Metabolic Dysfunction-Associated Steatotic Liver Disease as a Component of Cardiorenal Metabolic Syndrome

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Abstract

The role of metabolic dysfunction-associated steatotic liver disease (MASLD) and its functional status remain underestimated in cardiorenal metabolic syndrome (CRMS). Our objective was to evaluate the characteristics of MASLD across different stages of CRMS.

Materials and Methods: A total of 108 outpatients with chronic forms of ischemic heart disease were examined in accordance with the Declaration of Helsinki. According to CRMS stage, patients were divided into groups (G0, G1, G2, G3a, G3b, G4). Ultrasound examination of the heart, liver, kidneys and biochemical parameters such as serum levels of total bilirubin, aspartate aminotransferase (AST), alanine aminotransferase (ALT), lactate dehydrogenase, C-reactive protein, total fibrinogen, total protein, albumin, prothrombin index were performed. The AST-to-ALT ratio, hepatic steatosis index (HSI), AST to platelet ratio index (APRI) were calculated.

Results: With the progression of CRMS, the activity of AST and ALT increased, accompanied by a rise in the AST-to-ALT ratio above 1.0. Significant determinants of CRMS development included a 1.5-fold elevation of transaminases above upper limit of normal value, an AST/ALT ratio greater than 1.2, and APRI >30. Conversely, HSI >40 was associated with a reduced probability of CRMS development.

Conclusion: Liver functional status is an important component in the development of cardiorenal metabolic syndrome.

Index Terms

Student Engagement, Higher Education, Educational Technology