PREVALENCE OF DEPRESSION AMONG HEART FAILURE PATIENTS AT TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT

Background: Cardiovascular disease (CVD) and depression are common. Patients with CVD have more depression than the general population. Persons with depression are more likely to eventually develop CVD and also have a higher mortality rate than the general population. Patients with CVD, who are also depressed, have a worse outcome than those patients who are not depressed. There is a graded relationship: the more severe the depression, the higher the subsequent risk of mortality and other cardiovascular events. **Materials and methods:** The cross-sectional epidemiologic research was conducted at Hospital with the recruitment of 205 participants. Each participant underwent a 30-question screening for depression, anxiety, and related risk factors. The "Hospital, Anxiety, and Depression Scale" (HADS score) was used to score subjects for the assessment of both comorbidities. The data points were subsequently analyzed by descriptive statistics and regression analysis. **Result:** Among 90 participants, 70 (77.8%) were male and 20 (22.2%) were female with a mean age of 59.71 years. Our sample reflects a prevalence of 52.7% depression and 56.9% anxiety in Saudi heart failure patients. High depression scores were positively related to age, female gender, hospital readmissions, and pre-existing comorbidities in heart failure patients. **Conclusion:** Despite the substantial link between depression and HF, their combination is underdiagnosed and undertreated. Although an HF comorbidity management programme could be effective for the diagnosis and treatment of concomitant depression, a plan with a multidisciplinary approach did not improve outcomes or symptoms.

Keywords: heart failure; quality of life; depression

INTRODUCTION

Cardiovascular disease (CVD) and depression are currently the two most common causes of disability in high-income countries and expected to become so for countries of all income levels by 2030. [1] The key health system and economic indicators relating to CVD and depression reveal rising medical costs, increased health service utilization and lost productivity. [2]

Additionally, CVD and depression profoundly impact the overall quality of life, even more so for heart failure patients. [3] One could argue that depression is probably the most important driver of overall quality of life.

The prevalence of unrecognized depression in cardiac patients has been noted for more than 40 years. In a seminal paper from Australia by Wynn in 1967, of patients with perceived disability after myocardial infarction, 40% were depressed and in many of them this had not been previously recognized. [4] In 1972, Cay et al. found symptoms of depression and anxiety in two-thirds of consecutive patients after admission for cardiac events. [5]

The patient burden of co-morbid CVD and depression would seem to warrant targeted intervention. In this review, we clarify the prevalence, aetiology, and prognosis of depression in CVD patients. [6] We also explore the relationship between depression and other psychosocial factors, such as anxiety and social isolation. [7] Drawing on the most recent research evidence, we examine psycho social and pharmacological intervention strategies to manage depression in the context of CVD, noting the need for ongoing randomized controlled trials. [8] Finally, we study the potential benefits of using an integrated, multidisciplinary approach to CVD patient care and management.

MATERIALS AND METHODS

Responses were collected through a web-based and self-administered questionnaire. Non-probability sampling technique was implied for the study. The study commenced after obtaining ethical approval from the Institutional Review Board (IRB) and voluntary participation consent of the HF patients visiting the Hospital. Over the course of seven months, 205 patients filled out the questionnaire. Inclusion criteria involve the restricted participation of HF patients. Non-HF and unschooled patients were excluded from the study. All the participants obtained directions on how to fill out the questionnaire. Patients' depression and anxiety were measured through Hospital Anxiety and Depression Scale (HADS). HADS is a validated and reliable tool to precisely estimate the presence and severity of depression and anxiety. It facilitates the apprehending of the suffering experience and the design of personalized intervention [8]. The calculation of sample size was based on the following considerations: standard normal distribution value at 95% confidence level (z) = 1.96, and margin of error (d) = 5%.

Study instruments

A comprehensive questionnaire was composed (entailing 16 questions) to assess sociodemographic features and sample characteristics including age, sex, marital status, number of spouses, number of children, education level, monthly income, job type, self-score on health, number of medications, sources to acquire medicine, time of HF diagnosis, causes of HF, previous year hospitalizations, exposure to smoking and support at home. The Arabic questionnaire was provided to the participants for the measurement of depression and anxiety-

related symptoms. Fourteen items were established exhibiting two subscales, one for depression and the other for anxiety. Scoring was performed on the HADS scale (0-3), where 0 refers to the lowest value and 3 displays the highest severity of anxiety and depression. Final scoring was performed by the summation of subscale values. Results varied from 0 to 21. Score count guided the establishment of three levels namely, normal (0-7), borderline (8-10), and abnormal (11-21).

Statistical analysis

Data were statistically analyzed using SPSS version 27. Descriptive statistics were employed to determine the characteristics of the data set. The mean and student t-tests were used to measure the significant differences (p-value) among categorical values. Frequency distribution rendered cumulative percentages to delineate the cause of HF. Analysis of Variance (ANOVA) appraised the relationship of the dependent variable (anxiety and depression) with the independent variables (sociodemographic factors and HF-linked variables). Data estimation was performed at a 95% Confidence Interval (CI) and $p < 0.05$ was considered significant. The data output was finally presented in the form of tables and charts.

RESULTS

In total, 90 HF patients contributed to the study. In our study, there were 70 males and 20 females. The majority of study participants were married and had a single wife and 2-3 children. A significant frequency of individuals with bachelor's degrees and high school diplomas was identified. The interviewees were mainly employed by the government with a monthly income of 5,000-10,000 Saudi Riyal. The majority of the candidates submitted below-average scores for their health. Support was primarily provided by spouses or children. In most cases, medicines were issued from the hospital, with an average intake of 4-7 medicines a day per individual. The totality of analyses manifested depression persistence at 52.7% and anxiety at 56.9%.

Patients that did not suffer from depression or anxiety were estimated to be 47.31%, and 43.4% respectively. Collectively, 16.09% of patients moderately experienced depression-related symptoms, whereas 36.58% had critical symptomatology. Comparably, 18.04% of patients exhibited borderline anxiety, while 38.53% reported high suffering from anxiety. The average age of the research sample was 59.71 years, with the youngest responder being 24 years old and the oldest being 95 years old. The highest depression scores were recorded at ages 52 (n=15) and 60 (n=11). An elevated standard deviation indicates high variability of the data point (age).

Out of 119 depressed individuals, 73.5% of women and 50.3% of men reported depression in their responses. Comorbidities, such as coronary artery disease (CAD), valvular heart disease (VHD), hypertension, diabetes mellitus (DM), and cardiomyopathy, were reported with depression percentages of 46, 80, 42.9, 52.5, and 48.6, respectively. Of the 117 patients that reported previous year hospitalization, 75 HF patients were spotted with depression and 72 patients reported anxiety. A substantial relationship between depression and sociodemographic

factors such as age (95% CI, p: 0.035), gender (95% CI, p: 0.049), and hospital readmissions (95% CI, p: 0.020) was verified by correlational analysis.

Table 1: Sociodemographic details of the HF patients with relation to depression and anxiety

	Mean	Std Deviation	P-value
Age (Mean)	61.75	14.05	0.039
Male	0.68	0.49	0.052
Female	0.38	0.21	
Spouse Caregiver	0.55	0.58	0.42
Children Caregiver	0.55	0.54	0.62
Siblings Caregiver	0.15	0.35	0.05
Driver/Maid Caregiver	0.15	0.35	0.99
Smoking	2.58	0.499	0.80
Previous Year Hospitalization (PYH)			
0	2.79	0.80	0.03
1-2 times			
>3 times			

TABLE 2: Causes of heart failure

	Total N= 90	Mean	P-value	Depressed, N (%)	Anxiety, N (%)
CAD	50	0.48	0.55	23 (46)	25 (50)
VHD	10	0.05	0.28	8 (80)	9 (90)
DM	40	0.35	0.52	21 (52.5)	20 (50)
Hypertension	42	0.38	0.522	18 (42.9)	19 (45.2)
Cardiomyopathy	35	0.29	0.55	17 (48.6)	15 (42.9)

DISCUSSION

Depression has been proven to be a meaningful factor to consider in HF patients to better stratify prognosis in patients with HF and related comorbidities. In recent years, research has been focused on this disease to understand the pathophysiological processes underlying the

interconnections between HF and depression. The current HF guidelines do not recommend screening for depression in HF; however the current guidelines on cardiovascular disease prevention recommend the evaluation of mental health as a risk modifier. [10] This, as latest research has shown, is particularly relevant in HF patients with depression. The bulk of evidence shown in our review clearly indicates the mortality and morbidity burden of depression in HF patients, raising awareness among clinicians regarding the use of easy-to-use screening tools to better ass's depressive symptoms in those patients and to further evaluate them, redirecting those patients to valuable specialized clinicians, in cases of high likelihood of depression. [11]

Considering the data reported in the current manuscript, we suggest screening HF patients for depression at least once after the first 6 months of HF, and to regularly screen depressed patients for cardiovascular implications based on their risk profile. Once the screening has suggested depression in the HF patient, we suggest an active interaction between the HF specialist and the psychiatrist to better manage the additive effect of these two pathologies, even if there is a lack of evidence of the utility and efficacy of a specific cardio-psychiatric team in this patient setting. It should also be considered that, as shown in [12], an integrated care model is crucial for those patients; however, not all health systems are capable of applying such an integrated model, often relying on caregivers and family for the external support needed to manage therapy compliance and accurate symptom detection. [13-24]

Lastly, considering the lack of robust, sufficiently powered RCT to evaluate hard outcomes (cardiovascular mortality, cardiovascular events, hospitalization for HF, and all-cause mortality) on intervention vs. placebo in patients with comorbid depression and HF, all the evidence shown regarding those hard outcomes should be taken with a grain of salt and be considered hypothesis-generating.

CONCLUSION

Despite the substantial link between depression and HF, their combination is underdiagnosed and undertreated. Although an HF comorbidity management programme could be effective for the diagnosis and treatment of concomitant depression, a plan with a multidisciplinary approach did not improve outcomes or symptoms. Future research is required to investigate the mechanisms of depression in HFpEF and their therapy. Existing ESC and ACC/AHA/HFSA HF guidelines acknowledge the need for more effective medications to reduce morbidity and mortality in depressed HF patient.

Considering the hopeful yet unclear findings of antidepressant trials, further research is required to identify people who may benefit from antidepressant medication. The goal of future research should be a complete approach to the care of these patients, who are anticipated to become a significant medical burden in the future.

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