



## Study Effect of Iron in Patient with Heart Disease

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**Abstract:** The study conducted on too Iraqi patient with chronic atherosclerosis at age rang (29-70years) in Baquba teaching hospital in (center care unit) during the period from 25 September 2020to may 2021. The patients divided in (55 mans and 45 patients ) the total patient divided in tow groups according the treatment (30) of total patient under go to treatment for two to three days after atherosclerosis and 70 patient in same day of diagnosis of atherosclerosis . it is noticed Decrease in electrolytes Iron values.

### Introduction

Iron deficiency is recognized as an important comorbidity and independent predictor of outcomes in patients with acute and chronic heart failure (HF) [1]. It is one of the most prevalent (approximately 50%) concomitant disorders present in HF patients, and is associated with poor prognosis, reduced physical well-being, exercise intolerance, repeated hospitalizations and a subsequent increase in mortality, regardless of the presence of anemia [2], [3], [4], [5], [6]. Iron supplementation can potentially improve quality of life and confer greater survival benefits in HF patients with iron deficiency [7]. While oral iron intake has been contraindicated mainly due to adverse gastrointestinal side-effects, intravenous iron supplementation has arisen as a potential therapeutic agent in HF patients, which may administer gradational advantage towards hospitalization and mortality outcomes [8]. The updated American College of Cardiology Foundation/American Heart Association (ACCF/AHA) guidelines and the European Society of Cardiology (ESC) guidelines recommend the use of intravenous iron supplementation in HF patients (NHYA Class II and III) with iron deficiency to alleviate their functional status and quality of life [9], [10]. However, the effectiveness of both oral and intravenous iron supplementation on clinical outcomes in iron-deficient HF patients remains unclear due to lack of reliable evidence and contrasting findings in prior clinical trials and meta-analyses [11], [12], [13], [14]. Therefore, in light of the inconsistent results, we conducted a meta-analysis to evaluate the efficacy of iron supplementation in reducing mortality and hospitalizations in iron deficient HF patients.

### Experimental work

#### Principle

Total Iron binding capacity is evaluated after saturating the transferrin by an iron solution and absorbing excess iron by the use of magnesium hydroxide carbonate. after centrifugation , iron is measured in the supernatant.

#### Procedure

Sample 500µl

Iron saturating solution R1 1000µl

Vortex for 30 sec and incubate for 5-30 min at 20-25c

Precipitating powder R2 75mg

Incubate for 30 min. at 20-25c, agitating every 5 min. during this period. Centrifuge at 3000 r.p.m. for 10 min. and use the supernatant can be stored for up to 1 hour

Reference range

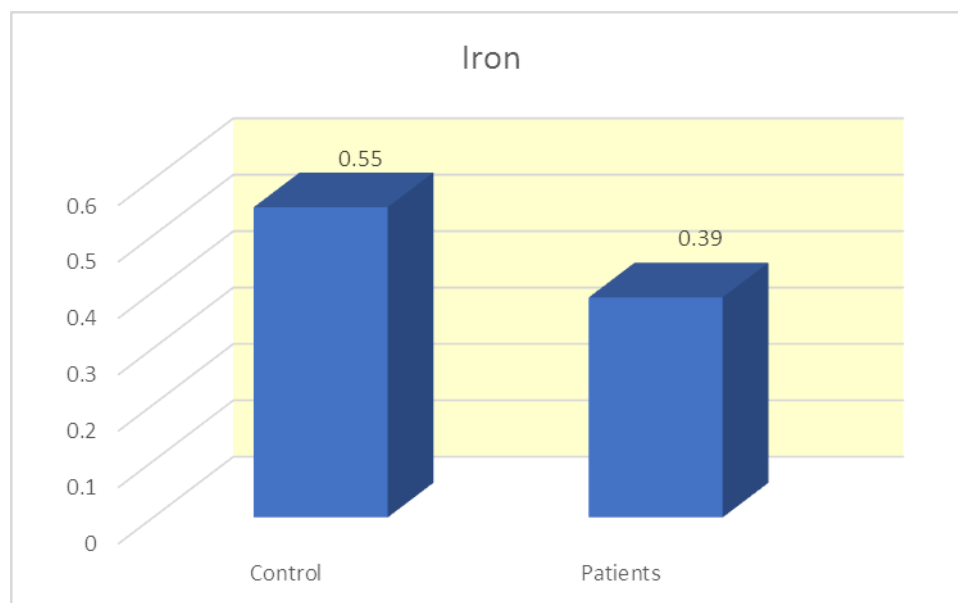
Women	250-350	µg/dl
Men	300-400	µg/dl

## Results

The results of the statistical analysis showed the levels of Iron decreased in the patients ( $0.39 \pm 0.02$ ) when compared with control ( $0.55 \pm 0.01$ ) group p-value  $< 0.05$  figure (1). Iron result was agree with Anna Chu,*et al.*(2016)[138] were observed that The association between serum Iron concentrations and risk of CVD events was reported in five studies. Four studies stratified serum Iron levels into tertiles or quartiles. In a multivariate model, each quartile decrease of serum Iron concentrations was associated with 10% increased risk of CVD mortality in patients referred for coronary angiography, table (1).

**Table (1) serum Iron in study groups(patients compared with controls )**

Parameters	Group	Mean $\pm$ Std.	P-value
Iron	Control	$0.55 \pm 0.01$	0.001
	Patients	$0.39 \pm 0.02$	



**Figure (3.6) Iron level in study groups**

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