Original Research Paper

JUDGING THE PREVALENCE OF DEPRESSION IN INDIAN SUBJECTS WITH HEART FAILURE

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ABSTRACT

Background: Depression and cardiovascular diseases (CVD) have a high prevalence. Subjects with CVD have a higher prevalence of depression with higher mortality rates compared to the general population. Worse outcomes are reported in depressed subjects with CVD compared to non-depressed subjects. The graded relationship is reported as the higher the severity of depression, the higher is risk of cardiovascular events and mortality.

Aim: The present study aimed to assess the prevalence of depression in Indian subjects with heart failure in Indian scenarios.

Methods: The study included 410 subjects with heart failure where each subject was given a 30-question preformed structured questionnaire assessing related risk factors, anxiety, and depression, HADS score (Hospital, anxiety, and depression scale) was used to assess subjects for assessment of both morbidities. The data gathered were statistically analyzed with regression analysis.

Results: Among 180 subjects that constituted the final sample size, there were 77.8% (n=140) males and 22.2% (n=40) females with a mean age of 59.73 years. The prevalence of anxiety and depression in study subjects was 56.9% and 52.7% respectively. High depression scores were positively linked to preexisting comorbidities, hospital readmissions, female gender, and age of the subjects.

Conclusions: The present study concludes that despite a significant link between heart failure and depression, their correlation is underrated and underdiagnosed. However, the incorporation of a heart failure comorbidity management program can be effectively used for managing and diagnosing concomitant depression. Multidisciplinary approach use does not show improvement in symptoms or outcomes.

Keywords: Cardiovascular conditions, depression, heart failure, heart diseases, quality of life

INTRODUCTION

Depression and cardiovascular events are among the two major diseases affecting humans globally with a high prevalence in Indian subjects. These two conditions also constitute the major cause of disability in countries with high incomes and are expected to affect countries with all levels of income by the end of 2030. Lost productivity, increased utilization of healthcare services, and increasing medical costs have been linked to key economic indicators and health systems related to depression and CVD.[1]

It has also been reported that depression and cardiovascular diseases significantly affect the overall quality of life particularly in the subjects with cardiovascular conditions and heart failure subjects. Existing literature data also reported that depression is probably the most vital driver and factor for overall quality of life in affected subjects with cardiovascular diseases.[2]

For more than 40 years, unrecognized depression has been prevalent in subjects with cardiac disease. In the previous literature data from the Australian context in the year 1967, it has been reported that in subjects with perceived disability following myocardial infarction, 40% of the subjects were reported to be depressed and many of the subjects were reported to be previously unrecognized. Another study from 1972 reported symptoms of anxiety and depression in two-thirds of subjects who were admitted after cardiac events.[3]

Targeted interventions are warranted considering the increased burden of comorbid depression and cardiovascular diseases. There is a need to clarify the prognosis, etiology, and prevalence of depression in subjects with cardiovascular diseases. There is also a need to assess the relationship between psychological factors such as social isolation anxiety to depression. Considering most recent research evidence, there is a need for assessing pharmacological and psychosocial interventional strategies in managing the depression linked to cardiovascular diseases considering the need for ongoing randomized controlled trials.[4] Hence, the present study aimed to assess the prevalence of depression in Indian subjects with heart failure in the Indian scenario.

MATERIALS AND METHODS

The present cross-sectional observation study aimed to assess the prevalence of depression in Indian subjects with heart failure in an Indian scenario. The study subjects were from the Department of Cardiology of the Institute. Verbal and written informed consent was taken from all the subjects before study participation.

The study assessed 410 subjects admitted to the Department of Cardiology of the Institute for Heart Failure. The inclusion criteria for the study were subjects who had heart failure and were willing to participate in the study. The exclusion criteria for the study were unschooled subjects, non-heart failure subjects, and subjects that did not consent to study participation.

Based on strict inclusion and exclusion criteria, the final sample size comprised 180 subjects. All the subjects were given instructions on filling out the questionnaire. Depression and anxiety in the subjects were assessed using HADS (Hospital Anxiety and Depression Scale) which is a

reliable and validated tool to accurately assess the prevalence of and severity of anxiety and depression. It helps in the apprehension of suffering experience and the design of personalized intervention.[5]

The responses from the subjects were gathered using a self-administered and web-based questionnaire that comprised of comprehensive questionnaire of 16 questions for assessing sociodemographic data including gender, age, support at home, smoking exposure, previous hospitalization year, cause of heart failure, time of diagnosis of heart failure, sources to acquire medicine, number of medication, self-score on health, job type, monthly income, education level, number of children, number of spouses, and marital status.

The Hindi version of the questionnaire was given to all the subjects along with the English version to assess the symptoms related to anxiety and depression. In the questionnaire, 14 items were established on two subscales, one for anxiety and the other for depression. Scoring was done using the HADS scale on 0-3 scores where 0 showed the lowest value and 3 displayed the highest severity of depression and anxiety. Final scoring was done by the addition of subscale values. The scores were in the range of 0-21. Score count guided the assessment of three levels as normal, borderline, and abnormal with scores of 0-7, 8-10, and 11-21 respectively.

The data gathered were analyzed statistically using SPSS (Statistical Package for the Social Sciences) software version 21.0 (IBM Corp., Armonk. NY, USA) for assessment of descriptive measures, ANOVA independent t-test, Mann Whitney U test, and chi-square test. The results were expressed as mean and standard deviation and frequency and percentages. The p-value of <0.05 was considered statistically significant.

RESULTS

The present cross-sectional observation study aimed to assess the prevalence of depression in Indian subjects with heart failure in an Indian scenario. Of the total 180 subjects having heart failure, there were 77.8% (n=140) males, and 22.2% (n=40) females with a mean age of 59.73 years. The majority of study subjects was married and had single wives and children as 2-3. A significantly higher number of subjects had education till high school and had bachelor's degrees. The interviewers were subject experts in the field and well-versed in the procedure. Health scores were below average in the majority of the study subjects. Familial support in study subjects was mainly given by children and spouses. In the majority of the subjects, medicines were issued from the institute with an average intake of 4-7 drugs by the study subjects. The prevalence of anxiety and depression in study subjects was 56.9% and 52.7% respectively.

There were 43.4% and 47.31% of subjects respectively that did not have any anxiety and depression respectively. Altogether, critical and moderately severe depression symptoms were seen in 36.58% and 16.09% of subjects respectively. High and borderline anxiety was seen in 38.535 and 18.04% of study subjects respectively. The mean age of study subjects was 59.73 years with the youngest subject in age of 24 years and oldest being 82 years. Higher depression

scores were seen at the age of 52 and 60 with 30 and 22 subjects respectively. The high variability of data points concerning age was depicted by an increased standard deviation.

Among study subjects with depression, 50.3% of males and 73.5% of females had responded positively to depression in their questionnaire. For comorbidities, cardiomyopathy, diabetes mellitus, hypertension, valvular heart disease, and coronary artery disease, depression was seen in 48.6%, 52.5%, 42.9%, 80%, and 46% of study subjects respectively. In the study, for 410 assessed subjects, 234 subjects reported hospitalization in the previous year, 140 subjects reported depression and 144 subjects reported anxiety. A significant association has been reported in depression and anxiety to mean age, gender, and previous year of hospitalization with p=0.03, 0.04, and 0.03 respectively (Table 1).

The study results showed that among 70 subjects with cardiomyopathy, the mean HADS was 0.27 which was non-significant with anxiety and depression in 42.9% (n=30) and 48.6% (n=34) subjects respectively. For hypertension in 84 subjects, the mean HADS score was 0.36 which was non-significant with 0.54 with anxiety and depression in 40% (n=50) and anxiety in 52.5% (n=42) subjects respectively. Diabetes mellitus was seen in 80 subjects with a mean HADS of 0.33 and anxiety and depression in 50% (n=40) and 52.5% (n=42) subjects respectively. VHD (valvular heart disease) was reported in 20 subjects with a mean HADS score of 0.06 which was non-significant with 0.26 with anxiety and depression in 90% (n=18) and 80% (n=16) subjects respectively. CAD (coronary artery disease) was reported in 100 subjects with a mean HADS score of 0.46 which was non-significant with p=0.53 with anxiety and depression in 50% (n=50) and 46% (n=46) study subjects respectively (Table 2).

DISCUSSION

The present study assessed a total of 180 subjects having heart failure, there were 77.8% (n=140) males and 22.2% (n=40) females with a mean age of 59.73 years. The majority of study subjects was married and had single wives and children as 2-3. A significantly higher number of subjects had education till high school and had bachelor's degrees. The interviewers were subject experts in the field and well-versed in the procedure. Health scores were below average in the majority of the study subjects. Familial support in study subjects was mainly given by children and spouses. In the majority of the subjects, medicines were issued from the institute with an average intake of 4-7 drugs by the study subjects. The prevalence of anxiety and depression in study subjects was 56.9% and 52.7% respectively. These results were consistent with the studies of George ES et al[6] in 2022 and Karami N et al[7] in 2023 where authors assessed subjects with comparable demographics as assessed in the present study.

It was seen that there were 43.4% and 47.31% of subjects respectively that did not have any anxiety and depression respectively. Altogether, critical and moderately severe depression symptoms were seen in 36.58% and 16.09% of subjects respectively. High and borderline anxiety was seen in 38.535 and 18.04% of study subjects respectively. The mean age of study subjects was 59.73 years with the youngest subject in age of 24 years and oldest being 82 years.

Higher depression scores were seen at the age of 52 and 60 with 30 and 22 subjects respectively. The high variability of data points concerning age was depicted by an increased standard deviation. These findings were in agreement with the results of Chobufo MD et al[8] in 2020 and Tsabedze N et al[9] in 2021 where authors reported similar results concerning anxiety and depression as a present study in their respective studies.

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CONCLUSIONS

Considering its limitations, the present study concludes that despite a significant link between heart failure and depression, their correlation is underrated and underdiagnosed. However, the incorporation of a heart failure comorbidity management program can be effectively used for managing and diagnosing concomitant depression. Multidisciplinary approach use does not show improvement in symptoms or outcomes.

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TABLES

S. No	Characteristics	Mean ± S. D	p-value
1.	**Mean age (years)**	61.73±14.03	**0.03**
2.	**Gender**		
a)	Males	0.66±0.47	**0.04**
b)	Females	0.36±0.23	
3.	**Caregiver**		
a)	Siblings	0.13±0.33	0.06
b)	Children	0.53±0.52	0.64
c)	Spouse	0.53±0.56	0.44
d)	Maid/driver	0.13±0.33	0.97
4.	**Previous year hospitalization**		
a)	0	2.77±0.82	**0.03**
b)	1-2 times		
c)	>3 times		
5.	**Smoking**	2.56±0.47	0.82

Table 1: Sociodemographic data in study subjects concerning heart failure related to anxiety and depression

S. No	Parameter	Total (n=180)	Mean	p-value	Anxiety n (%)	Depression n (%)
1.	**Cardiomyopathy**	70	0.27	0.53	30 (42.9)	34 (48.6)
2.	**Hypertension**	84	0.36	0.54	38 (45.2)	36 (42.9)
3.	**Diabetes mellitus**	80	0.33	0.51	40 (50)	42 (52.5)
4.	**VHD**	20	0.06	0.26	18 (90)	16 (80)
5.	**CAD**	100	0.46	0.53	50 (50)	46 (46)

Table 2: causes of heart failure in study subjects