

ROLE OF HEART FAILURE IN VARIATION OF SERUM ALT, AST, ALP, BILIRUBIN AND ELECTROLYTES

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ABSTRACT : Heart failure (HF) is a major public health problem that causes regular hospitalizations, decreased quality of life, and reduced lifespan. The ability of the liver and kidneys to function is highly dependent on cardiac activity. In all cases of heart failure, a degree of dysfunction of liver and renal functions is to be expected. In patients with heart failure, acid-base and electrolyte defects are a common and complications that may be risky. The study aimed to see if there was a connection between the severity of heart failure and liver dysfunction and electrolyte abnormalities in heart failure patients. A total of 50 HF patients took part in this prospective cross-sectional analysis and 50 healthy volunteers was conducted in Al-Sadder educational hospital in Al-Basrah Government on between December 2019 and February 2020. The patients group was subdivided in compliance with percent of EF into patients with a moderate HF (EF% \leq 40- 30) and patients with a severe HF (EF% \leq 29). The complete biochemical measurements like serum AST, ALT, ALP activities, direct and total bilirubin and serum electrolytes were in the laboratories of our College. Patients with HF showed significant increases in each of AST, ALT and ALP activities, significant decreases in each of direct and total bilirubin concentrations, significant decreases in the serum concentrations of each of sodium and calcium and significant increase in serum potassium concentration comparing to the control group. From the results of this study, we can conclude how chronic and acute heart failure can lead to acute hepatic injury and liver dysfunction as well as electrolytes imbalance.

Key words : Ejection fraction, hear failure, liver function tests, electrolytes.

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INTRODUCTION

So far, the heart failure holds an unacceptably high mortality rate amid recent advancements in management. It is so widespread that over its remaining lifetime, nearly one in three people over the age of 55 will experience heart failure. It remains a fatal condition, with just 35% living 5 years after the first diagnosis (Bleumink, 2004; Loehr, 2008). In 2015, it was estimated that 5.7 million people over the age of 20 were diagnosed with heart failure in the U.S. (Mozaffarian, 2015).

Heart failure itself is known as a clinical cardiac dysfunction syndrome, typically caused by myocardial muscle dysfunction or loss, The failure of the heart to handle the venous return and to maintain adequate cardiac output to meet the metabolic needs of the body and is characterized by either left ventricular dilatation or hypertrophy, or both (Alvarez, 2011; Braunwald, 2015; Writing, 2016).

HF is classified into systolic and diastolic HF, respectively. Systolic failure demonstrates decreased cardiac contractility, while diastolic failure with irregular ventricular filling shows impaired cardiac relaxation. HF may result from many congenital and acquired cardiac structural or functional disorders that affect the ventricle's ability to fill or eject blood (Alvarez, 2011; Hamzah *et al*, 2019). It is also classified, according to the left ventricle ejection fraction (LVEF) values into heart failure with preserved ejection fraction (LVEF \geq 50%) and HF with reduced ejection fraction (LVEF < 40%), whereas subjects with the range of 40–49% represent a 'grey area', which is defined as heart failure with midrange ejection fraction (HfmrEF) according to the latest European Society of Cardiology Guidelines for the diagnosis and treatment of acute and chronic heart failure (Ponikowski, 2016). Because of systemic conditions and diseases that affect all organs (alcohol misuse, medications, inflammation,