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Methods to identify heart failure patients in general practice and their impact on patient characteristics: A systematic review ☆

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ABSTRACT

Background: Identifying patients with heart failure (HF) in general practice is challenging. Our aim was to provide an overview of methods used to identify patients with HF in general practice and to assess their impact on patient characteristics.

Methods and results: A systematic review was conducted using MEDLINE, EMBASE and CENTRAL. Taken together, 105 studies on HF in general practice were included, totalling 196,105 patients. Five main identification methods for HF were distinguished, including 1) echocardiographic assessments, 2) results of echocardiography in general practitioner (GP) charts, 3) GP judgment after chart review, 4) GP judgment of consecutive patients and 5) only chart review. Only 30% of studies used the results of echocardiography. Despite a large heterogeneity between studies the pooled data revealed a predominant phenotype of older women with hypertension rather than ischaemic heart disease. Linear regression analysis showed that the impact of the identification method on patient characteristics was limited. However, study design had a greater impact, with randomized-controlled trials (RCTs) including younger, male patients with ischaemic heart disease and higher HF drug prescription rates at baseline.

Conclusion: Pooled data of 196,105 patients with HF confirmed a phenotype of older women with hypertension rather than ischaemic heart disease as the predominant HF population in general practice. The lack of a gold standard definition of HF introduced a large heterogeneity in identification methods with remarkably limited impact on patient characteristics. However, RCTs did include patients with a different phenotype, emphasizing the need to promote inclusion of real-world HF patients.

1. Introduction

Heart failure (HF) is a prevalent disease associated with high morbidity and mortality and has a strong impact on quality of life [1,2]. Evidence-based data on HF in general practice is needed since the characteristics of these patients differ from those in hospitals and clinical trials. Patients with HF in general practice are generally older, more often female and have hypertensive rather than ischaemic HF [3,4]. The latter are typical characteristics of patients with HF with preserved ejection fraction (HFpEF), who are more prevalent in the community than in the hospital (55% vs 45%) [5].

Unfortunately, the identification of patients with HF in general practice is difficult. First, the symptoms and signs are non-discriminating and therefore of minimal diagnostic value [1,6,7]. This is particularly relevant for older people, who often have multiple comorbidities and may present with many other possible causes of dyspnea, fatigue or peripheral edema. Additionally, natriuretic peptide biomarkers and echocardiography are underused, leading to under- and over-diagnosis of HF [3,4,8–10].

Consequently, studying HF in general practice is challenging. A primary discharge diagnosis of HF after hospitalization is a validated method of identifying patients with HF, but it is not a sensitive one in general practice [11]. Searching for coded diagnoses in electronic medical records is a potential strategy [12], but studies have failed to confirm HF in 50%–75% of patients with a coded diagnosis of HF, and many HF cases remain undetected with this methodology [9,13]. However, a robust method of identifying patients with HF is the initial requirement for studying and improving care for this important patient population.

Therefore, the aim of this systematic review was to provide an overview of the methods used to identify patients with HF in general practice and to assess the impact of these different identification methods on the characteristics of the included patients.

☆ All authors take responsibility for all aspects of the reliability and freedom from bias of the data presented and their discussed interpretation.

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2. Methods

2.1. Design

A systematic review of the literature was performed to provide an overview of all studies that identified patients with HF in general practice. PRISMA statement recommendations and the Cochrane handbook for systematic reviews of interventions were followed to conduct and report the review [14,15].

2.2. Information sources and eligibility criteria

MEDLINE (via PubMed), EMBASE and the Cochrane Central Register of Controlled Trials (CENTRAL) were searched from 01/01/2001 to 31/12/2015 for all articles studying patients with HF in general practice. This time period was selected because some major changes in HF diagnostics and treatment were adopted by international guidelines in 2001. Additional articles were obtained by snowball technique, e.g., from reference lists of pertinent studies.

2.3. Search

The search strategy included the following search terms: "heart failure", "general practice", "primary care", "family practice", "general practitioner", "family physician", "physicians, primary care"; both MESH terms and free text terms were searched. The full electronic search strategy used in each database can be found in Appendix A.1.

2.4. Study selection

A set of in- and exclusion criteria was predefined. First, both interventional and observational studies were included, with the exception of case series and case descriptions. Reviews, guidelines, letters to the editor and study protocols were excluded, as were qualitative studies. Simple diagnostic studies with the aim of screening a population were only included if they used a prospective design. Second, HF had to be one of the main topics of the article. Consequently, articles that described HF as a comorbidity were excluded, together with articles that did not separately report the characteristics of patients with HF. No articles were excluded based on the type of HF described. Third, the identification of patients with HF had to occur in general practice. If this identification occurred in different settings and was not reported separately for general practice, the study was excluded from the systematic review. General practice was chosen as the setting instead of primary care because primary care also includes specialized HF nurses and office-based cardiologists. Access to echocardiography is a determining factor in the identification of patients with HF and differs too much between different actors in primary care. Fourth, only articles in English were extracted. Fifth, articles only published as supplements, not as full text articles, were excluded.

A pilot search was performed to test and determine the selection criteria. The first reviewer (M.S.) divided the selected articles into three categories (definitely excluded, included, and in doubt) based on title and abstract. The second reviewer (B.V.) checked all

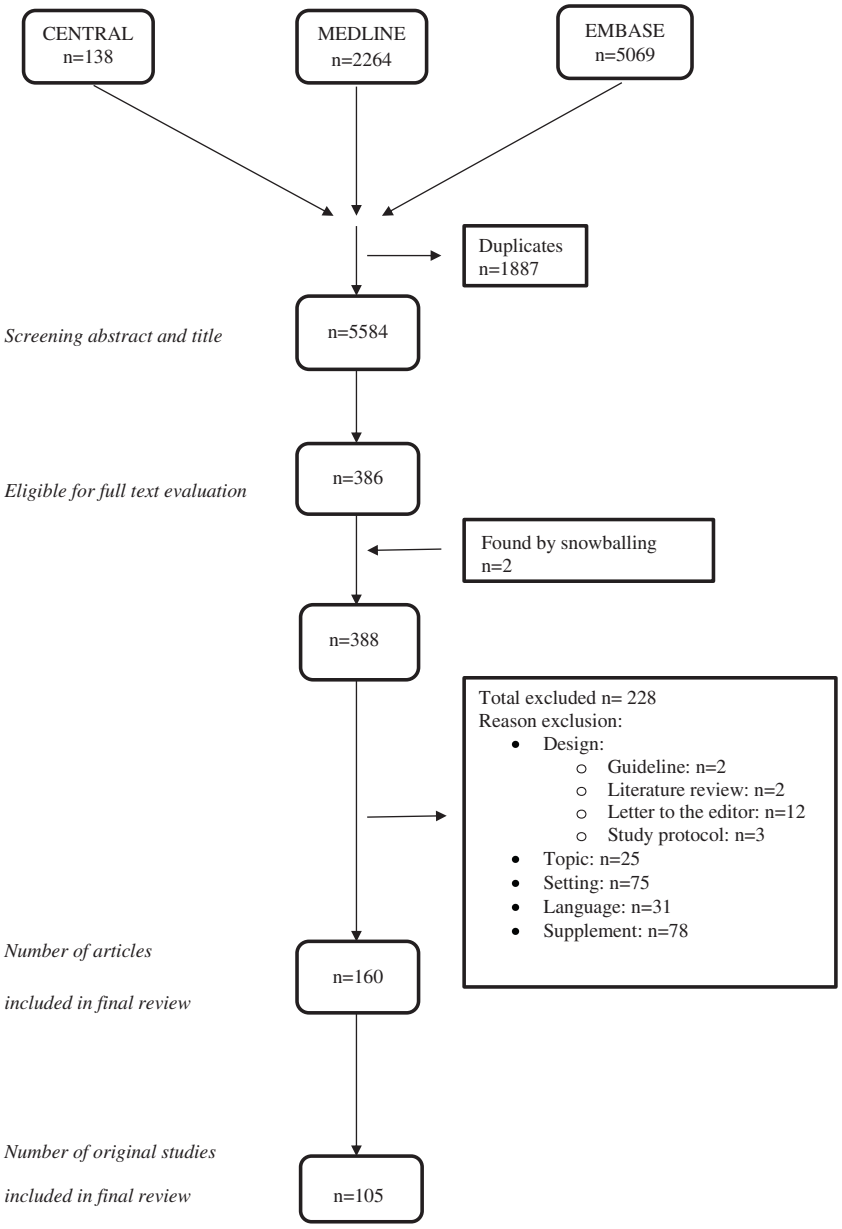

Fig. 1. PRISMA flow diagram of study selection.

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