Troponin I (T-I) is a specific and sensitive marker of myocardial injury and is used to prognosticate in acute coronary syndrome. This study determined the presence of subclinical cardiac injury in acute liver failure (ALF).

Blood specimens from 187 subjects enrolled in the US-ALF registry were tested for T-I levels. ALF was defined as coagulopathy (PT >15 s or INR >1.5) and encephalopathy within 26 weeks of first symptom in a subject without previous liver disease. T-I levels were correlated with clinical and biochemical variables and disease outcome.

The cause of ALF was acetaminophen overdose (n=80), viral hepatitis (26), ischemic liver injury (19) and others (62). T-I was elevated (>0.1 ng/mL) in 74% of subjects, who were similar to those with normal level in age and gender. Hypertension (18/138 vs 1/49), arrhythmia (48 vs 10), and advanced coma grade (III/ IV) at admission (73 vs 11) were more common, and serum creatinine and APACHE II scores (16.6 [6.7] vs 11.1 [5.5]) higher, in those with elevated T-I. A significant relation was seen between higher T-I and lower GFR, cardiac arrhythmia, coma and biochemical variables and disease outcome.

This study suggests that subclinical myocardial injury is associated with more severe disease and poor outcome in ALF. The pathogenesis of this injury is unclear.


Clot formation over bleeding arteries is pH-dependent. This trial assessed the effect of omeprazole infusion before endoscopy in patients with upper GI bleeding on need for endotherapy.

Subjects presenting with upper GI bleeding were stabilized and randomized to receive either intravenous omeprazole (80 mg bolus followed by 8 mg/h) or placebo until endoscopy. Patients with shock needing emergency endoscopy and those using aspirin were excluded. At endoscopy, gastroduodenal ulcers with ongoing hemorrhage or non-bleeding visible vessel were injected with adrenaline and then thermocoagulated. Omeprazole infusion was given in subjects requiring ulcer homeostasis for 72 h after endoscopy. Anti-*H. pylori* therapy was given to patients with this infection. All subjects were followed up for 30 days.

638 subjects were randomized to receive either omeprazole or placebo (319 each) over a 17-mo period. The two groups had similar duration of infusion before endoscopy (14.7 [6.3] vs 15.2 [6.2] h) and proportion of patients with bleeding from peptic ulcer (59.6% vs 59.9%); ulcers with active bleed were less (12/187 vs 28/190) and those with clean bases more frequent (120 vs 90) in the omeprazole group. Endotherapy was required less frequently in them, both overall (60 vs 90; RR 0.67 [95% CI 0.51-0.90]) and in subjects with ulcer (42 vs 70; RR 0.61 [0.44-0.84]). There was no difference in need for urgent endoscopy (7 vs 6), transfusion requirement, emergency surgery (3 vs 4), recurrent bleeding (11 vs 8), or 30-day mortality (8 vs 7). Subjects in the omeprazole group more often had hospital stay <3 days (61% vs 49%).

The study shows that high-dose omeprazole infusion during stabilization period before endoscopy accelerates the resolution of signs of bleeding and decreases the need for endoscopic therapy in subjects with peptic ulcer bleed.


The progression to cirrhosis in subjects with non-alcoholic fatty liver disease (NAFLD) is dependent on the severity of fibrosis. The authors developed and validated a simple non-invasive scoring system to separate NAFLD subjects into those with and without advanced liver fibrosis.

Data on subjects with histologically confirmed NAFLD were used to construct (n=480) and then validate (n=253) a scoring system. NAFLD was diagnosed by presence of elevated transaminases, biopsy showing steatosis in >10% of hepatocytes, and exclusion of other causes. Fibrosis on biopsy was scored as 0: no fibrosis, 1: perisinusoidal or portal fibrosis, 2: perisinusoidal and portal/ periportal fibrosis, 3: septal or bridging fibrosis, 4: cirrhosis.

The stage of fibrosis was 0 in 33%, 1-2 in 40%, and 3-4 in 27% of subjects. The length of biopsy tissue (18.7 [8.5] mm) and number of portal triads (10 [4.5]) were not related to presence of advanced fibrosis. Age, body mass index, AST/ALT ratio, albumin, platelet count and hyperglycemia were associated with fibrosis on multivariate analysis; a formula based on these factors had an area under the ROC curve of 0.88 (0.02) (95% CI 0.85-92) for prediction of fibrosis. Two cut-off points were selected for the presence (>0.676) and absence (<1.455) of significant fibrosis; 273/295 predicted to have no fibrosis did not have significant fibrosis (NPV 93%) and 64/71 predicted with advanced fibrosis had stage 3-4 fibrosis (PPV 90%). 114 had an indeterminate score.

In the validation set, the model predicted presence or absence of advanced fibrosis in 87% and incorrectly in 13%. In 28%, the scores were indeterminate.

Thus NAFLD score based on clinical and laboratory variables can predict advanced fibrosis accurately, avoiding liver biopsy in nearly three-fourths of these subjects.
India Elsewhere

Prasad S, Dhiman RK, Duseja A, Chawla YK, Sharma A, Agarwal R (Departments of Hepatology and Pulmonary Medicine, PGIMER, Chandigarh). Lactulose improves cognitive functions and health-related quality of life in patients with cirrhosis who have minimal hepatic encephalopathy. *Hepatology* 2007;45:549-59

Minimal hepatic encephalopathy (MHE) impairs patients’ daily functioning, predicts development of overt HE, and is associated with poor prognosis. This study assessed the effect of lactulose on cognitive functions and health-related quality of life (HRQOL) in MHE.

90 patients with cirrhosis underwent neuro-psychological testing (NP; number and figure connection tests, picture completion and block design tests) and Sickness Impact Profile (SIP) questionnaire at baseline and 3 mo later. MHE was diagnosed if 2 or more NP tests were abnormal. Patients with MHE (n=61) were randomly assigned to receive lactulose (30-60 mL/day) for 3 mo (MHE-L group; n=31) or no treatment (MHE-NL group; n=30).

The number of abnormal NP test results decreased in the MHE-L group (0 mo, 2.74 [95% CI 2.40-3.08]; 3 mo, 0.75 [0.36-1.16]) compared to the MHE-NL group (2.47 [2.19-2.74] and 2.55 [2.16-2.94]). The Δabnormal NP tests was also higher in the MHE-L group (2.0 [95% CI 1.5-2.6] vs 0.02 [0.6-0.2]), indicating improvement in cognitive function. Overt HE developed in 1 and 2 patients in the MHE-L and MHE-NL groups, respectively (p=ns). SIP score improved only in the MHE-L group (10.39 [9.36-11.43] vs 3.77 [2.52-5.02]). NP test results correlated with total SIP score, and psychiatric change correlated with ΔSIP. Multivariate analysis showed that only Δabnormal NP tests affected the ΔSIP.

Thus, patients with cirrhosis who have MHE showed impairment in daily functioning and treatment with lactulose improved cognitive functions and HRQOL.


Forty-five patients with endoscopically uncontrolled esophageal variceal bleeding (30 men; mean age 40 y; cirrhosis-23, extrahepatic portal vein thrombosis-11, non-cirrhotic portal fibrosis-11) underwent esophagogastroscopic devascularization surgery. Emergency (n=18) surgery was performed if endoscopy failed to control variceal bleed and elective (27) surgery was performed when sclerotherapy failed to eradicate varices after four sessions.

The mortality for emergency and elective operations was 61% (cirrhosis-9, non-cirrhotic-2) and 3.7%, respectively. Postoperative complications were fever (n=6), subdiaphragmatic collection and liver failure (2), and chest infection, wound infection, delayed gastric emptying, and bleeding from subphrenic drain (1 each). No patient rebled during hospital stay. Patients with cirrhosis were older (44 vs 35 y), had lower platelet count (79x10^3 vs 104x10^3), poorer liver function (CP score 8 vs 6), higher blood transfusion requirement (11 vs 5 units) and five-fold higher mortality (10 vs 2 patients). Factors associated with perioperative mortality were emergency procedures (11 vs 7), compromised liver function (CP score 10 vs 6), higher blood transfusion requirement (20 vs 4 units), older age (47 vs 37 y), lower hemoglobin levels (6.8 vs 8.6 g/dL) and compromised renal function (1.3 vs 0.86 mg/dL). CP score 10 or more, preoperative blood transfusions 20 units or more, and emergency surgery were predictors of perioperative mortality. On follow up, 17% had recurrent bleeding (3 with cirrhosis died, 2 non-cirrhotics had bleeding control with sclerotherapy).

Thus, devascularization is suitable for uncontrolled acute variceal bleed in patients with non-cirrhotic portal hypertension. In the elective situation it carries a low mortality and rebled rate. As an emergency procedure, results are poor in patients with advanced cirrhosis.


Low incidence (<5 cases/y/100,000 population) of hepatocellular carcinoma (HCC) has been reported from India. This retrospective study analyzed the clinical, biochemical and etiopathologic profile of patients with HCC.

47 patients (43 men; age 53.4 [14.6] y; underlying cirrhosis 29 [62%]) diagnosed on FNAC were evaluated. Clinical presentations were anorexia (68%), abdominal pain (60%), loss of weight (49%), fever (26%), jaundice (13%), pallor (17%), icterus (34%), palpable liver (54%), ascites (30%), pedal edema (13%), and hard liver (32%). HBsAg was positive in 54% of patients screened, of whom 27% were HBeAg +ve; 27% of patients screened were anti-HCV +ve. α-fetoprotein levels were normal in 17%, raised (10-400 ng/mL) in 64%, and >400 ng/mL in 19%. 38 patients had single tumor and 9 had bilobar distribution. 74% of single tumors were located in the right lobe. Tumor was >5 cm in 56%, 3-5 cm in 27%, and <3 cm in 18%. Main portal vein was thrombosed in 43% and right portal vein in 30%. 8 patients were in Stage I, 26 in Stage II and 11 in Stage III disease. 23 patients were lost to follow-up, 4 died and 6 did not agree for any treatment. Only 5 patients could be subjected to hepatic resection. Nine patients had a large tumor and were put on tamoxifen.

The authors conclude that HCC in India presents in advanced stage, with large tumor size and portal vein thrombosis in a majority.