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INTRODUCTION

Heart failure (HF) is a condition that can come about because of any structural or utilitarian cardiovascular issue that weakens the capacity of the heart to load with or pump an equitable measure of blood through the body.¹

Nearly 6.5 million individuals in Europe, 5 million individuals in the U.S.A. also 2.4 million individuals in Japan at present experience the ill effects of Heart Failure. Dissimilar to most cardiovascular (CV) infections, heart Failure is getting to be more regular. Almost 1 million new cases are diagnosed every year around the world, making it the most quickly developing CV issue. Seventy five percent of all patients hospitalized shockingly with heart failure will die the bucket inside 5 years; a rate of the survival more terrible than that with numerous cancers.² Even with the best treatment, Heart Failure is connected with a yearly mortality of 10%.³ HF is regular and connected with expanded mortality and hospitalization. It is additionally driving reason for hospitalization for populace 65 years and more established.⁴

PATIENTS WITH SYSTOLIC HEART FAILURE; TO DETECT THE PREVALENCE OF IMPAIRED RENAL FUNCTION

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ABSTRACT... Objective: The objective of this study is to determine the prevalence of IR function in the patients with systolic heart failure. **Study Design:** Cross-sectional study. **Setting:** Patients admitted in the Cardiac Ward of Civil Hospital. **Methodology:** IRF was evaluated on the basis of creatinine and GFR. Cases having creatinine of more than 1.2mg/dl and GFR less than 90ml/min were considered to have IRF. Serial measurement of creatinine was made initially on admission then on fifth day. Elevated creatinine of 0.3mg/dl from baseline creatinine during admission had justified as WRF. All patients were followed daily for 10 days and final outcome was measured at the end of 10 days. **Results:** 377 cases were enrolled in this study during study period. (70.03%) were male. Mean weight was 79.36±12.2 kg and 70.8% patients of weight 70 kg. Of 377 selected cases 57% patients developed IRF. **Conclusion:** It was concluded from this study that renal impairment is highly linked with Heart Failure. 57% patients were found to have developed IRF in this study.

Key words: Prevalence, Heart failure, Impaired Renal Function

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Several different factors have been shown to predict hospital readmission and short- and medium-term mortality in these patients, including mean arterial pressure (MAP),⁵ systolic blood pressure (SBP),⁶ left ventricular ejection fraction (LVEF), age, anemia, blood urea nitrogen,⁷ increased serum creatinine, C-reactive protein,⁸ and hyponatraemia.⁷ One of the most important conditions is the renal function reduced that was always noted to be found as a separate cause of death in the CV cases, mostly those having left ventricular systolic dysfunction and HF.⁹ Many recent studies have also stated that creatinine is a great cause of cardiovascular disease (CVD).¹⁰ Worsening Renal Function (WRF) is defined as increase in serum creatinine of more than 0.3mg/dl from baseline at admission remains a powerful predictor of increased risk of death, increased complications and prolonged hospitalizations.¹¹ The percentage of complications like pulmonary edema is 79.9% in heart failure patients with impaired renal function¹² compared to 13% in patients without renal impairment.¹³ Similarly ankle or peripheral edema is found to be 69.6%

in heart failure patients with renal impairment¹⁸ and 22 vs 15% in women and men of heart failure without renal impairment.¹⁴ The prevalence of atrial fibrillation in patients with renal impairment is 16.5%¹⁸ and 34% in those without renal impairment in heart failure.¹⁵ The overall prevalence of renal impairment in systolic heart failure is 57%.¹⁶ The mortality of heart failure patients with any renal impairment is 38% and 51% with moderate to severe versus 24% without renal impairment. Mortality worsened incrementally across the range of renal function with 15% increased risk for every 0.5mg/dl increase in creatinine and 7% increased risk for every 10ml/min decrease in GFR.¹⁷ The goals of this study are to find prevalence of impaired renal function in systolic heart failure, to compare in hospital complications (morbidity) and mortality with and without renal impairment so strategies could be developed to minimize the morbidity and mortality associated with impaired renal function in systolic heart failure

Data Collection Procedure

This Cross-sectional study conducted on admitted cases in the cardiac ward of civil hospital. Both gender B/W age of 35-75 years with SHF raised symptoms during a week diagnosed cases of systolic heart failure with regional wall abnormality were included in the study. All patients with Valvular Heart disease, Hypertension, Rheumatic heart disease (RHD), Congenital Heart disease (CHD), Cardiomyopathy and High output cardiac were excluded. Systolic heart failure patients admitted in the cardiac ward of Liaquat university Hospital, Hyderabad during the study period were enrolled after meeting the inclusion criteria after taking informed consent. Brief history was taken on admission. Data regarding baseline information, In-hospital complications like pulmonary edema, ankle edema, and atrial fibrillation impaired renal function and mortality was entered on the pre-designed proforma. Physical examination like pulse, chest auscultation and swelling on ankles was performed daily. Impaired renal function was assessed on the basis of creatinine and GFR. Patients with creatinine of more than 1.2mg/dl and GFR less than 90ml/min was considered to have impaired renal function. Serial measurement

of creatinine was made initially on admission then on fifth day. A rise in serum creatinine of 0.3mg/dl from baseline creatinine at admission was considered as worsening renal function. All patients were followed daily for 10 days and final outcome was measured at the end of 10 days.

RESULTS

A total of 377 cases were selected during study period. Mean age of selected cases was 55±9.3 years, ranging from 35 to 75 years. Table-I. Of 377 enrolled participants, 264 (70.03%) were male and 113 (29.9%) were female with male to female ratio of 2.3:1. Figure-I. Mean weight of enrolled participants was 79.36±12.2 kg and 70.8% patients of weight 70 kg. The mean duration of hospital stay was 9.65±3.5 days Table-II.

| Age groups | N. of patient (%) |
|-------------|-------------------|
| Mean age | 55±9.3 years |
| 35-45 years | 54, (14.3%) |
| 46-55 years | 149, (39.5%) |
| 56-65 years | 124, (32.9%) |
| >65 years | 50, (13.3%) |

Table-I. Age distribution of enrolled participants (n=377)

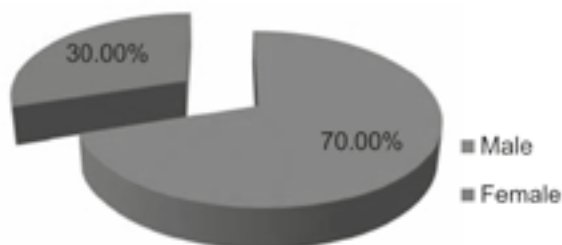


Figure-1. Sex distribution of enrolled participants (n=377)

| Weight | N. of patients (%) |
|-------------|--------------------|
| Mean weight | 79.36±12.2 kg |
| <70 kg | 110, (29.2%) |
| >70 kg | 267, (70.8%) |

Table-II. Duration of weight in enrolled participants (n=377)

Developed impaired renal functions, 18.3% atrial fibrillation, 51.2% pulmonary edema, 49.3% pedal edema and 31.6% patients died. Figure-II.

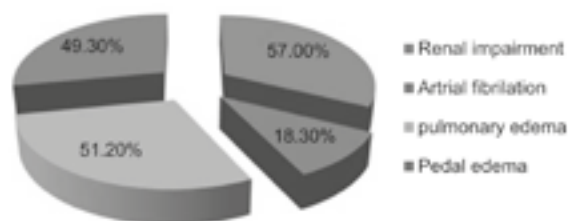


Figure-2. Frequency of complications in enrolled participants (n=377)

DISCUSSION

Acute Heart Failure is great issue of health including with incidence and linked mortality and morbidity.¹⁸ Reports from randomized trials stated renal impairment (RI) is common in patients with heart failure and is linked with the poor diagnosis.^{19,20} Therefore renal diseases and Cardio Vascular Disease having a good correlation with each other,²¹ and consequently renal, Cardio Vascular, and urinary obstruction can also cause of Renal Impairment in Heart Failure cases. Cowie MR reported that male were in the majority 118 (54%) men, female 102 (46%) women.¹⁸ similarly we found male in the majority as compare to female with the percentage of 70% and 30% respectively.

In patients with a recent hospitalization for worsening heart failure, the prevalence of RI has been reported to be ranging from 24 and 75% depending on the definition used.¹² Patients hospitalized due to decompensated Heart Failure, 30-67% were found to have GFR less than 60ml/min/1.73 m² in different huge epidemiological studies like ADHERE, OPTIMIZE-HF and EURO-HF.^{22,23,24} In this study incidence of RI was 57%. Brown A et al,²⁵ also suggested that, one-third of patients had evidence of renal impairment using an S. creatinine threshold of 1.5 mg/dL but more than half of the analyzed GFR of sixty mL/min. This occurred when cases with HF, mostly those on great dosage of the diuretics for long time, that can increase stage of creatinine indicative of renal insufficiency causing blood flow with chronic reductions from decreased output of heart. Link between survival and Renal Impairment and survival was noted in the cases of this study, and also in other studies of Chronic Heart Failure

and, more recently, in clinical practice.²⁶ A recent research also suggests that the severity of the renal dysfunction determines the prognosis in patients with Heart Failure²⁷ In the trial of SOLVD management, six cases of Chronic Heart Failure those had the GFR 60 mL/min mostly die, mainly from worsening Chronic Heart Failure. Similar findings were reported by Mahon et al.²⁸

CONCLUSION

It was concluded from this study that, renal impairment is highly associated with heart failure. Mostly patients had been found to have developed impaired renal functions in this study; more studies are needed to be carried out to know the relation between these diseases and to reduce the rate of mortality.

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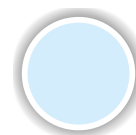
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“The quieter you become,
the more you are able to hear.”

Rumi



AUTHORSHIP AND CONTRIBUTION DECLARATION

| Sr. # | Author-s Full Name | Contribution to the paper | Author=s Signature |
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| 5 | Dr. Sajjad Kazi | Literature search, drafting, revision and writing of the Manuscript and final appraol | |
| 6 | Dr. Rabail Bohio | Literature search, drafting, revision and writing of the Manuscript and final appraol | |