

EDITORIAL COMMENT

# Financial Toxicity in Cancer and Cardiovascular Disease

## A Threat to Access and Quality of Care\*

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According to the Centers for Disease Control, cardiovascular disease and cancer are the leading cause of mortality in the United States, accounting for more than 40% of all deaths (1). Scientific advances have improved outcomes in both of these chronic conditions, but have also resulted in increasing costs of health care both at the system level and for individual patients (2,3). Medical financial hardship, including material, psychological, and behavioral hardship, is a growing challenge for patients in the U.S., especially those with chronic conditions and those without insurance (4-6).

In this issue of *JACC: CardioOncology*, Valero-Elizondo et al. (7) present a comprehensive population-based analysis describing the financial hardship in patients with cancer, cardiovascular disease, and both. They use National Health Interview Survey to describe financial toxicity (FT) in adults with self-reported atherosclerotic cardiovascular disease (ASCVD) and/or cancer from 2013 to 2018. FT is defined as any of the following: any difficulty paying medical bills, high financial distress, cost-related medication nonadherence, food insecurity, and foregone/delayed care because of cost. They report higher FT among patients with ASCVD compared with those with cancer, adjusted for all relevant variables such as age, sex, race/ethnicity, family income, education, insurance type, geographic region, cardiovascular risk factor profile, comorbidities, and burden from

medical bills. Not surprisingly, those suffering from both conditions had the highest burden.

Although FT is not a novel concept, this study contributes to the field by comparing and describing the incremental effect on the various domains of FT when cancer and ASCVD coexist. Although the authors highlight some of the differences between these two diseases, such as the episodic high expenditures with chemotherapy versus the chronic nature of most ASCVD, they have more in common than that which separates them. Comorbidities such as hypertension, hyperlipidemia, diabetes, arthritis, and renal disease are commonly present in both disease entities leading to multimorbidity (8,9). The multimorbidity places a significant physiological stress that increases the risk of mortality as well as resulting in higher out-of-pocket (OOP) spending due to both expensive medication use and increased hospitalizations (8-12). Furthermore, as survival improves in cancer patients with the use of costly therapies such as immune checkpoint inhibitors and chimeric antigen T cell receptor therapies, the risk of development of ASCVD increases due to both a longer life expectancy and the inherent risk associated with these therapies (13). This may lead to extensive downstream costs secondary to the management of cancer and/or cardiovascular disease.

Furthermore, cardiovascular disease and cancer share many risk factors that may be associated with FT. Low income level has been associated with increased cancer death, cardiovascular risk factors, and higher financial burden (14-16). The differences in health care based on socioeconomic status are partially driven by disparities in standards of care, including lack of access to medical care, inability to afford expensive medical procedures and diagnostic tests, and inability to afford medications to ameliorate comorbid conditions (15,17). Younger age at the

\*Editorials published in *JACC: CardioOncology* reflect the views of the authors and do not necessarily represent the views of *JACC: CardioOncology* or the American College of Cardiology.

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time of diagnosis of both cancer and cardiovascular disease has been associated with increased financial hardship, potentially related to lack of Medicare coverage, interference with physical and emotional function limiting educational and employment opportunities, lack of financial reserves, and the need for longer chronic treatment leading to more OOP costs (6,18).

The authors outline some limitations of their study, such as self-reported data, the cross-sectional nature of the study, and inability to discern the source of FT, whether from a specific catastrophic event or from chronic expenses. Time from diagnosis may be an important factor in affecting not only health care expenditure but also patient-reported costs, owing to the U-shaped nature of the cost curve in cancer, with the costs being highest at diagnosis and at the end of life (19). In sensitivity analysis, no impact on the magnitude of FT between the groups by time (<5 years, 5 to 15 years, and >15 years from diagnosis) was found, thus confirming their original findings. A point to note, however, is that in the nonelderly subset of population with cancer alone, almost 30% were nonmelanoma skin cancers, which may have contributed to underestimating the FT in the cancer group because of the milder disease trajectory.

The results of this study are highly relevant to researchers and clinicians in cardiology and oncology. The population with both of these diseases will continue to increase due to shared risk factors for cancer and ASCVD, and as overall survival across these diseases continues to improve (20). There is significant overlap in both disease trajectory and financial difficulties between these diseases. Therefore, future approaches should focus on standardizing the measures and understanding the common determinants for FT including the contribution of direct medical and nonmedical costs and indirect costs such as lost productivity. Given the prevalence of FT in younger patients, those with lower socioeconomic status, and racial minorities, future studies

need to focus on quality measures that address multimorbidity in those vulnerable populations.

There is also a need to move beyond descriptive studies to develop interventions to mitigate the financial consequences of medical treatment. It is essential to establish novel methods to screen for and address FT in patients with both cancer and cardiovascular disease, including implementation of universal screening and care pathways for fiscally responsible optimal care (21). In oncology, intervention studies are beginning to emerge (22,23). Future studies are essential to integrate these methods into clinical practice, to raise awareness among practitioners, and provide them with tools to minimize the ever-growing burden of FT in patients with cancer and cardiovascular disease. Increasing price transparency, better integration of financial advocacy services, and use of value-based insurance design to decrease cost-sharing burden is required at a system level to address this threat to access and quality of care. Finally, integrating financial stewardship and steps for early recognition and management of this problem in our academic curricula will ensure that the future generation of practitioners is more cognizant of this problem that can be devastating for our patients and their families (24).

More rigorous research, policy level initiatives, and better integration with clinical workflow can ensure that catastrophic financial consequences for patients do not undermine the scientific progress by making ability to pay a limiting criterion for treatment.

## FUNDING SUPPORT AND AUTHOR DISCLOSURES

The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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**KEY WORDS** cancer, cardiovascular disease, financial toxicity, medical bills