considered for treatment. Furthermore, disease management programs are implemented for patients with CVD, with the goal of reducing hospitalizations and mortality, and improving quality of life. A recent study showed that collaborative care management reduced depression in patients with depression and chronic disease. Meanwhile, a subanalysis of the COACH study revealed that the impact of a disease management program differed according to the presence of depression, which suggested that depressed patients required different clinical management to ensure adherence with treatment regimens and to provide psychosocial support.

To sum up, in the past 20 decades, the many advances in medical therapies and care have resulted in reduced morbidity and mortality in patients with CVD. However, as shown in the study by Schofield et al, there is still much that can be done for these patients with multiple comorbidities to improve their health and socioeconomic outcomes. Future research is necessary to advance our knowledge in this complex field.

References