

Case Report

Hepatotoxicity Associated with Carvedilol

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ABSTRACT

Objective: The serum transaminases document is severe elevated in a patient who was receiving Carvedilol.

Case Summary: A 65-year-old Saudi man admitted to hospital with acute heart failure (EF 15%), acute liver failure and acute kidney injury. He was admitted to CCU and started treatment. Within one week the kidney and the liver function improved. After that the doctor changed Bisoprolol to Carvedilol for one day only, the laboratory tests showed elevated serum transaminases. So, discontinued Carvedilol immediately and restart bisoprolol the liver function returned to the normal within four weeks.

Conclusion: Carvedilol may cause liver enzymes elevated in liver impairment patient. This reaction resolves if the patient is switched to another beta- blocker. Carvedilol is contraindication in sever hepatic impairment.

Keywords: Carvedilol, Hepatotoxicity, Transaminases.

INTRODUCTION

Heart failure is a complex syndrome that can result from the heart muscle is unable to

pump enough blood through to meet the body's needs for blood and oxygen. That will lead to shortness of breath, fatigue and weakness, swelling (edema) in legs, ankles

and feet, rapid or irregular heartbeat, reduced ability to exercise.

It affects around 26 million people worldwide. There are more than 6 million people in the USA. Heart failure is the main cause of hospitalization for patients over the age of 65 years¹⁻³.

Treatment

- a. Diuretics are to reduce symptom (edema). No benefit on mortality.
- b. Angiotensin-converting enzyme inhibitors (ACEIs) is neurohormonal blocked, vasodilatation, mortality benefit.
- c. Angiotensin receptor blockers (ARBs) is neurohormonal blocked, vasodilatation, mortality benefit.
- d. Beta-adrenergic blockers are neurohormonal blocked, mortality benefit.
- e. Aldosterone antagonists, benefits in NYHA class III and IV heart failure, mortality benefit.
- f. Hydralazine and nitrates reduces afterload and preload. Alternative in patients who cannot tolerate an ACEI/ARB or as an add-on therapy to ACEI/ARB and beta-blockers in African Americans patients.

- g. Digoxin improves heart failure symptoms, and decreased rate of heart failure hospitalizations.

β -blockers

β -blockers indicated to improve signs and symptoms, exercise tolerance, and hemodynamics and reduce mortality in patients with heart failure³.

Carvedilol

Carvedilol was approved by the Food and Drug Administration in 1997 for the treatment of heart failure⁴. Carvedilol is a nonselective β -blocker without intrinsic sympathomimetic activity. It has antagonist activity against α_1 , β_1 and β_2 receptors.

Long-term treatment with carvedilol will reduce morbidity and mortality and enhance survival^{5,6}.

CASE SUMMARY

A 65 years old Saudi man was admitted to hospital with Acute Heart Failure (EF 15%), Acute Liver failure (ALT 1544 U/L, AST 1253 U/L, Bilirubin T 100 $\mu\text{mol/l}$, Gamma GT 999 U/L), Acute Kidney Injury (Cr 140 $\mu\text{mol/l}$) (herbal causes).

He was admitted to CCU and start Aspirin 81 mg, Bisoprolol 1.25 mg, Furosemide 40 mg IV bid, Lisinopril 2.5 mg, Digoxin 125 mcg, Spironolactone 12.5 mg.

After one week the kidney function returned to normal and the liver function improved within three weeks. Then the doctor change Bisoprolol to Carvedilol 3.125 mg bid for one day only after that the serum transaminases elevated. So, discontinued carvedilol immediately and restart bisoprolol the liver function returned to normal within four weeks⁷⁻⁹.

DISCUSSION

The hepatotoxicity adverse effect resolves if the patient is switched from carvedilol to another beta blocker. The liver function test abnormalities return to normal if discontinuation of carvedilol.

CONCLUSION

Carvedilol may cause liver enzymes elevated in liver impairment patient. This reaction resolves if the patient is switched to another beta-blocker. Carvedilol is contraindication in sever hepatic impairment.

DECLARATIONS

Availability of data

Data is available in the records of the hospital.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report.

Competing interests

The authors declare that they have no competing interests.

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