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Editorial

The challenge of heart failure diagnosis and management in primary care in elderly population: Mere illusion or concrete opportunity?

Andrea Di Lenarda *, Kira Stellato, Donatella Radini

Cardiovascular Center, University Hospital and Health Services of Trieste, Italy

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The diagnostic criteria for heart failure (HF) established by the European Society of Cardiology [1] include the presence of symptoms and signs of HF combined with objective echocardiographic evidence of cardiac dysfunction at rest.

A large number of outpatients with HF are managed and treated by general practitioners (GPs) who often provide early diagnosis of the disease. However, disease prevalence in primary care is low and most cases of HF remain undiagnosed while many others, recorded as having HF, do not actually suffer from the condition [2].

The paper by Smeets et al. [3] analyzes the critical issue of recognizing HF in general practice, a pre-requisite to improve the management of patients and to activate effective pathways of care.

The paper is the result of a systematic review of 105 studies and almost 200,000 patients with a diagnosis of HF in general practice. The majority of studies did not incorporate echocardiographic assessment.

1. The challenge of HF diagnosis and management in primary care

The results of the study of Smeets et al. [3] can be explained by the lack of a gold standard definition of HF, due to the continuous evolution of the classification of HF [1]. In fact, in the elderly population, the specificity of typical signs and symptoms decreases dramatically and physical signs can be difficult to elicit; comorbid conditions such as chronic obstructive pulmonary disease (COPD), anemia, chronic kidney disease, obesity, chronic venous insufficiency, cognitive impairment, etc. are frequently present, hampering clinical assessment. This may account for the frequent atypical presentation of HF in elderly patients and low awareness of HF by GPs in patients with comorbidities.

Several algorithms have been proposed, but all of them pose several limitations in symptomatic elderly patients. Choosing a diagnostic algorithm for HF in elderly patients represents a trade-off between the potential benefits provided by additional investigations and the burdens such investigations may impose on patients and on the healthcare system. The ESC algorithm [1] exhibits the highest sensitivity (due to the relatively low cut-off of natriuretic peptides - NPs) and consequently the highest referral of patients. In elderly patients, this choice is even more difficult, as the benefits may be smaller while posing a heavier burden [4].

The primary need is now to implement an integrated health network to allow coordinated care, personal accountability and training. The Italian Association of Hospital Cardiologists recently published a consensus document [5] with the objective to improve integration of care between cardiologists and general practitioners, according to shared pathways with clear-cut stakeholders' roles and responsibilities.

2. The challenge of implementation of ECG/NPs screening

Patients with symptoms suggestive of HF presenting to primary care should be evaluated through history-taking (concomitant diseases, risk factors and treatments), assessment of HF symptoms, and physical examination. If at least one element is abnormal, ECG and plasma NPs should be evaluated to exclude or to suspect HF, to provide differential diagnosis in the presence of multimorbidities and to identify those who need echocardiography [1].

NPs appear reasonable and cost-effective rule-out tests for cardiac dysfunction, reducing by up to two-thirds the need for referral for echocardiographic assessment [6].

The diagnostic value of NPs in HF has been proven, even in the elderly [7]. However, controversy remains about optimal cut-off values among elderly patients with different proposed N-terminal fragment of B-type Natriuretic Peptide (NT-proBNP) cut-off points (i.e. 125 vs 400 ng/L) which both pose some limitations in an elderly population since they reciprocally change the sensitivity and specificity power of the test [4] which would undermine the usefulness of current tests. Previous studies have also advocated the use of age-dependent values [8].

In any case, NPs should never be seen as a stand-alone test. They should be interpreted as quantitative variables and always integrated with other clinical information pertaining to the individual patient.

3. The challenge of identification of HF phenotypes in real practice

Another important limitation emerging from the analysis is the very low percentage of phenotype description (HF with reduced ejection fraction - HFrEF vs HF with preserved ejection fraction - HFpEF) that is

* Corresponding author.
E-mail address: dilenar@units.it (A. Di Lenarda).

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critical to drug prescription and to explain undertreatment. The relative prevalence of both phenotypes is unknown, though HFpEF may account for >50% of HF hospitalizations in the elderly [9].

Also, should most patients with suspected HF perform an echocardiogram, the estimates of the prevalence of HFpEF may still vary widely because of the lack of standardization of diagnostic criteria, differences in baseline characteristics of the study populations, the echocardiographic criteria applied, and the cut-point for assessing 'normal left ventricular ejection fraction (LVEF)' (40, 45, or 50%). Diagnosis of HFpEF remains challenging, especially in the typical elderly patient with co-morbidities and no obvious signs of central fluid overload. Patients with HFpEF are a heterogeneous group with various underlying aetiologies and pathophysiological abnormalities, LVEF is "normal" and signs and symptoms for HF are often non-specific and do not discriminate well between HF and other clinical conditions. Despite lower sensitivity, the specificity of diagnosing HFpEF may improve with the support of objective measures of cardiac dysfunction (elevated levels of NPs) and/or objective evidence of myocardial structural alterations underlying HF.

Since elderly patients with comorbidities are often excluded from clinical trials, one could argue that the management of cardiac dysfunction in these patients is hampered by the lack of evidence-based guidelines. The therapeutic management of old patients with HFrEF is mainly based on extrapolating the results of studies with younger populations, although some have shown the benefit of betablockers and angiotensin-converting enzyme inhibitors in the elderly [1].

Disappointingly, until now randomized controlled trials in HFpEF have failed to show a significant improvement in outcome with drugs that are well established for HFrEF, such as beta-blockers and inhibitors of the renin-angiotensin system. In patients with HFpEF, the presence of frequent non-cardiovascular comorbidities, e.g. COPD, may cause the misclassification of symptoms and lead to prescription of treatment causing potentially adverse cardiac effects [1].

Despite these limitations, systematic echocardiographic evaluation remains essential to prevent potential cardiac side effects of medications prescribed for comorbidities [7].

4. Final remarks

The long-term management of chronic conditions requires a people-centred approach with customized investments in integrated primary care [10].

In the light of this shift towards more holistic, less disease-oriented care, the existing concept of HF in the elderly patients with a high burden of multimorbidity and polypharmacy should be revisited taking full account of the interaction with concurrent, chronic conditions.

The multidisciplinary integration of care among cardiologists, primary care physicians and nurses will require a clear definition of stakeholders' roles and responsibilities. The implementation of shared care pathways may provide the best support to evidence-based diagnosis and management of patients with HF [5].

The future will show whether this is a mere illusion or a concrete opportunity.

Conflict of interest

The authors report no relationships that could be construed as a conflict of interest.

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