Electrocardiographic characteristics for prediction of irreversible fulminant hepatitis in patients with acute hepatic failure

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Introduction: There was limited data about the association between the electrocardiographic characteristics and irreversible fulminant hepatitis (IFH) in patients with acute hepatic failure (AHF) in the long-term follow up. The aim of this study was to analyze the electrocardiographic characteristics for prediction of IFH in patients with AHF.

Methods: Our University echocardiography, electrocardiogram (ECG) and viral hepatitis database were reviewed from 2008 to 2017 to identify patients with AHF. Patients were followed for a mean 32.0±0.8 months and were analyzed to find out the predictors for IFH.

Result: Among 202 patients with AHF, 23 (11.4%) patients had IFH. In our study, there are 118 (58.7%) viral hepatitis patients (hepatitis A, 83 patients, 41.3%; hepatitis B, 19 patients, 9.5%; hepatitis C, 15 patients, 7.5%) and alcoholic hepatitis patients (83 patients, 41.3%). Based on the ROC curve, we set the corrected QT interval (QTc) cutoff value of 425 msec for prediction of IFH, which gave a sensitivity of 66.7% and a specificity of 66.0% (P=0.002). In univariate analysis, age, QTc, diabetes mellitus (DM), heavy alcoholics, labile INR, hemoglobin, albumin, total bilirubin, sodium, and c-reactive protein were significantly associated with IFH. In multivariate analysis, age, QTc, DM, heavy alcoholics, and total bilirubin were independent risk factors for IFH at the long-term follow-up.

Conclusion: longer QTc (>425msec) in patients with AHF was associated with higher IFH, suggesting close clinical and electrocardiographic follow-up will be required.