Tropical Medicine

Computer based algorithms and predictive models for the outcome of concomitant hepatitis C and thalassemia
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As Iron overload and hepatitis C virus (HCV) infection together can lead to chronic liver damage in thalassemia major (TM) patients, Treatment endpoint is SVR defines as undetectable HCV RNA 24 weeks following termination of therapy. These considerations led us to design a prediction model in combination of data mining techniques to compare treatment efficacy and tolerability pegylated interferon (PeG-IFN) and ribavirin (RBV) combination therapy versus Peg-IFN monotherapy and estimated SVR were 65.1%, 70.9%, respectively. We investigated the role of iron overload on the efficacy of anti-HCV treatments. Various cutoff levels of ferritin were related to different probability of SVR. Finally, we evaluated the changes in blood transfusion regime, ferritin levels, laboratory and histopathological data during the antiviral treatment. Data from patients with β-thalassemia infected with hepatitis C virus genotype 4 from different centers in Egypt were analyzed. The main objective of this paper is to classify data and assist the users in extracting useful information from data and easily identify a suitable algorithm for accurate predictive model from it. From the findings it can be concluded that J48 and CART are the best performance algorithms as a rule based classifier in comparable with different classification algorithms because they achieved maximum accuracy, maximum ROC, had least mean absolute error and it took minimum time for building this model through Explorer and Knowledge flow Results. This was further confirmed by univariate logistic regression analysis; p value < 0.01.

Conclusion: Baseline Ferritin Levels were significantly related to SVR in an HCV population as demonstrated by data mining.

Systemic and hepatic hemodynamic changes in acute-on-chronic liver failure
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Background: and aims: Cirrhosis, and its clinical consequences, may be further aggravated by bacterial infections, ultimately leading to the development of Acute-on-Chronic Liver Failure (ACLF). Although the devastating effects of ACLF in patients with cirrhosis are well recognized, the hemodynamic changes that associate ACLF are not fully clarified. This study aimed at better understanding the systemic and hemodynamic alterations as well as the risk factors for ACLF Patients and Methods: In this prospective study, patients with compensated and decompensated cirrhosis were prospectively followed by clinical, biochemical assessment in addition to measurement of the hepatic and systemic hemodynamic parameters every 3 months. Patients fulfilling the criteria of ACLF were further investigated for manifestations of infection, oesophageal varices and hepatic encephalopathy. Baseline and follow-up measurement of portal vein flow velocity, hepatic resistive index (HRI), hepatic venous pressure gradient (HVPG), aortic mean arterial pressure (MAP) cardiac index, cardiac output (CO) and systemic vascular resistance index were measured.

Results: Thirty-eight patients with ACLF were identified and enrolled. Hepatic encephalopathy and acute kidney dysfunction occurred in 18 (47.37%) and 11 (28.95%) respectively. The mean arterial pressure (MAP) was significantly lower in the ACLF patients compared to patients with compensated cirrhosis and slightly higher but not significant than the decompensated patients (MAP 89 ± 17 vs. 98 ± 13 vs. 93 ± 15 mmHg). The mean CO of the ACLF patients was higher than that of the compensated group and similar to that of the decompensated group (CO 8.9 ± 3.5 vs. 6.1 ± 1.7 vs. 9.0 ± 3.0 l/min). The HRI, and HVPG were significantly higher in patients with ACLF and decompensated cirrhosis (16.2 ± 7.1 mmHg) compared to patients with compensated cirrhosis (10.9 ± 5.2 mmHg (P = 0.02). High HRI HVPG, hepatic encephalopathy and hyponatremia risk factors for ACLF and poor outcome. Twelve (31.58%) patients developed hematemesis and or melena. Twenty-two (57.89%) patients died during the 3-month follow-up.

Conclusion: Low mean arterial pressure, higher cardiac output, high hepatic resistive index and hepatic venous pressure gradient an independent predictor of ACLF in cirrhotic patients. Monitoring of patients is essential for early detection and management of ACLF.

Liver fibrosis progression, treatment and health-related quality of life in thalassemia patients with chronic hepatitis C: a large, prospective, longitudinal study
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Background/Aims: Patients with transfusion-dependent thalassemia and hepatitis C (HCV) are at risk of developing variable degrees of liver fibrosis. Liver biopsy, the standard of reference for assessing liver fibrosis, is an invasive and expensive procedure. Thus, we assessed the patterns of liver fibrosis progression rate in thalassemic patients with and without chronic HCV and compared the performance of transient elastography (TE) and a panel of non-invasive fibrogenic markers alone or in combination to liver biopsy for detecting the stage and progression rates of hepatic fibrosis.

Methods: In this prospective, longitudinal, study, we assessed the fibrosis progression rates in well-characterized cohorts of thalassemia patients with and without chronic HCV and patients with chronic HCV. The true fibrosis progression rate was calculated from paired liver biopsies. TE, YKL-40, transforming growth factor β1 (TGF-β1), hyaluronic acid, N-terminal pro-collagen III propeptide (PiNP) and cytokeratin 18 (CK 18) were measured at baseline and annually. Results were