



Ain shams university  
Faculty of medicine  
Cardiology department

Factors affecting hospital stay duration  
among elderly patients admitted with  
decompensated heart failure

*Thesis*

**Submitted In Partial Fulfillment of the Master Degree of  
Cardiology**

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# Introduction

Heart failure is a major and growing public health issue.

It is estimated that approximately 4-5 million Americans have HF, and that an additional 400,000 patients are diagnosed with HF each year. <sup>(1)</sup>

The elderly constitute a growing proportion of patients admitted to the hospital with CHF, and CHF is a leading source of morbidity and mortality in this group <sup>(2)</sup> .

Acute and chronic decompensated HF are leading medical causes of hospitalization among people aged over 65 years in European countries, the USA, Australia and New Zealand <sup>(3)</sup> .

Heart failure is characterized by frequent hospital admissions and prolonged length of hospital stay <sup>(4)</sup> .

Approximately 50% of patients hospitalized for hospital failure have preserved systolic function <sup>(5)</sup> .

These patients are more likely to be older, women, and hypertensive <sup>(5)</sup> .

Their duration of hospitalization is similar to that of heart failure patients with systolic dysfunction, but their in-hospital mortality risk is low <sup>(5)</sup> .

Admissions for HF have increased over the last decade while length of stay has decreased; the reasons for this change in the length of stay are uncertain (4).

Possible determinants of length of hospital stay for patients with HF include socio-demographic variables, medical comorbidities, disease severity, clinical presentation (NYHA class), in-patient treatment, in-hospital progress and the development of iatrogenic complications (4).

## Aim of the work

To determine the clinical and echocardiographic parameters that would increase In-hospital stay of elderly patients admitted to the CCU with decompensated heart failure.

## Patients and methods

The study will include 150 elderly patients (aged > 65 years old) admitted to CCU with symptoms of decompensated heart failure.

### **Inclusion criteria:**

- 1- Patients with heart failure with either ischemic or dilated cardiomyopathy.
- 2- Patients with heart failure NYHA class III and IV.
- 3- Patients with heart failure with Left ventricular EF <40% by 2D Echo.

### **Exclusion criteria:**

- 1- Patients with rheumatic heart disease.
- 2- Patients with Diastolic heart failure.
- 3- Patients with end stage renal failure (patients on regular dialysis), patients with advanced malignancy (patients with life expectancy < 6 months), anemic patients (HB <7.5 gm), patients with end stage liver diseases (hepatic pre-coma, coma, encephalopathy)

All the patients will be subjected to the following:

- 1-Complete history taking: including

-Age - gender - history of diabetes (Type of diabetes, duration of diabetes, anti-diabetic therapy and any history of macrovascular or microvascular complications of DM).

- History of hypertension (duration, antihypertensive therapy)

- History of previous myocardial infarction

- History of stroke

- History of admission for heart failure

- History of renal disease (duration, most recent sr. creatinine and history of dialysis)

- History of ischemic heart disease

- History of medical treatment with special emphasis on (use of ACE inhibitors, use of  $\beta$ - blockers, use of aspirin, etc).

2- Full clinical examination including:

-Measurement of BP - heart rate

-Peripheral pulses - waist circumference

- using of weight and height for calculation of body mass index

-presence of edema of lower limb

- s3 gallop - basal rales.

3- ECG with especial emphasis on HR, presence of sinus tachycardia, blocks, dropped beats, or any arrhythmias.

4- Chest x ray with emphasis on cardiothoracic ratio, evidence of congestion on x ray.

5- full transthoracic echocardiography including

(LVEDD, LVESD, LVEDV, LVESV, EF, FS, SV) by using 2D, M - mode and Doppler study.

LVESD = Left ventricular internal dimension at end systole.

LVEDD = Left ventricular internal dimension at end diastole.

LVESV = Left ventricular end systolic volume.

LVEDV = Left ventricular end diastolic volume.

EF = Ejection fraction of left ventricle.

FS = fractional shortening.

SV = Stroke volume.

### **Statistical Analysis:**

All data will be collected, tabulated and statistically analyzed



## Acknowledgement

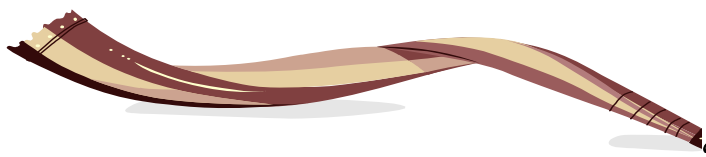
*First of all, thanks to “Allah” to whom I relate my success in achieving any work in my life.*

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*Marwa Abd El Hameid  
Mashaly*

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## List of abbreviations

<b>ACEI</b>	<i>Angiotensin converting enzyme inhibitors</i>
<b>Ang II</b>	<i>Angiotensin II</i>
<b>ANP</b>	<i>Atrial natriuretic peptide</i>
<b>ARB<sub>s</sub></b>	<i>Angiotensin receptor blockers</i>
<b>ARD</b>	<i>Aortic root diameter</i>
<b>BK</b>	<i>bradykinen</i>
<b>BNP</b>	<i>Brain natriuretic peptide</i>
<b>BP</b>	<i>Left ventricular ejection fraction</i>
<b>BUN</b>	<i>Blood urea nitrogen</i>
<b>CABG</b>	<i>Coronary artery bypass graft</i>
<b>CAD</b>	<i>Coronary artery disease</i>
<b>CHD</b>	<i>Coronary heart disease</i>
<b>CHF</b>	<i>Congestive heart failure</i>
<b>CRT</b>	<i>Cardiac resynchronization therapy</i>
<b>DBP</b>	<i>Diastolic blood pressure</i>
<b>DM</b>	<i>Diabetes mellitus</i>
<b>DT</b>	<i>Deceleration time</i>
<b>EF</b>	<i>Ejection fraction</i>
<b>ET</b>	<i>Endothelin</i>
<b>FMR</b>	<i>Functional mitral regurge</i>
<b>FS</b>	<i>Fractional shortening</i>
<b>GFR</b>	<i>Glomerular filtration rate</i>
<b>HB</b>	<i>Hemoglobin</i>
<b>HDL</b>	<i>High density lipoprotein</i>
<b>HF</b>	<i>Heart failure</i>
<b>HTN</b>	<i>hypertension</i>
<b>IABC</b>	<i>Intra-aortic balloon counter pulsation</i>
<b>ICD</b>	<i>Intra-cardiac device</i>
<b>IHD</b>	<i>Ischemic heart disease</i>
<b>IVS<sub>d</sub></b>	<i>Inter ventricular septum in diastole</i>
<b>IVS<sub>s</sub></b>	<i>Inter ventricular septum in systole</i>
<b>LAD</b>	<i>Left atrium dimension</i>
<b>LBBB</b>	<i>Left bundle branch block</i>
<b>LDL</b>	<i>Low density lipoprotein</i>
<b>LL</b>	<i>Lower limb</i>
<b>LV</b>	<i>Left ventricle</i>