

Left Ventricular Dysfunction in Diabetic Patient with Acute Myocardial Infarction

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ABSTRACT

This is a descriptive study to illustrate the effect of DM on left ventricular function among patients with acute myocardial infarction in the coronary care unit in Al-Salam hospital in Mosul city, Iraq. 305 patients with acute MI were selected, with average age of 58 (28-86), 126 (41.3%) of them were diabetic. LV dysfunction was observed in 91 of diabetic patients (72%), while in non-diabetics it was observed in 61 (34%) (out of 179 patients). Also, we observed that LV dysfunction is more prevalent among females than males. Regarding age groups we observed no difference between diabetic and non-diabetic patients.

INTRODUCTION

The prevalence of diabetes in Iraq increased from 5% in 1978 to 19.7% in 2012 with prevalence of dysglycemia of 48.8%¹. The prevalence of type2 DM has increased by 30% globally in the past decade with the number affected increasing from 333 million in 2005 to 435 million in 2015². DM, IHD and HF often occur concomitantly, and each disease independently increases the risk for the other. In HF cohorts, including both HF with reduced ejection fraction (HFrEF) and HF with preserved ejection fraction (HFpEF), the prevalence of DM ranges from 10% to 47%^(3,4). Cardiovascular disease (CVD) is now the most common cause of death worldwide. CVD accounted for nearly 17.9 million death worldwide (32%), including nearly 34% of death in high-income countries and about 32% in low- and middle-income countries⁵.

The highest regional prevalence for DM occurs in the Middle East and North Africa. Where an estimated 12.5% of the adult population has diabetes⁵.

Aim of the study:

To see the effect of DM on cardiac function among patients with acute MI.

PRESENTATION

Acute MI usually present with sudden severe central chest pain with sweating, nausea and sometimes shortness of breath due to pulmonary edema. Some patients present with hypotension and disturbed level of consciousness due to cardiogenic shock. In small percent of patients neurological deficit is superadded to the cardiac symptoms due to stroke by ischemia or emboli by AF or mural thrombus.

DIAGNOSIS

The diagnosis of MI is not difficult. Two of three criteria should be present to diagnose MI:

1. Pain or pain equivalent.
2. ECG changes.
3. Cardiac enzymes.

Echocardiography which is usually done to all patients is the gold standard to evaluate LV function, in addition to:

- Complete blood count

- Renal function test
- Serum electrolytes
- Serum lipid profile
- RBS and HbA1c, etc... .

PATIENTS & METHODS

Study Setting

The cases were collected in the coronary care unit in Al-Salam hospital, Mosul city, by designed questionnaire form.

Study Design

As observational descriptive cross sectional study was adapted to know the effect of DM on cardiac muscle in acute MI.

Study Period

The study period was 24 months from 1/1/2018 to 30/12/2019.

RESULTS

305 patients with acute myocardial infarction was evaluated for diabetes and LV function at time of CCU admission. 126 (41.3%) of them proved to be diabetic (Figure1). The LV dysfunction was demonstrated by LVEF <50% using echocardiography. 91 out of 126 diabetic patients (72%) had LV dysfunction (Figure2). LV dysfunction among female patients is more than males (Figure3).

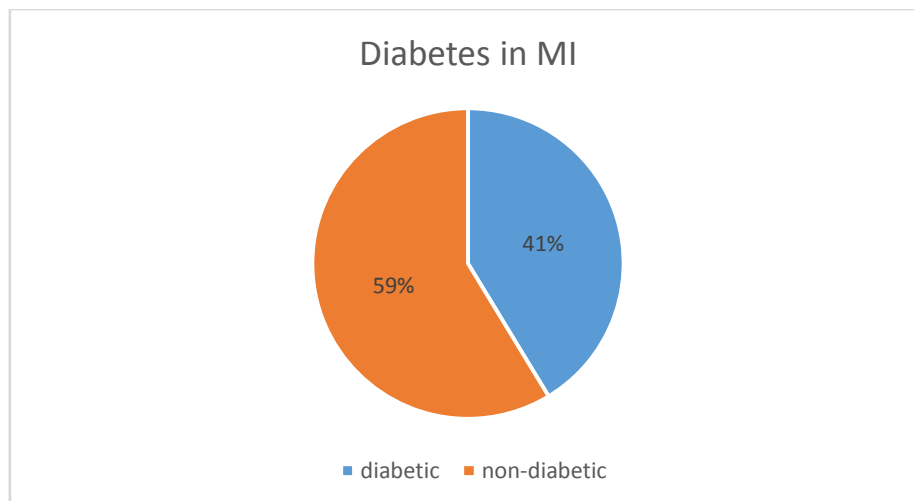


Fig.1: diabetes mellitus prevalence in cases of myocardial infarction

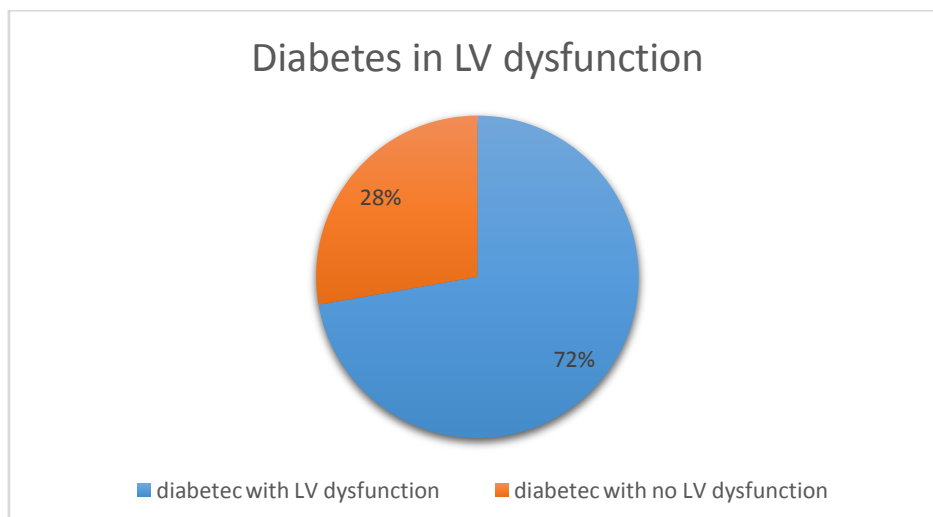


Fig.2: diabetes mellitus prevalence in cases of LV dysfunction

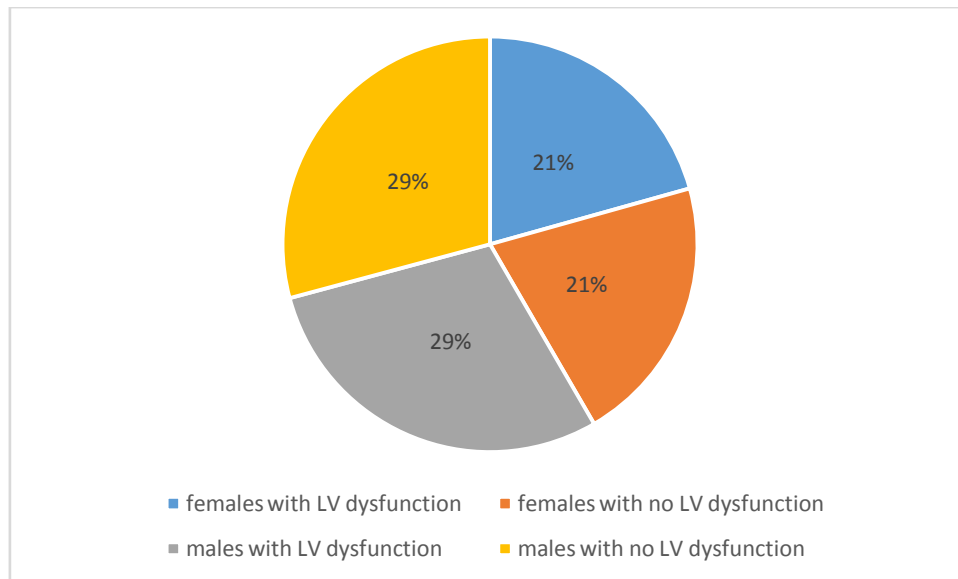


Fig.3: LV dysfunction distribution according to gender

DISCUSSION

It is well known that diabetes and prediabetes (dysglycemia) leads to increased incidence of IHD and causes premature ischemia (IHD in younger age groups). In this study the mortality and morbidity are higher in diabetic patients by affecting LV function, similar results were obtained in a recent study by a group of researchers in Oman⁶.

Many studies show strong relationship between DM and LV dysfunction.

CONCLUSION

Diabetes and prediabetes are considered the most common risk factors for IHD and the prognosis carry high morbidity and mortality due to high percent of LV dysfunction. So, the strict control of blood sugar and treatment of dysglycemia by changing life style and drugs should be considered in all communities.

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