

EDITORIAL

From Chronic to Acute Models of Heart Failure – The Cost-Effectiveness Perspective

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Cost-effectiveness is a new and rapidly expanding field of modern medicine. As new therapies continue to be introduced in the market, some of them being quite expensive, the cost related to healthcare in different clinical settings is constantly increasing. Therefore, a modern approach in healthcare politics is based on the calculation of cost-effectiveness, which reflects the balance between the cost of a therapy and its efficiency, translated into years of survival or quality of life.

Heart failure (HF) is a disease which consumes a significant part of healthcare budget, most of its expenditures being represented by hospitalization costs. Several published studies reported that approximately two-thirds of the healthcare costs of HF are related to hospitalization.^{1,2} A current cost-of-illness systematic review highlights the latest worldwide estimations, suggesting that approximately 26 million individuals are affected by HF,³ with an expected prevalence of at least 3% by 2030, leading some to describe it as a global pandemic.⁴ Annually, both Europe and the US spend 1–2% of their healthcare resources for the management of HF.⁵ In terms of global economic burden, the healthcare of patients with HF has been assessed at \$108 billion each year, with \$65 billion credited to direct and \$43 billion to indirect costs. The United States represents the largest contributor to worldwide HF charges and is responsible for 28.4% of overall HF costs, while Europe accounts for 6.83% of overall HF expenditure.⁶

Patients with chronic HF require frequent rehospitalizations, which significantly increases the economic burden of this devastating disease. A recently published

review confirms that hospital admission-related costs contribute significantly to global HF-related direct costs, in a percentage between 44% and 96%.³ These readmissions proved to be specifically resource-intensive, as healthcare costs were estimated to \$83,980 over the lifetime of each patient with HF. Another study reported that from global lifetime healthcare costs related to HF, almost 80% were associated with hospital stays.⁷

Chronic HF is a condition in which the heart cannot pump sufficient blood into the circulation to satisfy the needs of the entire body. The latest statistical report of the American Heart Association estimates that 0.4–2.2% of the population in industrialized states present this condition, with between 500,000–600,000 incident cases diagnosed per year.⁸ As a chronic disease, HF involves great lifetime expenses, mainly in the first year after diagnosis, while end-of-life healthcare is defined as the most expensive one.²

During the evolution of chronic HF, repeated episodes of acute decompensation can occur, which require immediate admission. A randomized controlled trial investigating outcomes in subjects with chronic HF reported that two-thirds of the subjects presented hospital readmission within the first year.⁹ Moreover, a recently published study demonstrated 30-day readmission rates for HF even higher than for acute myocardial infarction.¹⁰

Taking into account the substantial cost impact of HF on healthcare systems, it is mandatory to have a better consideration of the cost aspects and the specific cost drivers in different forms of this disease.

Anemia is a frequent comorbidity in patients with

HF, being reported in 11.3% of cases in the SOLVD trial, in 16.9% of cases in the Val-HeFT trial, and in 14.2% of cases in the COMET trial.¹¹⁻¹³ As anemia can represent a precipitating factor for the acute decompensation of HF, all attempts should be made to prevent or treat anemia in patients with HF. In patients with NYHA 4 HF, anemia is present in 79% of cases, being caused by iron deficiency in most of them.¹⁴

An article in this issue of JCE reports the cost-effectiveness of iron administration in patients with chronic HF. According to the results of this study, prescribing ferric carboxymaltose (FCM) treatment in chronic HF patients with iron deficiency led to a reduction of the rate and length of hospitalization stay and a better symptomatic profile, demonstrating high efficiency in terms of budget impact/saving, at minimal extra costs. The authors report that the cost element with the highest contribution to the estimated total costs was the outpatient visits for both study scenarios, showing a great potential of cost saving for this parameter. This analysis confirms the budget impact of iron administration as a management tool able to alleviate symptoms and generate health gain in HF patients with iron deficiency.¹⁵

While this analysis includes patients with congestive HF, the differentiation between acute and chronic HF is not very clear, since patients with chronic HF can develop acute decompensation any time in their evolution, turning into acute HF patients. Iron deficit is one of the possible causes for acute decompensation, a cause which can be easily corrected. The authors, Lorenzovici *et al.*, propose intravenous administration of iron as a cost-effective therapy in these cases.¹⁵ While their study focuses on chronic HF patients, the findings can be easily extrapolated to acute cases that result from the frequent decompensation of chronic HF.

The mechanisms by which different therapies may improve the evolution of chronic diseases can be very complex. For instance, it has been reported that the administration of ACE inhibitors associated with nonsteroidal anti-inflammatory drugs significantly improves the process of chronic inflammation in several groups of patients.¹⁶ However, their administration in acute phases of cardiac diseases may lead to a clinical benefit which is independent on the long-term administration. Similarly, iron administration in chronic HF may improve the long-term prognosis of these patients, but iron infusion during acute episodes of HF decompensation, when associated to proper therapies for acute HF, can play a definite contribution to the immediate restoration of hemodynamic status via different mechanisms of action.

All these indicate that modern therapies that proved to be cost-effective should be evaluated not only in chronic conditions but also in acute clinical settings, in order to validate the therapy on a larger scale.

CONFLICT OF INTEREST

Nothing to disclose.

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