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Depression and chronic heart failure: The modern aspects of management

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Abstract

Chronic heart failure (HF) is the end stage of most diseases of cardiovascular system and is a major cause of morbidity and mortality. The outcome of HF patients depends not only on the physical characteristics of the disease, but also on psychological stress in the form of anxiety and depression. More randomized clinical trials are needed that are adequately powered to evaluate whether the use of SSRIs and/or other antidepressants may reduce mortality and other cardiac outcomes without raising safety concerns among depressed cardiac patients.

Keywords: heart failure, coronary artery disease, depression, management

1. Introduction

Chronic heart failure (HF) is the end stage of most diseases of cardiovascular system and is a major cause of morbidity and mortality. The prevalence of this condition is between 2-3% worldwide, rises sharply in elderly patients to 10-20%^[1]. HF is an increasingly serious epidemiological and clinical issue, and numbers of patients with the disease are growing due to, among other factors, longer lifespans and higher survival rates of patients with acute coronary syndrome. Despite the many pharmacological treatment options and use of implantable devices, patients with HF are still frequently hospitalized. According to statistics one in five Medicare patients with HF is rehospitalized within 30 days, and nearly one in three within 90 days from discharge^[2].

HF caused of 5% of the acute hospital admissions, 10% of hospital bed occupancy, and approximately 2% of national expenditure on health in high-economics countries^[3]. Hospitalized HF patients are at particularly high risk for mortality. Median survival is only 1.7 years for men and 3.2 years for women, with only 25% of men and 38% of women surviving for 5 years. This is a mortality rate 4-8 times more than that of the general population of the same age^[4].

Heart failure is characterized by the clinical symptoms of shortness of breath, fluid retention, edema, fatigue, and poor exercise tolerance. Patients endure a burden of severe and various symptoms, resulting in poor physical, psychological and social functioning, and an impaired quality of life. The outcome of HF patients depends not only on the physical characteristics of the disease, but also on psychological stress in the form of anxiety and depression^[5].

In general, psychological stress in HF patients is frequently under-diagnosed by health professionals or inadequately treated. Indeed, a considerable number of patients remain undiagnosed for various reasons. First and foremost, patients are sometimes unwilling to reveal their emotional state, for fear of being stigmatized under the label of mental illness; secondly, health professionals pay more attention to the treatment of the HF disease, or they may accept many of the depressive symptoms as a normal response to HF. Last but not least, depression is frequently expressed either by physical symptoms, thus leading patients to other specialties and not to the psychiatrist, or by hostility towards medical and nursing staff, withdrawal and poor compliance with instructions^[6, 7, 8].

The purpose of this study was to evaluate of depression role in chronic heart failure and analyze of modern management strategies.

2. Material and Methods

We analyzed of results of modern clinical trials in PubMed database.

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3. Results and Discussion

Major depressive disorder occurs in 25% of patients with HF and consists of five or more symptoms present for most of the day, almost daily, or for at least two weeks [9]. One of these symptoms must be either depressed mood or loss of interest or pleasure in usual activities, and the symptoms significantly interfere with, or cause distress in social, occupational, or other areas of functioning [10]. Depressive symptoms are also common in patients with HF, with a prevalence ranging from 30–50%. They can occur with or without major depressive disorder and consist of depressed mood, guilt, hopelessness, low self-esteem, fatigue, sleep disturbances, appetite change, and inability to concentrate [11].

In small cross-sectional trial in Greece 190 hospitalized HF patients in four public hospitals were observed [6]. The data were collected using a specific questionnaire, which, apart from demographic and clinical variables, included the Hospital Anxiety and Depression Scale (HADS). 24.7% and 32.6% of patients were found to have moderate or high levels of anxiety, respectively. Simple multinomial logistic regression showed that no characteristic was significantly associated with anxiety. It also appeared that 17.4% of patients had minor and 24.2% major depression. Among the factors examined, longer disease duration was associated with a higher probability of being depressed ($p=0.041$). Moreover, single/divorced and widowed patients were more likely to have major depression compared to married patients (35.6% vs 19.2%, $p=0.046$). Simple multinomial logistic regression revealed that married patients were 59% less likely to have major depression compared to their unmarried counterparts (OR: 0.41). Moreover, patients with short (<1 year) and moderate (2-5 years) disease duration were 69% (OR: 0.31) and 61% (OR: 0.39) less likely to have major depression compared to those with a long disease duration. Multiple multinomial logistic regression showed that only the disease duration remained statistically significantly associated with depression after controlling for the rest of factors found to be significant at a univariate level.

There is growing evidence that depression increases the risk of mortality and other adverse outcomes, including readmissions and functional decline [12, 13, 14]. An explanation for the link between depression and an adverse outcome of HF is that depression has been identified as one of the most important barriers to effective HF self-care [15]. HF duration is associated with physical impairment, resulting in significant limitations in these patients' daily life and activities. Furthermore, patients who are unwilling to accept all these restrictions and are aware of their failure to maintain previous roles (family, professional, social) often experience depression. Along with the disease progression, especially when medical treatment provided by health professionals is not essential, patients experience feelings of abandonment at a time when their emotional needs are high. In these cases, the maintenance of communication and frequent contact with health professionals is a matter of vital importance [6].

Relevant research has shown a high prevalence of depression in patients with severe HF (NYHA III-IV) or a poor level of physical function [16, 17]. Another important factor that should not be underestimated when assessing depression in HF patients, is social support. The social isolation is an important predictor of mortality, irrespective of age, functional level, and treatment of depressive symptoms [18, 19]. The importance of support should not be underestimated by health professionals but rather incorporated into the treatment of hospitalized HF patients who experience depression, since empowerment of

support, including family, social and spiritual support, positively affects the outcome of the disease.

The recognition of psychological stress in hospitalized HF patients is an essential step towards effective treatment. By enhancing their awareness of the association between sociodemographic and clinical characteristics and psychological stress in HF patients, clinicians will be better equipped to provide individualized and specialized treatment.

The using of non-pharmacological treatments, such as social support and cognitive strategies to manage of depressive symptoms in HF patients should be first step in this direction. Interventions that enhance social support or focus on cognitive strategies may also be more acceptable and more effective than antidepressant therapy among patients with HF. Because negative thinking was frequently reported as a pivotal contributing factor, future investigators should determine the efficacy of cognitive therapy, a psychological therapy focused on reducing negative thinking, as an management strategy for depression in patients with HF [20].

Some but not all studies have associated the use of antidepressants with increased risks of cardiovascular events. The use of antidepressants, especially the selective serotonin reuptake inhibitors (SSRIs), for depression has become more prevalent among these patients. Although the efficacy of antidepressant therapy for depression is generally well recognized, the safety of these medications in patients with ischemic heart disease and HF has been challenged. Data from the Cardiac Arrhythmia Suppression Trial demonstrated that the efficacy and safety of a medication are not necessarily linked; ie, a medication that demonstrates great efficacy may have an unsuitable safety profile [21, 22]. Tricyclic antidepressants (TCAs), which have some of the same pharmacologic properties as type IA antiarrhythmics, were found to increase mortality in the Cardiac Arrhythmia Suppression Trial; therefore, the use of these compounds has been discouraged among patients with cardiac disease [25].

Xiong *et al.* found that patients who were treated with serotonin reuptake inhibitors (SSRIs) before coronary artery bypass graft (CABG) surgery had increased mortality and rehospitalization after CABG surgery compared with patients who were not treated with SSRIs during a 4-year postsurgical follow-up. Even after adjustment for the propensity to receive SSRIs and for other clinical confounders, SSRI use before CABG surgery remained associated with increased adverse outcomes [26]. Tata *et al.* conducted a case-controlled analysis using the United Kingdom General Practice Research Database records from 1988 to 2001 and reported that the use of both TCAs and SSRIs was significantly associated with acute myocardial infarction. In cases involving more than 28 days of antidepressant use, the odds ratio (OR) was 1.47 for patients taking SSRIs (95% CI, 1.41–1.54) and 1.40 for those taking TCAs (95% CI, 1.36–1.43). Similarly, Sherwood *et al.* [2] recently showed that antidepressant medication use was associated with an increased likelihood of death or cardiovascular hospitalization (HR, 1.75; 95% CI, 1.14–2.68) after severity of depressive symptoms and established risk factors were controlled for [27].

In contrast to these findings, several other studies examining the impact of antidepressant use and cardiac outcome have reported no increase in adverse cardiovascular outcomes. For example, Cohen *et al.* investigated the impact of TCAs and SSRIs on both acute myocardial infarction and death. They evaluated and compared 2247 working, union health plan members who received at least 1 prescription for an

antidepressant during 1991 and 1992 with 52 750 members who did not receive any antidepressants for up to 4.5 years [25]. After adjusting for age and sex, the authors found that the relative risk of myocardial infarction occurrence was 2.2 (95% CI, 1.2–3.8) among patients who used TCAs and 0.8 (95% CI, 0.2–3.5) among those who used SSRIs. Furthermore, the relative risk of death was 1.1 (95% CI, 0.7–1.6) in TCA users and 1.0 (95% CI 0.5–2.0) in SSRI users. Monster *et al.* and Meier *et al.* found no association between the use of SSRIs or TCAs and acute myocardial infarction [28, 29]. Similarly, no safety issues with SSRIs were identified in 2 large randomized clinical trials that enrolled patients with coronary heart disease: the Sertraline Antidepressant Heart Attack Randomized Trial and the Canadian Cardiac Randomized Evaluation of Antidepressant and Psychotherapy Efficacy trial [30, 31].

Finally, Ziegelstein *et al.* demonstrated that patients who received an SSRI were significantly less likely to experience recurrent myocardial ischemia, HF, or asymptomatic cardiac enzyme elevation while in the hospital (OR, 0.46; 95% CI, 0.22–0.99) but were significantly more likely to experience bleeding (OR, 1.65; 95% CI, 1.02–2.66), mainly minor bleeding. No differences were observed in death, myocardial infarction during the hospitalization, urgent revascularization, or major bleeding [32].

Conclusion

Depression is associated with increased mortality in patients with HF. More randomized clinical trials are needed that are adequately powered to evaluate whether the use of SSRIs and/or other antidepressants may reduce mortality and other cardiac outcomes without raising safety concerns among depressed cardiac patients.

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