

# Common Precipitating Factors of Heart Failure in Our Community

M NISA I HUSSAIN

Department of Physiology, King Edward Medical College Lahore

Department Of Medicine, King Edward Medical College, Lahore

Correspondence to Dr. Mehrun Nisa, Assistant Professor Physiology E mail: krashid@hotmail.com

The study was designed to determine the frequent precipitating factors of heart failure in patients admitted through emergency and/or outpatient department of Mayo Hospital, Lahore. Only those patients with established heart failure presenting with decompensation were included in the study. The prospective study was conducted on fifty patients of heart failure suffering from cardiac decompensation. Diagnosis was made on the basis of clinical history, examination and routine investigation followed by chest x-ray, ECG, echocardiography, thyroid function tests, liver function tests, urea and electrolytes. The results showed the non-compliance with diet and drug therapy as the single most common precipitating factor followed by respiratory and urinary tract infections in 8(16%) cases, cardiac arrhythmias and atrial fibrillation in 8(16%) and uncontrolled hypertension in 6(12%) cases.

**Key words:** heart failure, precipitating factors, hospital admission

Heart failure is a major and increasing public health problem. Now death from coronary artery disease is declining and mortality and morbidity from heart failure is on the increase<sup>1,2</sup>. Heart failure is the most common indication for hospital admission in elderly people<sup>3,4</sup>. Rates of readmission range from 27% to 47% within three to six months after initial discharge<sup>5,7</sup>. In the United States, most early readmission are due to an inappropriate drug treatment or failure to comply with dietary measures<sup>5,8</sup>. Inadequate outpatient medical treatment is another common cause of acute decompensation of heart failure<sup>9</sup>.

## Aims and objectives:

The study was designed to find out frequent precipitating factors of heart failure. The primary objective of this study was to examine the relative importance of various precipitating factors especially those which have not been studied adequately in previous studies like non-compliance with diet or drug regimen, infection, cardiac arrhythmias along with other factors. Finally most common precipitating factor was identified in our study as its early recognition and management has direct and major impact on prognosis of patients with heart failure in our community.

## Subjects and methods:

This prospective study was conducted on fifty patients all above twelve years of age, 24 male and 26 female of established heart failure suffering from cardiac decompensation and admitted in medical units of Mayo Hospital, Lahore. The heart failure was diagnosed on the basis of history of shortness of breath on exertion/ at rest, orthopnoea, paroxysmal nocturnal dyspnoea (PND), fatigue and weakness. On examination bibasilar crepitation, third/fourth heart sound, jugular venous pulsation, congested liver and ankle oedema were noted. Diagnostic investigations for heart failure included routine CBC, Urinalysis, ESR tests and investigations relevant to the underlying cause of heart failure like x-ray chest, ECG, echocardiography and blood tests which included, peripheral blood picture, liver function tests, urea, electrolytes and thyroid function tests. Patients of cor pulmonale and adult respiratory distress syndrome were excluded on the basis of above history, examination and investigation.

## Results:

Among fifty patients, 24 were male and 26 females, all above 12 years of age. The mean age was 40 years. Results were analyzed and evaluated on SPSS for windows. Table 1 shows the major

precipitating factors along with figure 2. It shows non-compliance with diet and drug therapy in 22(44%) cases as the single most common precipitating factor followed by respiratory and urinary tract infection in 8(16%) cases, atrial fibrillation in 8(16%) cases and uncontrolled hypertension in 6(12%) cases as significant precipitating factors for heart failure. Anemia was seen in 4(8%) cases and pregnancy leading to peripartum cardiomyopathy was responsible in 2(4%) cases.

Table 1: Common precipitating factors of heart failure.

Precipitating factor	n=	%age
Non-compliance with diet and drugs	22	44
Infections	8	16
Cardiac arrhythmias	8	16
Uncontrolled hypertension	6	12
Anemia	4	8
Peripartum cardiomyopathy	2	4

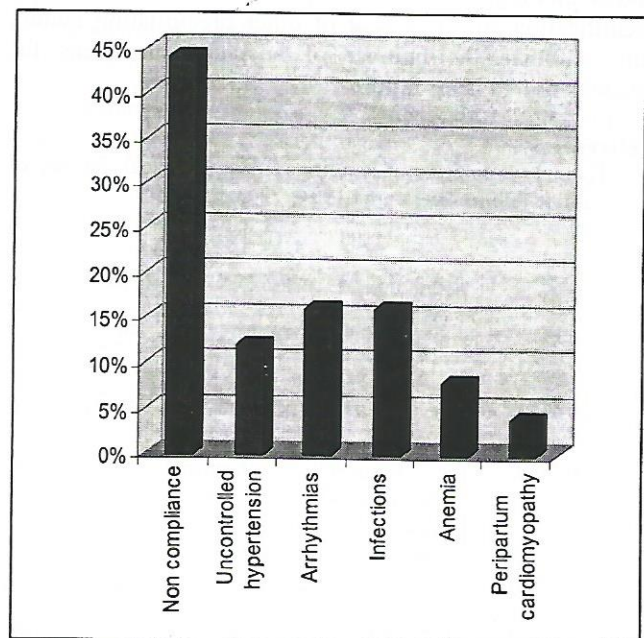


Fig. 1: Common precipitating factors and heart failure.



**Discussion:**

Heart failure is a major health problem in industrialized nations. It appears to be the only common cardiovascular condition that is increasing in prevalence and incidence. In the United States, heart failure is responsible for almost 1 million hospital admission and 40,000 deaths annually. Since heart failure is more common in elderly, its prevalence is likely to continue to increase as the population ages<sup>10,11,12,13,14</sup>. In evaluating patients with heart failure, it is important to identify not only the underlying cause but also the precipitating cause. The cardiac abnormality produced by congenital or acquired lesion may exist for many year and cause no clinical disability. Frequently, however, clinical manifestations of heart failure are precipitated for the first time due to some acute disturbance that places an additional load on myocardium that is chronically burdened. Such a heart may be compensated but have little additional reserve and any precipitating factor results in deterioration of function<sup>15,16</sup>.

Our results are consistent with the previously reported data by Ghali JK<sup>4,8</sup> and Carder SL<sup>11</sup>. They concluded that lack of adherence to the prescribed medical regimen was the most commonly identified causative factor and was noted in 64% of cases. Non compliance with diet amounted to 22%, with drug to 6% and with both drug and diet to 37%.

**Conclusion:**

Non compliance to dietary or drug therapy is the leading cause of exacerbation of heart failure followed by infections, arrhythmias, uncontrolled hypertension, anemia and pregnancy. Therefore the key preventive measure necessary in at least 50% of patients is adherence to drug and/or diet regimen. So better patient education and early identification and treatment of other precipitating factors can minimize the number of hospital admissions for decompensated heart failure.

**References:**

1. Kannel WB, HoK. Changing epidemiological features of cardiac failure. *Br Heart J* 1994; 72(suppl):S3-9.

2. Schocken DD, Arieta MI, Leaverton PE. Prevalence and mortality rate of congestive heart failure in the United States. *J Am Coll cardiol* 1992; 20: 301-6.

3. McMurray J, McDonagh T, Morrison CE. Trends in hospitalization for heart failure in Scotland 1980-1990. *Eru Heart J* 1993; 14: 1158-63.

4. Ghali JK, Cooper R, Ford E. trends in hospitalization rates for heart failure in the United States. *Arch Intern Med* 1990; 150: 769-73.

5. Gooding J, Jette AM. Hospital readmissions among the elderly. *J Am Geriatr Soc* 1985; 33: 595-60.

6. Vinson JM, Rich MW, Sperry JC. Early readmission of elderly patients with congestive heart failure. *J Am Geriatr Soc* 1990; 38: 1290-95.

7. Krumbholz HM, Parent EM, Tu N. Readmission after hospitalization for congestive heart failure among Medicare beneficiaries. *Arch Intern Med* 1997; 157: 99-104.

8. Ghali JK, Kadakia S, Cooper r. Precipitating factors leading to decompensation of heart failure: traits among urban blacks. *Arch Intern med* 1988; 148: 2013-16.

9. Wagdil P, Vuilliomenet A, Kaufmann U. Ungentilgenade Behandlungsdisciplin, Patient information and Medikamentenverschreibung als Ursachyen fur die Notfallhospitalisation bei chronisch herzinsuffizienten Patienten *Schweiz Med Wochenschr* 1993; 123: 108-112.

10. Flint FJ. The factor of infection in heart failure. *BMJ* 1954; 2: 1018-1022.

11. Carder SL. Precipitating factorsin congestive heart failure. *J Kanasas Med Soc* 1967; 68: 372-76.

12. Haynes RB, Taylor DW, Sackett DL. Can simple clinical measurements detect patient noncompliance? *Hypertension* 1980; 2: 757-764.

13. Monane M, Bohn RL, Guirwitz JH. Noncompliance with congestive heart failure therapy in the elderly. *Arch Intern Med* 1994; 154: 433-437.

14. Opasich C, Febo O, Ricardi PG. Concomitant factors of decompensation in chronic heart failure. *Am JCardiol* 1996; 78: 354-357.

15. Friedman MM. Preadmission symptoms in older adults admitted for heart failure. *Circulation* 1995; 92(suppl I):248.

16. Rich MW, Beckham V, Wittenberg C. A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. *N Engl J Med* 1995; 333: 1190-95.