ORIGINAL ARTICLE

AG-2021-118
doi.org/10.1590/S0004-2803.202202000-31

Hepatic dysfunction in medical intensive care unit patients predicts poor outcome

Sameet T **PATEL**[1], Girish C **RAJADHYAKSHA**[2], Parmeshwar **JUNARE**[1], Qais Q **CONTRACTOR**[1], Rosemarie de **SOUZA**[2] and Pravin M **RATHI**[1]

Received: 30 May 2021
Accepted: 7 April 2022

ABSTRACT – Background – A large number of patients admitted to the medical intensive care unit (MICU) have abnormal liver function tests (LFT). This includes patients with critical illness with or without preexisting liver disease and patients with acute primary liver injury. There are very few studies which have investigated the spectrum of liver disease, clinical profile and outcome in patients admitted to the MICU. **Objective** – To evaluate the occurrence, etiology, clinical profile, laboratory profile and outcome of hepatic dysfunction in patients admitted to the MICU. To evaluate the utility of model for end-stage liver disease (MELD) score on admission as a predictor of adverse short term outcome in patients with hepatic dysfunction admitted in MICU. **Methods –** It was a prospective observational study, conducted from December 2017 to December 2018 in a tertiary care hospital. Two hundred and two patients admitted to the MICU with LFTs as per the inclusion criteria were analyzed and their short-term outcome at 7 days was studied in relation to various parameters. **Results –** LFT abnormalities were present in 202/1126 (17.9%) of the patients admitted to MICU. Critical illness associated liver dysfunction was found in 172 (85.2%) patients, chronic liver disease in 11 (5.4%) patients and acute viral hepatitis in 19 (9.4%) patients. Most common symptom was fever (68.3%) followed by vomiting (48.0%). Among LFT abnormalities, elevated transaminases, raised international normalized ratio and high MELD score on admission correlated with poor short-term outcome. Requirement for inotropes and mechanical ventilation correlated with poor short-term outcome. Mortality did not differ significantly between patients with chronic liver disease, patients with acute viral hepatitis and patients with critical illness associated hepatic dysfunction. Hepatic dysfunction in MICU was associated with poor outcome and a high short-term mortality of 56.4% (114/202). **Conclusion –** Liver function abnormality is common in patients who are admitted to the MICU and its presence is an indicator of poor short-term outcome.

Keywords – Hepatic dysfunction; abnormal liver function test; medical intensive care unit; outcome; clinical profile; prospective observational study.

INTRODUCTION

A large number of patients admitted to the medical intensive care unit (MICU) have abnormal liver function tests (LFTs). This includes patients with critical illness with or without preexisting liver disease and patients with acute primary liver injury. Liver injury may occur in up to 61% of critically ill patients[1]. Hepatic injury may occur due to direct involvement of the liver by primary infectious agent, alterations in hemodynamics and oxygen delivery, metabolic derangements, and secondary effects of systemic inflammation, drugs and toxins. This results in impairment of liver function which includes detoxification of blood, participation in immune response, and in synthesis of proteins, inflammatory mediators, and bile. All these changes can exacerbate critical illness and create a vicious cycle with resultant increase in the cost of hospitalization, morbidity and mortality.

Several mechanisms act independently and or synergistically to produce liver dysfunction in critically ill patients. These include hypoxia secondary to cardiac, respiratory or hemodynamic failure. Sepsis can directly affect the liver due to dysregulated inflammatory response, resulting in excessive cytokine production, vasodilation, leukocyte migration, and increased microvascular permeability. This can induce a low cardiac output state leading to a reduction in hepatic perfusion, mesenteric arterial vasoconstriction and decrease in portal blood flow. Drug and toxin induced liver injury can occur as liver is the main site for drug metabolism. Therefore the liver is at risk due to critical illness, polypharmacy, older age and comorbid conditions[2].

There are very few studies which have investigated the spectrum of liver disease, clinical profile and outcome in patients admitted to the MICU[1,3]. In this study we have investigated the incidence, causes, clinical and laboratory profiles and short-term outcome of patients with abnormal LFTs in the MICU.

METHODS

This was a prospective observational study, conducted from December 2017 to December 2018 in a tertiary care hospital. Approval from the institutional Ethics Committee was obtained and written informed consent was taken from the study subjects or from their guardian.

Declared conflict of interest of all authors: none
Disclosure of funding: no funding received
[1] Department of Gastroenterology, T.N.M.C and B.Y.L Nair Ch. Hospital, Mumbai, India. [2] Department of General Medicine, T.N.M.C and B.Y.L Nair Ch. Hospital, Mumbai, India.
Corresponding author: Sameet Patel. E-mail: sameetpat8@gmail.com

Sample size calculation formula: according to the pilot study conducted in the month of March and April 2017 there were 200 admissions to the ICU, of which 33 showed hepatic function derangement. The formula used is: n=4pq/L2 where: n= sample size p=20% [average of pilot study], q is 100 -p, L=30% of 20%=6 therefore n=177 that is 200.

Inclusion criteria: 1. Male and female patients (pregnant and non-pregnant) 18 years of age or above 2. Patients admitted in MICU during the study period 3. Altered LFT as defined by: a) total bilirubin >2 mg/dL and/or b) Aspartate aminotransferase (AST)/alanine aminotransferase (ALT) >1.5 times upper limit of normal value and/or c) alkaline phosphatase (ALP) >2 times upper limit of normal value and/or d) International normalized ratio (INR) >1.3 (without anticoagulation).

Exclusion criteria: 1. Age<18 years 2. patients on anticoagulants 3. Non-consenting patient or guardian.

Patients with any major life threatening medical illness requiring constant monitoring or support of vital functions was defined as a critically ill patient. From this group of patients those who had associated liver dysfunction and fulfilled the inclusion criteria were included in the study.

Study protocol: study was conducted as per Indian Council of Medical Research (ICMR) guidelines for conduct of Human Research in India. Two hundred and two patients admitted to the MICU who fulfilled the inclusion criteria were studied. Written informed consent was obtained before enrollment. Detailed clinical history, examination was recorded. Clinical and laboratory variables were documented as per the case record form.

Investigations done included: complete hemogram, renal function test (RFT), blood sugar, fever profile (rapid malaria antigen test, leptospirosis IgM antibody, dengue NS1 antigen, IgM antibody, peripheral smear for malarial parasite), complete LFT (total and direct bilirubin, AST, ALT, ALP, total protein, albumin, prothrombin time, INR), urine examination, viral markers (anti-HAV IgM, anti-HEV IgM , HBsAg, anti-HCV, HIV), ascitic fluid examination, chest X ray, ultrasound of abdomen and blood culture. Patients were assessed and model for end stage liver disease (MELD) score was documented on admission. The study end points were death, continued MICU care beyond day 7 and discharge.

Statistical methods: descriptive and inferential statistical analysis was carried out in the present study. Results on continuous measurements are presented on mean ± SD (min-max) and results on categorical measurements are presented in number (%). The one-way analysis of variance (ANOVA) was employed to determine whether there were any statistically significant differences between the means of three or more independent (unrelated) groups. Student *t* test (two tailed, independent) was used to find the significance of study parameters on continuous scale between two groups (Inter group analysis) on metric parameters. Chi-square / Fisher Exact test was used to find the significance of study parameters on categorical scale between two or more groups, non-parametric setting for qualitative data analysis. Logistic regression analysis was employed to find the correlation of positivity with clinical variables. Significant figures are as follows: *moderately significant (*P* value: 0.01< *P*<0.05) and **strongly significant (*P* value *P*<0.01). The Statistical software namely SPSS 22.0, and R environment version 3.2.2 was used for the analysis of the data and Microsoft word and Excel was used to generate graphs, tables etc.

RESULTS

During the study period a total of 1126 patients were admitted to the MICU of the hospital. Two hundred and two of these patients (17.9%) had deranged LFTs on admission and met the inclusion criteria. Out of these 100 patients were males (49.5%) and 102 patients were females (50.5%).

The mean age was 39±17.5 years with minimum and maximum age of 18 and 85 years. Twenty patients (9.9%) were aged below 20 years, 70 (34.7%) between 20–29 years, 26 (12.9%) between 30–39 years, 20 (9.9%) between 40–49 years, 31 (15.3%) between 50–59 years, 23 (11.4%) between 60–69 years and 12 (5.9%) were above 70 years of age.

Most common underlying disease for admission to the MICU was acute febrile illness. Patient characteristics and outcomes are shown in TABLE 1.

TABLE 1. Characteristics of patients with liver dysfunction and their outcome (total 202).

Etiology	Number	Percentage
Chronic liver failure	11	5.4
Acute viral hepatitis	19	9.4
Hepatitis A	3	1.48
Hepatitis B	2	1.0
Hepatitis E	14	6.93
Critical Illness associated liver dysfunction	172	85.2
Acute febrile illness	78	38.61
Dengue	21	10.4
Leptospirosis	16	7.92
P. Vivax Malaria	12	5.94
P. Falciparum Malaria	2	1.0
Typhoid	10	4.95
Undiagnosed acute fever	17	8.41
Sepsis associated	29	14.35
Pneumonia	12	5.94
Urinary tract infection	8	3.96
Septicemia	7	3.46
Liver abscess	2	1.0
Cardiac related	28	13.86
Congestive Heart Failure	11	5.44
Hypoxic Ischemic	17	8.41
Toxin Induced	11	5.44
Paracetamol	9	4.45
Aluminium Phosphide	1	0.5
Isoniazid	1	0.5
Pregnancy Related	7	3.46
Disseminated Intravascular coagulation	3	1.49
HELLP Syndrome	4	1.98
Indeterminate Etiology	19	9.4
Vasopressor support required	83	41.1
Mechanical ventilation required	87	43.1
Outcome		
Discharged	53	26.2
Continued MICU Care	35	17.4
Deaths	114	56.4

MICU: medical intensive care unit.

Fever was the most common symptom and was seen in 68.3% of patients. The other symptoms on presentation included vomiting (48.0%), yellow discoloration of skin/sclera (47.5%), high colored urine (46.5%), breathlessness (44.6%), abdominal pain (26.2%), altered sensorium (24.8%), oliguria (16.3%), anorexia (15.8%), swelling of feet (10.9%), diarrhea (7.9%), distension of abdomen (6.4%), hematemesis (5.4%), melena (5.0%), altered sleep pattern (5.0%), constipation (3.0%), convulsions (2.0%) and abdominal lump (0.5%).

Breathlessness and history of melena was significantly more common in males and jaundice and vomiting was significantly more common in females.

Laboratory parameters on admission are shown in TABLE 2.

On regression analysis, presence of breathlessness (*P* value 0.048, Adj OR 7.23, CI 1.01 to 51.45), oliguria (*P* value 0.049, Adj. OR 1.01 to 144.67) and requirement for ventilator support (*P* value <0.001, Adj. OR 111.04, CI 9.89 to 192) was associated with worse outcomes.

TABLE 2. Laboratory parameters on admission of patients with liver dysfunction.

Variables	Min–max	Mean±SD
Haemoglobin (gm/dL)	3.50–16.90	9.85±2.75
WBC (/microlitre)	300.00–46400.00	11983.98±8154.27
Platelet (/microlitre)	11000.00–596000.00	120460.40±88631.21
RBS (mg/dL)	37.00–460.00	121.50±64.19
Creatinine (mg/dL)	0.50–13.30	2.16±2.09
Sodium (mEq/L)	113.00–158.00	137.15±7.06
Total bilirubin (mg/dL)	0.30–42.80	6.85±8.18
Conjugated bilirubin (mg/dL)	0.10–28.30	4.52±5.76
AST (IU/L)	17.00–13830.00	809.50±1758.90
ALT (IU/L)	14.00–16250.00	652.32±1562.32
Alkaline Phosphate (IU/L)	15.00–1486.00	206.62±184.88
Total Protein (gm%)	2.90–8.70	5.63±0.76
Albumin (gm%)	1.40–4.20	2.95±0.50
INR	0.81–8.01	1.59±1.08
MELD Score	6–30	10.32±5.37

AST: aspartate aminotransferase; ALT: alanine aminotransferase; INR: International Normalised Ratio; MELD Score: Modified End Stage Liver Disease Score; RBS: random blood sugar; WBC: white blood cells.

Increasing age was associated with adverse outcome (*P*=0.005). Patients who had dyspnea were at risk for adverse outcome (*P*<0.001). Altered sensorium either due to sepsis or hepatic encephalopathy was associated with poor outcome (*P*=0.018). Inotropes was required in 83 (41.1%) patients and was significantly associated with poor outcomes (*P*<0.001). Similarly requirement for mechanical ventilation in 87 (43.1%) patients led to poor outcome (*P*<0.001). Patients who had fever (*P*=0.082), hematemesis (*P*=0.525), abdominal pain (*P*=0.147), malena (*P*=0.915), convulsions (*P*=0.482), vomiting (*P*=0.951), distension of abdomen (*P*=0.549), altered sleep pattern (*P*=0.130), high coloured urine (*P*=0.338), yellow discoloration of sclera or skin (*P*=0.246), swelling of feet (*P*=0.349), anorexia (*P*=0.153), constipation (*P*=0.921), diarrhea (*P*=0.585) and abdominal lump (*P*=0.091) were not at increased risk for adverse outcome.

There was a strong correlation between raised INR, high MELD score, raised transaminases with adverse short term outcome as shown in TABLE 3.

Hemoglobin (*P*=0.203), WBC (*P*=0.058), platelet (*P*=0.114), RBS (*P*=0.170), creatinine (*P*=0.292), sodium (*P*=0.515), total bilirubin (*P*=0.110), direct bilirubin (*P*=0.110), alkaline phosphatase (*P*=0.275), total protein (*P*=0.520), and albumin (*P*=0.478) did not show correlation with adverse outcome.

The influence of clinical and laboratory parameters at admission on patient outcomes are shown in TABLE 3.

DISCUSSION

In our study we found 202 of 1126 (17.9%) patients who were admitted to the MICU had associated liver function abnormality on admission. Analysis of these 202 patients showed critical illness related liver injury in 85.2%, acute viral hepatitis in 9.4% and chronic liver disease was seen in 5.4% of these patients. Presence of liver function abnormality was associated with poor short term outcome. Out of 202 cases with hepatic dysfunction, 53 (26.2%) improved and were discharged, 114 (56.4%) died, and 35 (17.4%) required MICU stay beyond day 7.

We found simple clinical parameters like age, dyspnea, altered mentation, need for vasopressor support or mechanical ventilation and laboratory biomarkers of liver injury like INR, AST, ALT and MELD score could predict short term outcome in this group of patients. There was a strong correlation between age of patient (*P*=0.005), presence of breathlessness (*P*<0.001) or presence of altered mentation (*P*=0.018) and poor short term outcome. Need for vasopressors or mechanical ventilation was also significantly associated with poor short term outcome (*P*<0.001). We found a significant correlation between AST (*P*=0.002), ALT (p= 0.009), INR (*P*<0.001), MELD score (*P*<0.001) and adverse short term outcome. However serum bilirubin was not significantly different between the groups (*P*=0.110). Presence of liver function abnormality on admission to the MICU was a risk factor for poor outcome.

We had 12 patients with pneumonia, eight with urosepsis, seven with blood stream infection and septicemia and two patients had liver abscess and septicemia. The liver is home to the largest population of macrophages in the body, accounting for greater than 50% of the monocytes released from the bone marrow[4]. Bacterial lipopolysaccharides and endotoxins can cause hepatocyte injury inducing apoptosis of hepatocytes. Apoptotic hepatocytes release proinflammatory cytokines which amplifies the inflammatory cascade. Additionally pathogens interact with Kupffer cells and hepatic stellate cells lining the hepatic sinusoid and liver endothelial cells causing further release of proinflammatory cytokines including TNF-α, IL 6, IL 1β and Nitric oxide. This leads to severe amplification of the inflammatory response with detrimental effects in other organs such as the lungs, blood vessels, heart and kidneys. This can lead to acute respiratory distress syndrome, acute respiratory failure, hypotension, shock and acute kidney injury. Similarly, cholangiocytes also release proinflammatory cytokines leading to periductular inflammation resulting in diminished secretion of chloride and bicarbonate ions which impairs bile flow and leads to ductular cholestasis. Thus, systemic sepsis and inflammation lead to hepatocyte and cholangiocyte dysfunction which affects other organ function and patient survival[5].

TABLE 3. Impact of clinical variables and laboratory parameters on outcome

Variables	Outcome			*P* value
	Continued MICU care (n=35)	Expired (n=114)	Discharged (n=53)	
Age (years)	37.00±18.09	42.24±18.24	32.96±13.76	0.005**
Altered sensorium	8 (22.9%)	36 (31.6%)	6 (11.3%)	0.018*
Breathlessness	11 (31.4%)	66 (57.9%)	13 (24.5%)	<0.001**
Requirement for inotropes	5 (14.3%)	75 (65.8%)	3 (5.7%)	<0.001**
Requirement for mechanical ventilation	5 (14.3%)	82 (71.9%)	0 (0%)	<0.001**
AST (IU/L)	255.06±400.95	1186.72±2234.05	364.25±535.34	0.002**
ALT (IU/L)	246.26±385.22	946.24±2001.85	288.26±440.42	0.009**
INR	1.33±0.66	1.90±1.29	1.10±0.28	<0.001**
MELD	8.97±4.46	12.09±5.88	7.40±2.54	<0.001**

AST: aspartate aminotransferase, ALT: alanine aminotransferase; INR: International Normalised Ratio; MELD Score: Modified End Stage Liver Disease Score.
*moderately significant (*P* value: 0.01< *P* <0.05) and **strongly significant (*P* value *P*<0.01).

Dengue fever was diagnosed in 21 cases. Liver involvement is commonly observed in these patients. It can manifest as elevation of transaminases in 60 to 80% of patients and generally does not confer a worse prognosis. It is in patients with dengue hemorrhagic fever and dengue shock syndrome which is characterized by increased vascular permeability, spontaneous hemorrhage, and hypotension that more severe liver injury can occur and lead to acute liver failure. One group has documented direct infection of Kupffer cells and hepatocytes by the dengue virus[6]. From the 21 patients with Dengue fever in our study, 14 (66.66%) patients survived with 7 (33.33%) deaths. Mortality was significantly correlated with MELD score (*P*-value<0.05). There was 26.3% mortality in patients with MELD score less than 10, whereas in patients with MELD more than 10 on admission there was 100% mortality.

Liver involvement is known to occur in 5 to 10% patients with leptospirosis (Weil's disease) in the acute phase and subsequently in the immune phase. There were 16 patients with leptospirosis in our study. Patients can present with high fever, hemorrhagic shock, renal failure and liver failure is also known to occur[7]. We had 12 patients with P. vivax malaria and 2 with P. falciparum malaria. Mild to moderate elevation in serum transaminases commonly occurs in malaria. Severe falciparum malaria can cause marked elevation in serum transaminases, acute liver failure and multi organ failure[8].

Ten patients had typhoid fever. Liver involvement with *Salmonella* occurs via hematogenous seeding of the liver during periods of bacteremia and from infection of the liver Kupffer cells[9]. A severe form of disease with jaundice is known to occur in 0.4–26% of cases. There is usually a 3-to-5-fold elevation in transaminases and usually AST is higher than ALT[10].

Fever remained undiagnosed in 17 of our patients who had derangement of liver function tests on admission to MICU. Other infections which can cause severe illness and associated liver dysfunction include scrub typhus, viruses like CMV, EBV, HSV and other herpes viruses and yellow fever (which is not seen in our part of the world). A host of bacteria can cause severe clinical illness and liver dysfunction. Infection with fungi and parasites can also cause liver involvement[11].

In 19 patients we could not establish a firm diagnosis. It was speculated that these patients had undiagnosed infection or adverse drug reaction probably from use of over-the-counter drugs or use of complementary and alternative medicine.

Eleven patients with congestive heart failure and 17 with hypoxic-ischemic liver injury had liver dysfunction. Patients who require vasopressor support (83 patients in our study) or mechanical ventilation (87 patients) have hypoperfusion and hypoxia which exacerbates liver injury. The adverse outcome associated with hypoxic-ischemic liver injury in critically ill patients has been reported by Fuhrrman et al.[12] Use of vasopressors or mechanical ventilation which is a marker for poor perfusion and oxygenation was associated with poor short-term outcome in our study (*P*=0.001).

There were three patients with pregnancy induced disseminated intravascular coagulation (DIC) syndrome and four patients with HELLP syndrome. Liver dysfunction in DIC and HELLP is considered to be secondary to fibrin deposition within the hepatic sinusoids, resulting in sinusoidal obstruction, vasospasm of the liver vascular bed, and liver ischemia[13]. Prompt delivery with supportive care led to successful outcome in all our patients.

We had nine patients with paracetamol poisoning. Except one patient where it was suicidal in all other patients it was due to therapeutic misadventure. Prompt treatment with acetyl cysteine lead to recovery in all patients. We had one patient with idiosyncratic drug injury secondary to the use of Isoniazid. Supportive care was successful in this patient.

There was one patient with aluminum phosphide poisoning. Aluminum phosphide is a mitochondrial toxin and is primarily used as a pesticide. It liberates lethal phosphine gas when it comes in contact either with atmospheric moisture or with hydrochloric acid in the stomach[14]. This patient succumbed to the toxin.

Fever was present in 68.3% of our patients. The reported incidence in Intensive care units (ICU) has varied from 23 to 70% and is caused by an infectious process in 50% of cases. Pharmacological means to reduce fever can cause renal and hepatic dysfunction in patients who are volume depleted or who have underlying kidney or liver disease. Hence while treating fever in the septic patient the potential benefits of fever need to be balanced with its deleterious effects on the brain, heart and liver in at risk patients[15,16].

Breathlessness was present in 44.6% of our patients. This is similar to that reported by other studies and varies depending on whether it is self-reported or documented by the care-provider. Self-reporting is a major problem in critically ill and mechanically ventilated patients as these patients are unable to communicate. It is a major cause of anxiety, dark ICU experience, post-traumatic stress disorder and longer ventilator requirement in these patients[17]. When dyspnea is secondary to hypoxia it can aggravate liver injury. More attention needs to be given to this distressing symptom

and simple measures like adjusting ventilator setting can alleviate dyspnea in 35% of patients and improve tissue oxygenation. In our study it significantly correlated with poor outcome (P<0.001).

Critically ill patients can have altered mental status secondary to their acute disease process or as a consequence of the therapies used to treat disease. It was present in 24.8% of our patients and significantly correlated with outcome (P=0.018). The common causes of altered sensorium were sepsis, metabolic encephalopathy secondary to hypoglycemia or hyponatremia, hepatic encephalopathy and malaria. Similar findings have been reported by other investigators[18].

We looked at data from other investigators. Thomson SJ et al. found a much higher proportion of patients with liver dysfunction in their study (61%). This is because they included patients with any abnormality of liver function in their study whereas our study had fixed defined inclusion criteria[1]. In the study by Kramer et al. 13.97% patients had cirrhosis, 2.18% patients had acute or acute on chronic liver failure and 83.84% patients had liver dysfunction secondary to critical illness[3].This is similar to what we found in our study. However, in the study by Kramer et al. they reported short term mortality in 30.4% of their patients which is less than the mortality observed in our study (56.4%).

We had 11 patients with CLD and 19 with acute viral hepatitis. Globally in many centers there is a bias against admitting patients with end stage liver disease in the MICU. This bias is due to a very high demand for beds in the intensive care units and a perception that resources will be better utilized in patients who have a better chance at survival than patients with end stage liver failure. ICU management of patients with end stage liver disease is generally considered futile. However, in our study mortality did not differ significantly between patients with CLD, patients with acute viral hepatitis and patients with critical illness associated hepatic dysfunction (P-value>0.05). Similar observations have been made by Meersseman P et al. who favored aggressive treatment of patients in these three etiological groups[19-21]. This should help remove bias for treating patients with CLD as they have similar outcomes. Therefore, admission to such units should not be deemed futile in cirrhotic patients and earlier admission may improve outcome.

CONCLUSION

Hepatic dysfunction is common in patients admitted to the MICU and is associated with poor short term outcome. Elderly patients, patients with, dyspnea, altered mentation and need for inotropes or mechanical ventilation have higher short term mortality. Simple laboratory parameters like AST, ALT, INR and MELD score on admission can predict outcome in the short term. Therefore, physicians should carefully monitor the development of hepatic dysfunction in critically ill patients and take appropriate early action to improve treatment outcome. Patients with CLD have similar outcome as patients with other critical illness and hence need to be treated aggressively.

Orcid

Sameet T Patel: 0000-0002-2244-752X.
Girish C Rajadhyaksha: 0000-0001-5284-1969.
Parmeshwar Junare: 0000-0001-6393-2399.
Qais Q Contractor: 0000-0001-7191-8589.
Rosemarie de Souza: 0000-0002-0111-0389.
Pravin M Rathi: 0000-0002-1095-3652.

Authors' contribution

Patel ST: conception of the work, study design, definition of intellectual content, literature search, acquisition and interpretation of data for the work, drafting the work, manuscript preparation, discussion. Rajadhyaksha GC: conception of work, study design, definition of intellectual content, literature search. Junare P: interpretation of the data for the work, drafting the work. Qais QC: study design, critical revision of the manuscript for important intellectual content, discussion. Souza R and Rathi PM: critical revision of the manuscript for important intellectual content, discussion.

Patel ST, Rajadhyaksha GC, Junare P, Contractor QQ, Souza R, Rathi PM. Disfunção hepática em pacientes de unidade de terapia intensiva médica prevê desfecho desfavorável. Arq Gastroenterol. 2022;59(2):164-9.

RESUMO – Contexto – Um grande número de pacientes internados na unidade de terapia intensiva (UTI) tem testes de função hepática anormais (TFH). Isso inclui pacientes com doença crítica com ou sem doença hepática pré-existente e pacientes com lesão hepática primária aguda. Há poucos estudos que têm investigado o espectro da doença hepática, perfil clínico e desfecho em pacientes admitidos em UTI. **Objetivo** – Avaliar a ocorrência, etiologia, perfil clínico, perfil laboratorial e desfecho de disfunção hepática em pacientes internados na UTI médica. Avaliar a utilidade do modelo para doença hepática em estágio terminal (MELD). Escore na admissão como preditor de desfecho adverso a curto prazo em pacientes com disfunção hepática admitida em UTI. **Métodos –** Foi realizado um estudo observacional prospectivo, de dezembro de 2017 a dezembro de 2018 em um hospital de atenção terciária. Foram analisados 202 pacientes internados na UTI com TFH conforme os critérios de inclusão e seu desfecho a curto prazo de 7 dias foi estudado em relação a diversos parâmetros. **Resultados –** Anormalidades dos testes estiveram presentes em 202/1126 (17,9%) dos pacientes internados na UTI. Doença crítica associada à disfunção hepática foi encontrada em 172 (85,2%) pacientes, doença hepática crônica em 11 (5,4%) pacientes e hepatite viral aguda em 19 (9,4%) pacientes. O sintoma mais comum foi a febre (68,3%), seguido de vômito (48,0%) casos. Entre as anormalidades do TFH, transaminases elevadas, INR e escore MELD elevados na admissão correlacionaram-se com desfecho ruim de curto prazo. Exigência de inotrópicos e ventilação mecânica correlacionaram-se com desfecho de curto prazo ruim. A mortalidade não diferiu significativamente entre pacientes com doença hepática crônica, pacientes com hepatite viral aguda e pacientes com doença crítica associada à disfunção hepática. A disfunção hepática em UTI esteve associada a um desfecho ruim e à uma alta mortalidade a curto prazo de 114/202 (56,4%). **Conclusão –** A anormalidade da função hepática é comum em pacientes que são admitidos nas unidades de tratamento intensivo e sua presença é um indicador de desfecho de curto prazo ruim.

Palavras-chave – Disfunção hepática; teste de função hepática anormal; unidade de terapia intensiva médica; desfecho; perfil clínico; estudo observacional prospectivo.

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