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Model of disease severity in alcoholic hepatitis and novel prognostic insights

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Abstract

Introduction: Harmful alcohol consumption is one of the leading risk factors for global disease burden and injury condition, causing death and disability early in life, with over 3 million deaths worldwide every year. Alcoholic hepatitis (AH) is a clinical syndrome characterized by hepatic failure with recent onset of jaundice, consequence of a heavy chronic alcohol drinking. The disease severity ranges from mild to severe cases, with high short-term mortality. Individual variety regarding disease outcome and therapeutic response complicates the prognosis stratification. Thus, novel parameters and continuously sought for a better disease outcome assessment.

Aims and objectives: To highlight new parameters that accurately assess 30-day mortality (short-term) in patients with AH and to develop a new severity score that uses readily available parameters accessible to any clinician.

Materials and methods: This is a prospective study on patients diagnosed with AH between 2022–2023. We identified 70 patients with AH who met the National Institute on Alcohol Abuse and Alcoholism (NIAAA) criteria for diagnosis after exclusion of patients with severe comorbidities that could influence disease outcome. Clinical and paraclinical parameters were assessed at least on admission and day 7. Mortality at 30-day was considered the endpoint. The database was composed using Microsoft Excel (Microsoft Corporation) and the data was analyzed using SPSS Statistics version 26 (IBM Corporation).

Results: A total of 70 patients were included in the study with a mortality at 30-days of 22.9% (n=16). The independent variables associated with increased short-term mortality identified using the univariate analysis were: fever, infection, esophageal varices, prothrombin time PT, INR, total bilirubin, CRP, LDH and CHI (creatinine height index). Using multivariate regression we determined a novel prognostic score, with criterion for retaining variable being $p<0.05$. Total bilirubin day 7, CRP, PT, fever and CHI resulted after the analysis and were included into a new mortality score. Our Prognostic Model Score obtained an area under the ROC of 0.950 (95% CI: 0.890–0.980, $p<0.001$), with a cut-off value of 13.75 (Sn=87.5%, Sp=91%). Regarding the consecrated prognostic scores, MDF and Lille score obtained good AUROCs=0.839 and 0.881, respectively ($p<0.000$), with cut-off values comparable with literature (MDF=34.35 vs 32) and (Lille=0.475 vs 0.450). The discriminatory power for ABIC ($p=0.58$), GAHS ($p=0.16$), MELD-Na ($p=0.61$) was not significant.

Conclusion: We obtained a new prognostic score for the assessment of 30-day mortality in AH that includes markers of inflammation (CRP, fever) and markers of sarcopenia (CHI) along parameters of hepatic disfunction (total bilirubin and PT). Amongst consecrated prognostic models, MDF and Lille scores were representative for our study, while ABIC, GAHS and MELD-Na did not attain statistical significance. Our score is unique by the addition of CRP and this could prove to be a useful tool in AH severity stratification.

Keywords: alcohol; alcohol-related liver disease; alcoholic hepatitis; severity scores; short-term mortality.

What is new? What is important?

In this original article we highlight novel parameters useful for alcoholic hepatitis severity stratification. Inflammation plays a key role in the pathogenesis of the disease, but no clinical score uses inflammatory biomarkers. Thus, amongst multiple variables, we demonstrated the link between disease severity and inflammation, and we included such parameters into a new mortality score readily available for any clinician.

INTRODUCTION

Alcoholic hepatitis (AH), the acute phase of the spectrum of alcoholic liver disease (ALD), is a clinical syndrome characterized by recent onset of jaundice, consequence of a heavy chronic alcohol drinking [1]. The disease severity ranges from mild to severe cases, with high short-term mortality. Individual variety regarding disease outcome and therapeutic response complicates the prognosis stratification [2].

Over the years, intensive research has been put into the study of an "ideal" biomarker that best stratifies high risk patients [3]. What has been repeatedly reported is that the combination of static and dynamic parameters will always be more accurate in the prediction of mortality outcome than static parameters alone [4]. Those parameters have been included in severity scores in order to stratify disease severity [5]. Maddrey discriminant function (MDF) is the first, most important and widely used severity score that has proven its utility in the stratification of high-risk patients that benefit from corticosteroid therapy [6]. Subsequently, other scores such as ABIC and Glasgow alcoholic hepatitis score (GAHS) have been developed in an effort for a better disease severity stratification [7],[8]. Model of end-stage liver disease (MELD), initially dedicated for hepatic transplant list stratification, has also proven beneficial in short and long-term mortality assessment in AH [9]. A histologic scoring system was also proposed in order to refine the prognosis of the disease in combination with traditional scores for a more precise assessment. Alcoholic hepatitis histologic score (AHHS) shifted the paradigm regarding the beneficial role of the hepatic neutrophil infiltration and paved the way for the study of molecules that promote liver regeneration [10].

Most of these severity scores include parameters of hepatic disfunction and other organ failure, but less importance has been given to inflammation biomarkers. It is known that alcoholic hepatitis can result in an exaggerated inflammatory response, which is not necessarily related to the presence of infection, but rather to disease itself and this subcategory of patients might have higher mortality [11–13].

Thus, novel parameters are continuously sought for a better severity stratification, therapeutic response assessment and even new therapeutic targets[14].

The aim of this study is to highlight new parameters that accurately predict 30-day mortality in patients with AH and to incorporate them into a readily available severity score.

MATERIALS AND METHODS

This was a prospective cohort study on patients diagnosed with AH between January 2022 and January 2023. The diagnosis was established following the National Institute on Alcohol Abuse and Alcoholism (NIAAA) criteria for probable AH which includes: history of chronic (>6 months) heavy alcohol consumption (>50-60g per day for men and >40g per day for women), recent jaundice onset (<8 weeks) with a total serum bilirubin of >3mg/dL and elevated aspartate aminotransferase (AST) that does not exceed 600 U/L, with a typical De Ritis ratio AST:ALT >1.5. Other causes of chronic liver disease were excluded by checking for HBs antigen and HCV antibodies, antinuclear antibodies, iron saturation, alpha-1 antitrypsin levels, anti-mitochondrial antibodies, ceruloplasmin levels. Drug induced liver disease was assessed by verifying patient's prescriptions for known liver toxic drugs and were excluded accordingly. Additionally, patients that presented with upper gastrointestinal hemorrhage, hepatic encephalopathy > grade II (HE), acute alcoholic pancreatitis, multi-organ failure, liver cancer alongside with other severe comorbidities such as GOLD IV chronic obstructive lung disease, NYHA IV congestive heart failure, were also excluded in order to not influence the prognosis. Patients with decompensated cirrhosis and large volume ascites were not included in order to assess the nutritional status as a prognostic marker.

The study protocol followed a comprehensive clinical assessment including detailed medical history (comorbidities, symptoms, treatment), demographic data (age, sex), physical examination (height, weight, body temperature, blood pressure, heart rate, abdominal examination, skin signs for chronic liver disease). Body mass index (BMI)(kg/m^2) and skins signs were assessed on admission. Cardiovascular parameters, body temperature, abdominal examination and diuresis were evaluated daily. The presence of fever (t>37.5˚C) on admission or throughout the hospitalization was documented.

Blood samples were obtained at least on admission and on day 7 and included complete blood count, coagulation tests (internationalized normal ratio-INR, prothrombin time-PT, fibrinogen), liver function tests (AST, alanine aminotransferase-ALT, total bilirubin, gamma-glutamyl transferase-GGT, alkaline phosphatase-ALP, serum albumin), renal function (creatinine, blood urea nitrogen-BUN), inflammatory markers (C reactive protein-CRP, lactate dehydrogenase-LDH, fibrinogen) and serum sodium.

Creatinine-height index (CHI) was used to assess nutritional status and it was calculated as 24h creatinine excretion (mg) divided by expected 24h urine creatinine excretion (mg) multiplied by 100. Expected 24h creatinine excretion was adjusted to height and age. The normal protein status was considered CHI> 80%.

Patients were evaluated for infections using chest X-ray and sputum analysis for respiratory infections, urinary analysis (urinary leucocyte count, nitrites and cultures) for urinary tract infections, stool test panel for suspected infectious diarrhea. Blood cultures were checked for aerobe and anaerobe bacteria in suspected patients with bacteriemia. Patients with ascites and abdominal pain, suspected for spontaneous bacterial peritonitis (SBP), had the ascites fluid analyzed and a neutrophil count >250/mm^3 confirmed the diagnosis.

A total number of 108 patients were investigated, out of which 70 patients were included after exclusion criteria. Patients who survived were attributed to group 1 and those who deceased to group 2, respectively (Figure 1).

The most common severity scores were calculated on admission. Patients received corticosteroid therapy based on the severity of the disease, defined as a Maddrey discriminant function (MDF) >32. Lille score was calculated on day 7 for the evaluation of corticosteroid continuation and also for disease severity stratification. A Lille score (Lille>0.45) indicated the futility of corticosteroid treatment. Over 40 variables were evaluated as prognostic markers of disease severity. All parameters were assessed for their accuracy in predicting 30-day mortality. The endpoint of the study was 30-day mortality.

The study was approved by the Local Ethics Committee and the informed consent was signed by each patient.

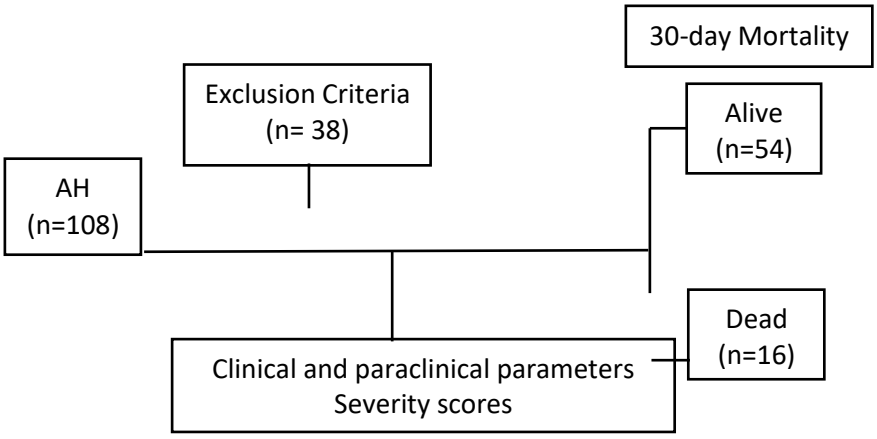


Figure 1. Patient recruitment flowchart.

The database was composed using Microsoft Excel (Microsoft Corporation) and the data was analyzed using SPSS Statistics version 26 (IBM Corporation). Variables with a normal distribution and equal variances were assessed using parametric tests such as independent sample t-test. Categorical variables and those without a normal distribution were analyzed using non-parametric tests such as Mann-Whitney U and Chi Square test using crosstabulation. Normality was evaluated using Shapiro-Wilk test and histograms. Mortality was measured as a binary outcome. The candidate variables selected on univariate analysis were used to define a smaller subset of parameters using multivariate analysis. Those variables were consecutively removed using stepwise backward regression, with retaining criterion being $p<0.05$. A new prognostic score was calculated by multiplying each variable value with its associated odds ratio (OR) and adding up the result. The resulting mortality score was incorporated into the receiver operating characteristic (ROC) curve in order to obtain the optimal cut-off. MDF, MELD, MELD-Na, ABIC, GAHS were also calculated for the study sample. Sensitivity (Sn), specificity (Sp), positive predictive value (PPV) and negative predictive value (NPV) were calculated, and the overall accuracy of the test was defined using the area under the ROC curve (AUROC).

RESULTS

CHARACTERISTICS OF THE PATIENTS

The study group was initially comprised of 108 patients, with a total of 70 patients after exclusion criteria. 38 patients were excluded due to either concomitant viral hepatitis infection, hepatocarcinoma, decompensated cirrhosis with large volume ascites, association with acute pancreatitis or due to severe cases with multiple organ failure. Patients who were admitted with hemodynamic instability due to uncontrollable upper gastrointestinal bleeding were also excluded from the study. On the other hand, we did not exclude patients that developed upper gastrointestinal bleeding during the time of hospitalization as we considered this more relevant towards the prognosis of the disease. Only 8 patients had renal impairment, out of which 2 had a creatinine clearance <30ml/min/1.73m^2. Given the fact that renal impairment might affect CHI reliability in assessing nutritional status, we excluded the two patients that had persistent reduced creatinine clearance after fluid resuscitation. The variables of interest are illustrated in tables 1 and 2.

DESCRIPTIVE STATISTICS. CROSS-TABULATION ANALYSIS

The study group consisted of more men (n=55, 78.6%) and the overall mortality was 22.9% (n=16). The mean age was 53.3 years, with no significant correlation with mortality (p=0.95). Mortality was higher amongst men, but given the discrepancy in gender, this was not statistically significant (p=0.32).

We have reported an association between infections and mortality, with approximately 56.4% of deceased being infected either on admission or during hospitalization (OR:5.6, 95% CI:1.69–18.83, p=0.005). SBP was most frequent (37.6%) followed by urinary tract infections (12.5%) and respiratory infections (6.3%).

Sixteen patients (22.9%) presented had fever without a source of infection. We found a strong association between mortality and fever on admission (OR: 13.3, 95% CI: 3.5–49.9, p<.0001). Since this affirmation could be biased by concomitant infection, we did not find a significant correlation between infection and fever in deceased group (Chi-Square p=0.15, Fisher Exact Test p=0.1). This was also validated using logistic regression and by checking for fever as a confounding factor.

Regarding other complications, ascites (p=0.53), HE (p=0.11) and UGB (p=0.18) have not been significantly associated with short-term mortality. However, we found an important correlation between the presence of esophageal varices and mortality (OR:4.7, 95% CI:1.4–15.5, p=0.007).

UNIVARIATE ANALYSIS

The independent variables associated with increased short-term mortality identified using the univariate analysis were: fever, infection, esophageal varices, PT, INR, total bilirubin, CRP, LDH and CHI (Table 2).

Table 2

Univariate analysis

Variable	Group 1	Group 2	Method	p-value
Number	54	16		
Sex (M/F)	41 M/ 13 F	14 M/ 2 F	Chi Square	0.322
Age (years)	53.41 (SD=9.65)	53.31 (SD=10.05)	T-test	0.973
Fever (0/1)	6 (11.1%)	10 (62.5%)	Chi Square	0.001*
Infection (0/1)	8 (14.8%)	9 (56.3%)	Chi Square	0.002*
Ascites (0/1)	29 (53.7%)	10 (62.5%)	Chi Square	0.534
Encephalopathy (0/1)	10 (18.5%)	6 (37.5%)	Chi Square	0.112
Esophageal Varices (0/1)	14 (25.9%)	10 (62.5%)	Chi Square	0.007*
UGB (0/1)	2 (3.7%)	2 (12.5%)	Chi Square	0.183
BMI (kg/m^2)	25 (SD=2.92)	22.71 (SD=5.79)	T-test	0.145

Table 2 (continued)

Variable	Group 1	Group 2	Method	p-value
WBC (x10^3 cells/uL)	7.85 (3.6, 27, 5.3))	7.4(3.8, 23, 19.2)	M-W U	0.748
Neutrophil/ Lymphocyte	3.97 (0.6, 37, 3.7))	4.05 (1, 10.8, 2.7))	M-W U	0.939
PLT (x10^3)	129.5 (7, 390, 119))	71.5 (18, 247, 229))	M-W U	0.093
PT (sec)	17.94 (SD=4.18)	26.35 (SD=7.27)	T test	<0.000*
APTT (sec)	33.78 (SD=7.47)	37.806 (SD=8.28)	T test	0.070
INR	1.63 (SD=0.38)	2.5 (SD=0.76)	T Test	<0.000 *
ALT (U/L)	50 (12, 287, 44)	58.5(12, 349, 47)	M-W U	0.742
AST (U/L)	124 (19, 362, 106))	153.5 (32, 591, 103)	M-W U	0.321
Creatinine (mg/dL)	0.76 (0.4, 4.7 0.5)	0.78(0.3, 5, 0.5)	M-W U	0.401
Urea (mg/dL)	26.7 (7.9, 127, 39)	22.5 (5.8, 205, 23.8)	M-W U	0.409
Albumin (g/dL)	3 (0.8, 4.2, 1.2)	2.35 (1.2, 4, 2.8)	M-W U	0.401
Total Bilirubin (mg/dL)	6.48 (3.5, 34.4, 9.3)	7.75 (3.5, 27, 7.5)	M-W U	0.382
Total Bilirubin Day7	3.05 (0.3, 20, 6.9)	16.95 (5.2, 36.7, 10.1)	M-W U	<0.000 *
ALP (mg/dL)	131 (14, 600, 89)	112 (40, 460, 65)	M-W U	0.266
GGT (U/L)	324.5 (17, 4300, 648)	210 (34, 1271, 389)	M-W U	0.278
CRP (mg/dL)	6.5 (0.4, 78, 17.1)	33.05 (7, 140, 59.4)	M-W U	< 0.000 *
LDH (U/L)	219.70 (SD=92.48)	286.63 (SD=100.96	T test	0.015 *
Sodium (mEq/L)	134 (122, 147, 11)	131 (113, 138, 13)	M-W U	0.118
CHI (%)	71.88 (SD=9.33)	61.12 (SD=9.67)	T test	<0.000 *

Continuous variables with normal distribution are illustrated as mean and SD=standard deviation.
Continuous variables without normal distribution are illustrated as min, max and IQR=interquartile range
Categorical variables are illustrated as frequency and percentage.
UGB= upper gastrointestinal bleeding, BMI= body mass index, WBC= white blood cell count, PLT= platelet count, PT= prothrombin time, aPTT= activated partial prothrombin time, INR= international normalized ratio, ALT= alanine aminotransferase, AST= aspartate aminotransferase, ALP= alkaline phosphatase, GGT= gamma glutamyl transpeptidase, CRP= C reactive protein, LDH= lactate dehydrogenase, CHI= creatinine height index, T test= independent samples T test, M-W U= Mann-Whitney U test *--Statistically significant at the 0.05 level.

MULTIVARIATE ANALYSIS. PROGNOSTIC SCORE MODEL PERFORMANCE

After multivariate logistic regression, total bilirubin day 7, CRP, PT, fever and CHI were included into a new mortality score. An increase in CRP by 1mg/L increased the risk of death by 4% and the presence of fever increased the risk of death by 7.5 times. Simultaneously, a decrease in CHI by 1% increased the risk of death by 8%.

We generated a new mortality score derived from the OR of each variable divided in the end by 10. The resulting score was: {[1.19* total bilirubin day 7] + [1.04*CRP] + [1.23* PT] + [0.92*CHI] + 7.51 (if fever is present)}/10.

The values of the score ranged from 6.5 to 29. The area under the ROC was 0.950 (95% CI: 0.890–0.980, p<.000). We obtained 2 cut-off values of 13.75 (Sn=87.5%, Sp=91%) and 13.3 (Sn=93.8%, Sp=89%), with the maximum specificity obtained for a cut-off= 21.3. Regarding the other prognostic scores, MDF and Lille score obtained good AUROCs=0.839 and 0.881, respectively (p<0.000). MDF optimal cut-off is comparable with literature (34.35 vs 32), with a PPV of 40.11%. Lille score obtained an optimal cut-off value of 0.475 with PPV of 58.39%. The optimal cut-off values, with its associated Sn and Sp for all the prognostic scores were obtained by determining the closest point on the ROC curve near the upper left corner.

The discriminatory power for ABIC (p=0.58), GAHS (p=0.16), MELD-Na (p=0.61) was not significant. Results are detailed in tables 3 and 4. ROC analysis is illustrated in figure 2.

Table 3

Multivariate analysis. Prognostic Score Model

Variable	OR	95% CI	df	p-value
Total bilirubin day 7(mg/dL)	1.19	1.03-1.39	1	0.01
CRP (mg/L)	1.04	1.02-1.08	1	0.02
PT (s)	1.23	1.11-1.42	1	0.03
Fever (0/1)	7.51	1.32-17.61	1	0.02
CHI (%)	0.92	0.82-0.97	1	0.04

OR=Odds Ratio, 95%CI= 95% confidence interval, df= degrees of freedom, CRP=C reactive protein, PT=prothrombin time, CHI= Creatinine height index

Table 4

Diagnostic accuracy of Prognostic Score Model and literature scores

Variable	AUROC	95% CI	Cutoff	Sn	Sp	PPV	NVP	p-value
Prognostic Score Model	0.950	0.900-0.980	13.75	87.5%	91%	74.25%	96.17%	<0.00
MDF	0.839	0.721-0.957	34.52	87.5%	61.1%	40.11%	94.21%	<0.00
Lille score	0.881	0.776-0.986	0.475	87.5%	87.5%	58.39%	95.63%	<0.00
MELD-Na	0.655	0.509-0.801	21.95	68.8%	55.6%	31.41%	85.61%	0.06
ABIC	0.657	0.505-0.809	8.5	56.3%	63%	31.03%	82.84%	0.58
GAHS	0.616	0.450-0.783	9.5	37.5%	87%	46.03%	82.40%	0.16

MDF= Maddrey discriminant function, MELD= model of end-stage liver disease, ABIC= age, bilirubin, INR, creatinine score, GAHS= Glasgow alcoholic hepatitis score.

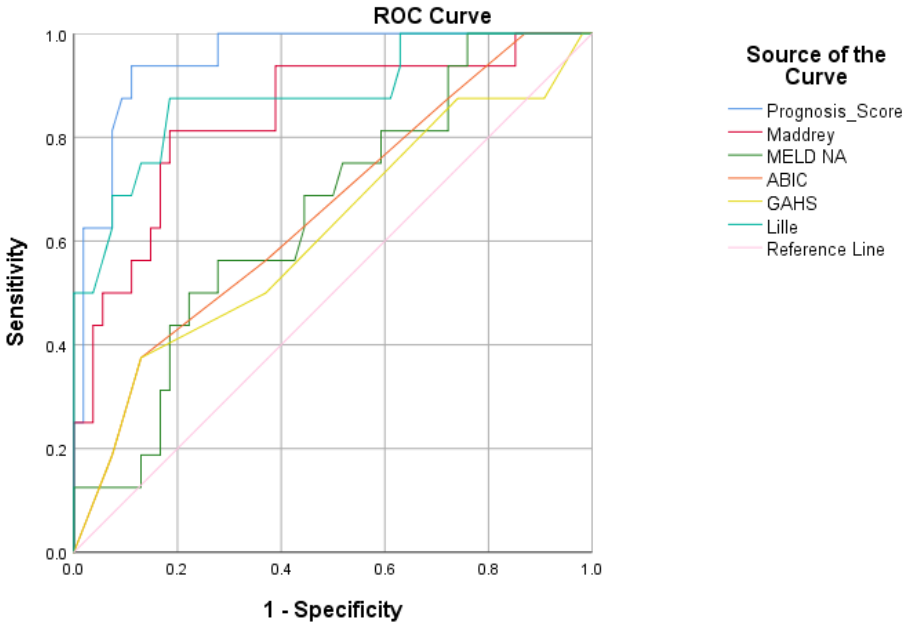


Figure 2. ROC analysis.

DISCUSSION

So far, research in AH has been focused around biomarkers of liver injury and extrahepatic organ failure and less interest has been directed towards inflammatory status. Multiple prognostic scores have been studied, each with important clinical reliability, but none of them include markers of inflammation [7–9,15]. The only scores that assess inflammation in AH are the histologic scores, but those are difficult to obtain on a large scale and should be reserved for clinical studies [10]. In addition, AHHS score has not proved to be superior in stratifying patients with AH compared to clinical scores, so its utility remains controversial [16].

It is current knowledge that inflammation plays a key role in the pathogenesis of the disease [11–13]. However, apart from histological assessment, its importance in severity stratification has not been highlighted until now. We demonstrated that the inflammatory response in AH is linked to the severity of the disease with clinical and biological expression. The presence of fever increased the severity of the disease, and this was not necessarily due to an infectious cause. Even though the preliminary univariate analysis indicated both CRP and LDH as parameters of inflammation directly related to disease severity, after multivariate analysis, CRP was the most accurate in assessing short-term mortality. CRP has the advantage over biopsy because it is widely used and readily accessible to clinicians to implement on a day-by-day basis. We believe that inclusion of inflammatory parameters in prognostic scores might prove beneficial in severity stratification.

Malnutrition is frequent in ALD and most of the patients have different degrees of sarcopenia [14]. Nutritional status is mainly assessed using anthropometric measurements with important implication in the severely sarcopenic cirrhotic patients. CHI was initially used to assess nutritional status in pediatric population[17]. Afterwards, numerous studies have been conducted in different disease settings that associate malnutrition [18–21]. CHI clinical application was studied in cirrhosis as well as in alcoholic hepatitis and its association with long-term mortality has been demonstrated [22,23]. The most important limitation of this parameter is not liver disfunction, but renal impairment that is often a complication of end-stage liver disease [19,20]. Thus, our study did not include patients with decompensated liver cirrhosis, nor with severe renal impairment. We found that CHI, as an indirect marker of sarcopenia, was associated with disease severity and short-term mortality. We believe that patients who do not have end-stage liver disease (often complicated with renal impairment) might benefit from CHI evaluation as a marker of nutritional status and disease severity.

Regarding the parameters of liver disfunction, proven already to be beneficial in severity stratification in multiple clinical studies, we found that total bilirubin and PT were statistically significant in assessing short-term mortality. However, these parameters have shown better prognostic value in dynamic measurement, than solely on admission. This also explains the good performance of Lille score which was calculated for all patients regardless of corticosteroid administration [24]. We believe that further prospectives should focus more on dynamic assessment of parameters [4].

The most important limitation of our study is the lack of a validation cohort and the relatively low study sample. Moreover, half of the subjects in the deceased group had an infection on admission or throughout the hospitalization, therefore CRP was also increased in this context and cannot be attributed solely to hepatic induced systemic inflammation. On the other hand, we thoroughly included only patients with alcoholic hepatitis in our study, so the resulted significant variables are optimized for this target population. Decompensated alcoholic cirrhosis was excluded from the study and this might explain the lack of statistical power of certain parameters validated in previous studies (i.e. albumin, sodium). This also explains why some of the prognostic score underperformed in our study. Nevertheless, our Prognostic Score Model has performed similarly or even better than most severity scores and it is the first model to include inflammatory parameters.

CONCLUSIONS

In an era of increased alcohol consumption, mortality in AH remains high, with scarce therapeutic options that have suboptimal efficacy. A more in-depth understanding of the biomarkers that drive the severity of the disease will pave the way for better mortality stratification as well as the possibility for new molecules to be studied. Inflammation plays a key role in the pathogenesis of the disease and further research directed towards this pathway will most probably help reduce mortality [13].

Introducere*: Consumul nociv de alcool este unul dintre principalii factori de risc pentru povara globală a sistemului sanitar, cauzând decese și dizabilități timpuriu în viață, cu peste 3 milioane de decese la nivel mondial în fiecare an. Hepatita alcoolică (HA) este un sindrom clinic caracterizat prin insuficiență hepatica, cu debut recent de icter, consecință a consumului cronic de alcool în cantități mari. Severitatea bolii variază de la cazuri ușoare la severe, cu o mortalitate ridicată pe termen scurt. Variabilitatea individuală în ceea ce privește evoluția bolii și răspunsul terapeutic complică stratificarea prognosticului. Prin urmare, se urmărește indetificarea de noi parametri pentru o mai bună evaluare a severității bolii.*

Scop*: Scopul acestui studiu este să evidențieze noi parametri care evaluează cu precizie mortalitatea la 30 de zile (pe termen scurt) la pacienții cu HA.*

Obiective*: Dezvoltarea unui nou scor de severitate care utilizează parametri ușor accesibili oricărui clinician.*

Materiale și metode: *Acesta este un studiu prospectiv care evaluează pacienți diagnosticați cu HA între 2022–2023. Am identificat 70 de pacienți cu HA care îndeplinesc criteriile Institutului Național pentru Abuzul de Alcool și Alcoolism (NIAAA) pentru diagnostic, după excluderea pacienților cu comorbidități severe care ar putea influența evoluția bolii. Parametrii clinici și paraclinici au fost evaluați cel puțin la admisie și ziua a 7-a. Mortalitatea la 30 de zile a fost considerată end-point. Baza de date a fost alcătuită folosind Microsoft Excel (Microsoft Corporation), iar datele au fost analizate cu ajutorul programului SPSS Statistics versiunea 26 (IBM Corporation).*

Rezultate*: Variabilele independente asociate cu o mortalitate crescută pe termen scurt identificate prin analiza univariată au fost: febra, infecția, varicele esofagiene, PT, INR, bilirubina totală, CRP, LDH și CHI (indexul creatinină înălțime). Prin utilizarea regresiei logistice backward stepwise (WALD), am determinat un nou scor prognostic, cu criteriul de reținere a variabilei fiind p<0,05. Bilirubina totală în ziua 7, CRP, PT, febra și CHI au rezultat în urma analizei și au fost incluse într-un nou scor prognostic de mortalitate. Scorul prognostic a obţinut o arie de sub curba ROC de 0.950 (95% CI: 0.89–0.98, p<.000), cu o valuare cut-off de 13.75 (Sn=87.5%, Sp=91%). Dintre scorurile prognostice consacrate, MDF şi scorul Lille au obținut AUROC=0.839 şi 0.881, respectiv (p<0.001), cu valori cut-off comparabile cu cele din literatura (MDF=34.35vs 32) si (Lille=0.475 vs 0.450). Puterea descriminatorie a scorurilor ABIC (p=0.58, GAHS (p=0.16), MELD-Na (p=0.61) nu a fost semnificativă.*

Concluzii*: Am obtinut un now scor prognostic pentru evaluarea mortalitatii la 30 zile in HA care include markeri ai inflamatiei (CRP, febră) şi markeri ai sarcopeniei (CHI), împreună cu parametrii ai disfuncţiei hepatice (bilirubina totală şi PT). Dintre scorurile prognostice consacrate, MDF şi scorul Lille au fost reprezentative pentru studiul nostru, în timp ce ABIC, GAHS şi MELD-Na nu au atins semnificația statistică. Scorul propus de noi este unic prin aditia CRP-ului şi s-ar putea dovedi a fi un instrument util în stratificarea severităţii bolii.*

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