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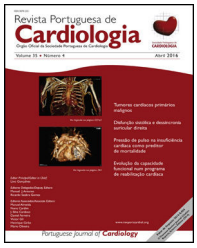

COMMENTARY

Socioeconomic impact of cardiovascular disease

Impacto socioeconómico da Doença Cardiovascular

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Cardiovascular disease (CVD) remains one of the leading causes of mortality and morbidity in developed countries.[1] Nevertheless, in recent years, mortality associated with diseases of the circulatory system has decreased steadily across several European Union (EU) member states. This change may, at least in part, be due to increased screening and awareness of appropriate and timely treatment procedures,[2] as well as to changes in patients' lifestyles.

CVD appears to be more prevalent at advanced ages, however it can develop at younger ages, leading to premature deaths. Acute myocardial infarction (MI) is a common manifestation of CVD requiring expedited diagnosis and intervention that carries a high risk of mortality and a substantial burden of disability, which are associated with additional costs. The economic burden of CVD is increasing: as reported by Wilkins et al.,[3] CVD-related costs in the EU rose from 106 billion euros in 2009 to 210 billion euros in 2017. According to the same authors, 53% of the CVD burden is attributed to direct healthcare costs, 26% to work-related productivity losses and 21% to the costs of informal care.

Most studies focus on clinical results and the success of interventional therapeutic procedures, nevertheless the economic burden of disease is an important issue that should be taken in account in the overall management of the healthcare system. Healthcare expenditure has a social impact and should be decided by society, keeping in mind that resources are scarce, needs are infinite and calculations of costs should include the concept of opportunity cost.[4] The majority of healthcare practitioners are not familiar with the ideas behind health economics, but these should be part of every decision made concerning healthcare. One function of health economics is to provide a set of analytical techniques to help decision-makers promote efficiency and equity, in order to maximize the social benefits obtained from constrained health-producing resources.[4]

The burden of CVD mortality and morbidity has an enormous impact, not only on healthcare systems and patients' quality of life, but also on their productivity and on that of their informal caregivers.[5] Most studies on the burden of CVD only analyze direct costs (related to devices, technologies, services and other resources used for treatment and prevention of CVD).[6] Indirect costs, those arising from productivity gains or losses relating to illness or death, are much less studied, although productivity loss represents a major negative impact on individual CVD patients, their families, caregivers and society as a whole.[7] In a recent study by the Health Economic Working Group of the Stent For Life program assessing the socioeconomic impact and clinical benefit of timely primary percutaneous coronary intervention in ST-elevation myocardial infarction,[8] which applied an economic model to several European countries including Portugal, the costs of the program were outweighed by the reduction in indirect costs obtained from the number of lives saved, which represented a positive socioeconomic impact.

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Cardiovascular events in adults of working age affect the labor market through premature exit from the labor force due to mortality or severe disability,[9] by causing long-term absence from work during hospitalization and during the subsequent post-discharge period, temporary or permanent reduction of working hours after returning to work, and through impaired performance at work, also known as presenteeism.[10] From a societal perspective, the time spent by informal caregivers helping relatives or friends with CVD also contributes to the total number of working hours lost.[7]

The study by Timóteo et al. published in this issue of the *Journal*[11] provides interesting information on the indirect costs of MI due to absenteeism in the first year after admission. The authors analyzed 219 patients aged <66 years and found a median of 34 days of absence from work in this group. They calculated indirect costs based on the human capital approach, in which productivity losses can be proxied by the cost of labor to employers, and the monthly wage was estimated at 1802 euros for this sample. They extrapolated the total number of MIs for the Portuguese population using the national Diagnosis-Related Group database and adjusted for type of MI using data from the Portuguese Registry on Acute Coronary Syndromes (ProACS). The median 34 days of absence from work due to MI translated into a total of 10 679 days, and on the basis of these data, the indirect costs for the first year after MI in Portugal was estimated at over ten million euros.

Another interesting point addressed by the authors is the proposal for implementation of measures to reduce absenteeism after MI, highlighting the need to develop and extend cardiac rehabilitation programs[12] and to adapt working conditions and environment to patients' situations.[13] Nevertheless, some limitations should be pointed out, which are acknowledged by the authors themselves in their paper, such as the results being based on a single center and therefore possibly not reflecting the situation nationwide, and including only costs of absenteeism. In order to consider all indirect costs, the costs of productivity losses due to premature death should also have been considered, as well as caregivers' productivity losses due to help and support provided during the first year after acute coronary syndrome, as pointed out by others.[14]

This study thus has the merit of covering an understudied topic in Portuguese cardiological clinical practice, providing additional information on the burden of CVD in this county. In the context of the current global financial constraints, this type of study is of paramount importance to clinical and policy makers, providing them with robust information with which to decide how to allocate scarce resources to healthcare programs.

Conflicts of interest

The authors have no conflicts of interest to declare.

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