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Original Research Article

HEART FAILURE WITH SHARED RISK FACTORS TO ATRIAL FIBRILLATION AND ASSOCIATED COMPLICATIONS

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Abstract

Background: Atrial Fibrillation the predominant cause of heart failure in recent times needs to be addressed for the clinical and aetiological factors to minimize the mortality rate. The aim is to evaluate the clinical profile and etiology of patients with Atrial Fibrillation. **Materials and Methods:** In the present study, a total of 50 patients with Atrial fibrillation were included. A detailed history of the patient concerning age, sex, gender, symptoms, and etiology was noted. **Result:** The maximum number of cases were in between the age group 60-79 years. Female cases were predominant over males representing 26 and 24. The most common presenting symptom in the study population was Dyspnoea in 82% of cases, palpitations in 38 cases, and pedal edema in 31 cases. Rheumatic heart disease stands as a dominant aetiological character in 24 cases representing 48% followed by ischemic heart disease in 7 cases representing 14%. Risk factors noted are smoking and alcohol consumption. **Conclusion:** The study results conclude that Atrial fibrillation is more familiar in female cases than in male cases. Dyspnoea is a common symptom in Atrial Fibrillation patients and Rheumatic heart disease is the major cause of Atrial Fibrillation.

INTRODUCTION

Globally, Atrial Fibrillation (AF) is the most prevalent disease in around 38 million individuals. Heart Failure (HF) is another common disease in around 64 million individuals. It is reported that the co-occurrence of these two disease conditions has shared risk factors.[1,2] Some of the primary shared risk factors associated with AF and HF are age, coronary heart disease, hypertension, and obesity. It is also reported that AF and HF likely share pathophysiological mechanisms as well which led to the occurrence of both diseases at the same point; Firstly, AF by diseased atria and HF by diseased ventricles; Secondly AF could also lead to HF by irregular heart rate and loss of atrial contraction and thirdly, HF develops into AF by several mechanisms that result in structural and functional atrial remodeling.[3] With varied pathophysiological mechanisms, the development of these two disease conditions varies in patients such as AF before HF; HF before AF, or both at the same time point.[4] The sequence of occurrence of AF and HF might have varied impacts on prognosis, yet the literature is sparse.[5] Therefore, the present study is aimed to determine the differential prognosis in patients with coexisting AF and HF.

MATERIALS AND METHODS

This prospective observational study was conducted at our tertiary care hospital. Ethical clearance was obtained from the Institutional Ethical Committee before starting the work. A total of 50 patients were enrolled after obtaining informed written consent. A detailed history of age, sex, clinical features and risk factors were noted. The history was taken in detail for all the patients.

Inclusion criteria
Patients aged more than 18 years with clinical and electrocardiographically proven atrial fibrillation were included in the study.

Exclusion criteria
Patients suspected to have atrial fibrillation clinically later proved to have different arrhythmia electrocardiographically were excluded from the present study.

Statistical Analysis
All the collected data was entered in an Excel sheet and frequency was calculated and represented.

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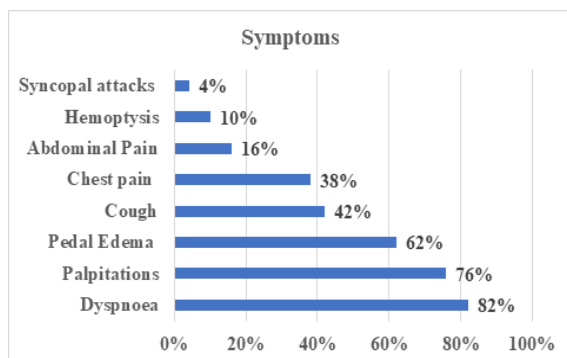ISSN (O): 2687-5365; ISSN (P): 2753-6556

RESULTS

Figure 1: Symptoms of Atrial Fibrillation noted in the study population

In the present study, among the studied cases. The maximum number of cases were in between the age group 60-79 years and the mean age range was found to be 54.84 ± 17.49 years. The distribution of cases as per age is tabulated below in [Table 1].

In the studied cases, the number of male patients with AF was found to be 24 and female patients were found to be 26 representing 48 and 52% respectively. The presenting symptoms in the studied cases were Dyspnoea in 41 cases, palpitations in 38 cases, pedal oedema in 31 cases, cough in 21 cases and chest pain in 19 cases and the percentage is represented in [Figure 1].

The risk factors are shared between AF before HF and HF before AF as represented in [Table 2]. Though all the risk factors are similar in both instances, the incidence varied between AF before HF and HF before AF. In almost all the risk factors noted, AF occurred before HF and had the highest incidence of complications. The complications noted in the study were tabulated in [Table 3].

Table 1: Age-wise distribution of patients

Age in years	Number of patients	Percentage %
20-39	8	16.0
40-59	12	24.0
60-79	15	30
80 & above	5	10
Total	50	100

Table 2: Risk factors in the studied population

Shared risk factors	AF before HF (%) [n=50]	HF before AF (%) [n=50]
Hypertension	20 (40%)	06 (12%)
Diabetes	15 (30%)	10 (20%)
Obesity	20 (40%)	18 (36%)

Table 3: Complications

Complications	AF before HF
Cognitive cardiac failure	33 (66%)
Cognitive cardiac failure and Cerebrovascular accident	6 (12%)
Cerebrovascular accident	4 (8%)
Shock	3 (6%)
Cognitive cardiac failure and shock	1 (2%)

DISCUSSION

The study reports important findings concerning the incidence of AF before HF; HF before AF and complications.

In recent times, a diversity of risk factors has been identified which are associated with progression of AF. Some of the risk factors cannot be modified like age, ethnicity, gender, and genetic predisposition while others can be optimally treated [Table 2]. In the studied population many risk factors are shared between AF and HF and targeting these would prevent or reverse atrial remodeling and further limit progression. This prompt action towards treatable risk factors has a marked effect on mortality in patients with HF.

Hypertension is a common risk factor associated with both AF and HF.[6] Reports from Atherosclerosis risk in communities have shown that hypertension accounted for 22% of incidence in AF patients.[7] These reports were consistent with the reports from the Women's Health Initiative (WHI) which stated that postmenopausal women with elevated systolic and diastolic pressure had attributed to the incidence of AF.[8] With these observations, targeted treatment for hypertension with the use of ACE inhibitors and other treatment options could control blood pressure and assist in preventing the occurrence of AF.[9]

Studies reported that diabetes and elevated blood glucose levels have a significant play in the incidence of AF. In the ARIC study, diabetes and poor glycemic control had elevated HbA1c levels which are associated with the incidence of AF independently.[10] In another Danish study, it was reported that the incidence of AF is higher in diabetic patients aged 18-39 years.[11] In general, patients having metabolic disorders like diabetes have a higher risk of both fatal and non-fatal coronary heart disease outcomes.[12] With this note, studies report the use of metformin could reduce the incidence of AF in diabetes patients than without taking metformin.[13]

In recent times, Obesity has been an independent risk factor for the AF incidence. Reports by AIRC have shown that overweight and obesity contribute to the 18% of AF incidence making it the strongest risk factor for the incidence of FA.[14]

Reports from the Framingham Heart Study demonstrated a 4% hike in AF risk for every unit increase in Body Mass Index.[15] Taking this into account, it is necessary to implement fitness and weight management in therapy for AF.

CONCLUSION

To conclude, this study represented the risk factors associated with AF and HF. Hypertension, diabetes, and obesity are the shared risk factors between AF and HF. Managing and targeting these conditions might reduce the incidence of AF which could lead to HF and vice versa and improve the quality of life.

Acknowledgments

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