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Abstracts Asociación Mexicana del Hígado (AMH)

Short-term efficacy and safety of l-ornithine l-aspartate therapy in patients with cirrhosis and minimal hepatic encephalopathy: a real-life cohort study

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Introduction and Objectives: MHE is related to a higher risk of accidents and deterioration in the quality of life; it can be detected with PHES and CFP. There is currently insufficient evidence that treatment with oral LOLA improves performance in PHES and CFP in patients with MHE. This study aimed to verify the response and safety of LOLA treatment in a real-life cohort of patients with MHE.

Materials and Methods: Cirrhotic patients in the Hepatology clinic diagnosed with MHE received LOLA 6 grams three times a day for three days and were reassessed with PHES and CFP. The results were analyzed by descriptive statistics, the comparison between parameters by paired t-Student or Wilcoxon test as appropriate, a value of $p<0.01$ was considered significant. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: ninety-eight patients with cirrhosis were evaluated; 38.8% had baseline MHE, 68.4% were women, the mean age of 53.3 years, and the median education was nine years. According to Child-Pugh: 68.4% A, 23.7% B, and 7.9% C. 34 patients were analyzed, the PHES score improved significantly post-treatment (baseline -6.44±1.7 vs -2.79±1.9; $p<0.0001$), CFP improved (baseline 37± 1.8 vs 39.8±2.2; $p<0.0001$). According to PHES 88.2% and CFP 85.3%, patients showed remission. The incidence rate ratio for persisting with MHE was 4 and 5 per 34 person-times, and the prevented fraction of 0.88 and 0.85 according to PHES and CFP, respectively. No adverse effect was reported.

Conclusions: LOLA is effective in improving cognitive performance and reversing very early alterations in PHES and CFP in patients with cirrhosis and MHE.

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Declaration of interest: The authors declare no potential conflicts of interest.

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Short-term response of p300 evoked potential in patients with minimal hepatic encephalopathy treated with l-ornithine, l-aspartate

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Introduction and Objectives: The clinical alterations of Minimal Hepatic Encephalopathy (MHE) include subtle changes in cognitive processes detectable only with tests such as the Psychometric hepatic encephalopathy score (PHES) and critical blink rate (FCP) or P300 cognitive evoked potentials. After treatment with L-Ornithine, L-Aspartate (LOLA) 18 grams/30 days, a decrease or normalization in the PHES score, an increase in FCP, and a reduction in the latency of the P300 potential have been observed. In the short term, it is unknown if there are changes in these three indicators of the cognitive status of patients with MHE. This study aimed to detect changes in the potential cognitive P300 of patients treated with LOLA 18g/3 days.

Materials and Methods: Cirrhotic patients who attended the Liver Clinic of the Gastroenterology Service of the General Hospital of Mexico "Eduardo Liceaga" were included. The PHES test and FCP were applied, and the electroencephalogram (EEG) was recorded while visual stimuli were presented in a cognitive task to obtain the potential P300. The criteria for MHE were a PHES test score of less than -4 standard deviations (sd) and an FCP score of less than 39.0 Hz. EHM patients were given LOLA 6g/3 times a day for three days. Subsequently, the PHES, FCP, and P300 tests were repeated. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: Eighty-nine patients with liver cirrhosis participated, 54 women (60.7%) with 53±7.9 years of age and 8.3±3.4 years of schooling. Fifty-seven patients (64.0%) were positive for PHES and 64 were positive for FCP (71.9%). EHM (positive for PHES and FCP) was detected in 53 patients (59.6%). Thirty-six patients (68%) accepted treatment with LOLA or completed the three tests, of which 16 repeated the three tests. The median PHES before treatment was -5.0 ds(-1,-6) and after treatment with LOLA -3.0 ds(-2,-4). The difference was significant in the Wilcoxon test for paired samples $p<0.0001$.

The initial mean of the FCP was 37.03±1.8 Hz and the final was 39.8± 2.1 Hz. The difference was significant for the student's t-test for related samples p<0.0001. The P300 potential had an initial amplitude of 2.42±2.79 and a final one of 2.21±2.19, not being significant, in contrast to the initial latency of 410.06±63 milliseconds (ms) and the final one of 404.88±63.6 ms, being significant after treatment. with LOLA p=0.015

Conclusions: Short-term (3 days) changes in MHE due to LOLA treatment were seen in PHES test scores, FCP test scores, and P300 evoked potentials. The P300 potentials reflect the state of the EEG when performing cognitive tasks of attention. The improvement in this indicator is already known at 30 days of treatment and with the present study, it was determined that immediately at the start of treatment with LOLA there is an improvement in their cognitive status.

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Declaration of interest: The authors declare no potential conflicts of interest.

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The Stroop test validation in the detection of minimal hepatic encephalopathy in Mexican patients with cirrhosis, preliminary results

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Introduction and Objectives: Minimal hepatic encephalopathy (MHE) is an important cause of morbi-mortality in patients with cirrhosis; its timely identification has an impact on prognosis; the Stroop Test is a diagnostic tool that can be useful and practical in these patients. Validating this test and calculating the cut-off point for the diagnosis of MHE in our population is important. This study aimed to validate the Stroop Test application and estimate the cut-off point for the diagnosis of MHE in our population.

Materials and Methods: Observational, cross-sectional and prolective study to validate and calculate the cut-off point of the Stroop Test; patients with cirrhosis with and without manifest hepatic encephalopathy will be included, who will undergo the Stroop Test, psychometric score of hepatic encephalopathy (PHES) and the critical flicker frequency test (CFF): ROC curves will be calculated to measure sensitivity, specificity and its cut-off point, healthy subjects will also be included for comparison. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: One hundred subjects participated: 50 controls, 33 females (66%) age =43.2±12.1 years; and 50 patients with hepatic cirrhosis: 27 females (54%) age 53.2±8.2 years, of which 54%, 42% and 2% were in Child-Pugh A, B and C, respectively. AUROC was calculated for patients with cirrhosis with and without MHE, AUROC= 0.751 (CI=0.656-.846); cut-off point=183.5 sensitivity (SE)=60% specificity (SP)=74% (Figure 1).

Conclusions: For our study sample, we found that the Stroop Test is a good diagnostic tool, taking into account a cut-off point of 183.5 sec. as opposed to 274.9 sec. that the apple application gives us, which is validated in a different population (grade and quality of education).

Funding: Donation by the volunteer ladies of the Hospital General de México "Dr. Eduardo Liceaga."

Declaration of interest: The authors declare no potential conflicts of interest.

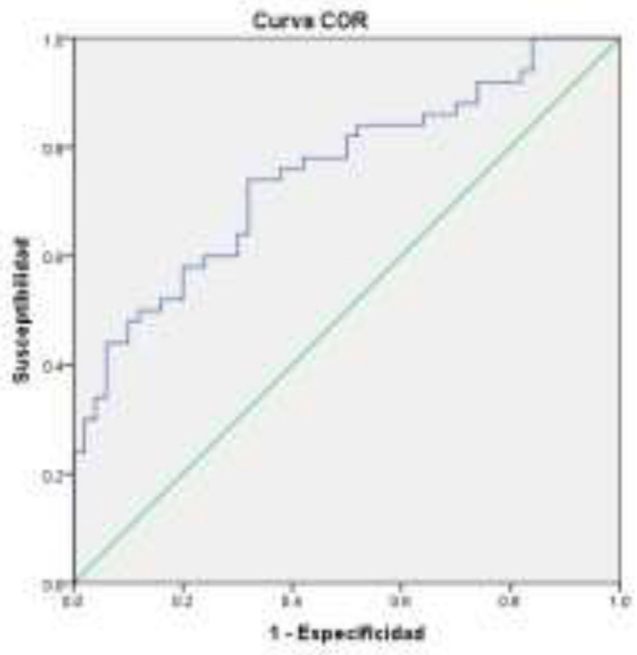

Figure.1

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Changes in early visual perception in patients with minimal hepatic encephalopathy

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Introduction and Objective: Minimal Hepatic Encephalopathy (MHE) is characterized by very subtle cognitive changes that are diagnosed with the Psychometric hepatic encephalopathy score (PHES) and critical flickering frequency (CFF). Patients with MHE are slower in attention tests evaluated with visual cognitive evocative potentials, which are late indicators. However, it is unknown whether there is also slowness in automatic responses of early visual perception, such as those of stationary visual potential P100. This study aimed to detect early visible changes in patients with minimal hepatic encephalopathy.

Materials and Methods: Cirrhotic patients who went to the Liver Clinic of the Gastroenterology Service of the General Hospital of Mexico "Eduardo Liceaga" were included. The PHES, CFF test was applied and the electroencephalogram (EEG) was recorded while repeated visual stimuli were presented to obtain the stationary visual potential P100. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: Eighty-nine patients with hepatic cirrhosis participated, 54 women (60.7%) with 53 ± 7.9 years of age and 8.3 ± 3.4 years of schooling. 57 patients (64.0%) and 64 FCP-positive (71.9%) were PHES-positive. MHE (PHES and CFF positive) was detected in 53 patients (59.6%). 29 MHE patients and 10 patients with cirrhosis agreed to do the perceptual tests. P100 latency of the visual potential was quantified lower in patients with MHD 113 ± 9 milliseconds than in cirrhotic 94 ± 14 milliseconds.

Conclusions: Patients with MHE showed slowness in early perceptual processes that preceded cognitive processes.

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Sarcopenia as a predictor of risk of minimal hepatic encephalopathy in patients with liver cirrhosis

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Introduction and Objective: Sarcopenia, defined as loss of muscle mass and strength, and minimal hepatic encephalopathy (MHE), alter the quality of life and prognosis of patients with cirrhosis. Ammonia plays a key role in the pathogenesis of MHE and has been associated with decreased muscle mass and strength. However, the relationship between sarcopenia and MHE is not well defined. The objective of this study was to determine their relationship and identify predictors of MHE.

Materials and Methods: Prospective study, including 96 patients with compensated cirrhosis diagnosed by transitional elastography. The presence of MHE and sarcopenia was determined by a critical flicker frequency test and standard from the European Working Group EWGSOP2. Muscle mass and strength were determined by electrical bioimpedance and a handgrip dynamometer. Functional capacity was evaluated by a Short Physical Performance Battery (SPPB), performing linear logistic regression analysis to identify predictors of MHE. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: Of the ninety-six patients with cirrhosis, 61 (64%) and 35 (36.5%) were diagnosed with MHE and sarcopenia, respectively. In the multivariate analysis, the SPPB rating (R 0.521, 95% CI 0.85-2.54, p=<0.001) and grip strength (R 0.314, 95% CI 0.024-0-50, p=0.032) showed the highest predictive value for MHE. (Table 1 and Figure 1).

Conclusions: Decreased handgrip strength and SPPB score were significant predictors of MHE. Early nutritional intervention and physical rehabilitation could reduce the risk of developing EHM in patients with cirrhosis.

Funding: Donation by the volunteer ladies of the Hospital General de México "Dr. Eduardo Liceaga."

Declaration of interest: The authors declare no potential conflicts of interest.

	Men (*n* =47)	Women (*n* =49)	*p score*
Age years (x̄, DE)	49.6 ±10.3	54.6 ±12.3	0.032 ¥ *
Years of education (x̄, DE)	8.28 ±3.2	8 ±4.1	0.748 ¥
Elastography (kPa) (x̄, DE)	39.0 ±23.1	21 ±13.9	<0.001 ¥ ***
Child-Pugh-Turcotte pts (x̄, DE)	7.43 ±2.0	6.5 ±1.9	0.316 ¥
MELD-Na pts (x̄, DE)	16.35 ±6.1	13.9 ±4.7	0.048 ¥ *
ETIOLOGY (n,%)			
Alcoholic hepatopathy	29 (61.7)	8 (16.3)	<0.001 €
Hepatitis C virus	10 (21.3)	17 (34.7)	0.144 €
MAFLD/NASH	5 (10.6)	11 (22.4)	0.121 €
COMORBILIDADES (n,%)			
DM type 2	15 (31.9)	19 (38.8)	0.482 €
Hypertensión	4 (14.8)	7 (23.3)	0.416 €
COMPOSICIÓN CORPORAL (x̄, DE)			
IMC kg/m^2	27.1 ±5.2	24.8 ±4.0	0.013 ¥ *
Height cm	166 ±7.2	153.3 ±7.5	<0.001 ¥ ***
Weight kg	75.1 ±17.8	58 ±10.0	<0.001 ¥ ***
SACROPENIA AND FUNCTIONAL CAPACITY EVALUATION (x̄, DE)			
SPPB score (pts)	10.38 ±2.0	8.8 ±3.0	0.006 ¥ **
Walk test 4 m (seg)	5.3 ±7.0	5.3 ±5.2	0.943 ¥
Chair stand (seg)	12.6 ±4.9	14.5 ±4.3	0.040 ¥ *
muscle mass (kg)	26.9 ±11.3	16.7 ±6.7	<0.001 ¥ ***
Handgrip strenght (kg)	28.8 ±7.0	17.1 ±4.8	<0.001 ¥ ***
Flicker (Hz) (x̄, DE)	36.1 ±5.9	38.1 ±6.1	0.113 ¥

x̄ Mean ±DE, x̃ median (IQR), ¥ T Student independent samples, € Chi square
* Statistically significant difference in grade p=<0.05
** Statistically significant difference in grade p=<0.01
*** Statistically significant difference in grade p=<0.001

Table 1. Demographic distribution by frequencies, difference in means and proportions of subjects with liver cirrhosis by gender (n=96).

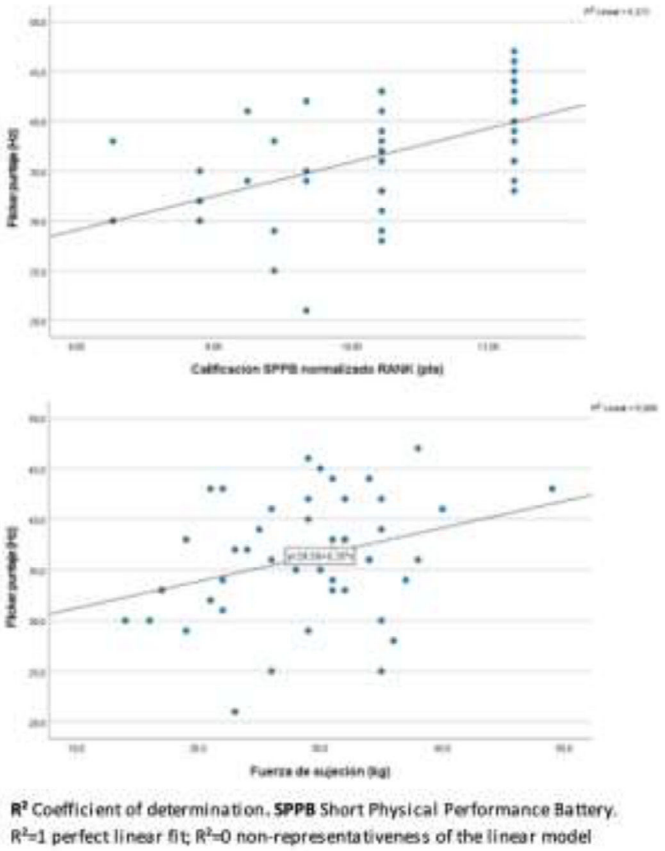

Figure 1. Simple dispersion diagram. Logistic regression analysis. SPPB and handgrip score associated with Flicker score.
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Prevalence of liver fibrosis determined by non-invasive methods in patients with metabolic disorders at the *Centro Medico Nacional 20 de noviembre*

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Introduction and Objective: This study aimed to determine the prevalence of liver fibrosis through non-invasive methods in patients with metabolic disorders.

Materials and Methods: Observational, cross-sectional, and retrospective analytical study. Laboratory results and images of patients diagnosed with metabolic alterations in the *CMN 20 de Noviembre* will be collected.

Results: Among the results obtained, we found that the prevalence of fibrosis was 18.1%, and hepatic steatosis was 59.8%.

Discussion: ALT, C-peptide, and insulin levels were significantly higher in the group with fibrosis. When the variables were dichotomized, an OR of 2.91 (95% CI 1.099 − 7.73) was found for ALT >38.5; Insulin > 17.75, the OR was 3.199 (95% CI 1.20 − 8.5); and for C-peptide > 945 OR 4.049 (95% CI 1.42 − 11.51). The albumin level was significantly lower in this group p = 0.041, with an OR 0.29 (95% CI 0.104 − 0.815), so a value greater than 4.35 represents a protective factor. The NALFD score and FIB4 showed a weak positive correlation with the measurements made with the Fibroscan®.

Conclusions: The determination of liver fibrosis did not correlate through the different non-invasive methods, so it would be best to establish non-invasive liver-specific markers in patients with metabolic disorders and steatohepatitis for the diagnosis of liver fibrosis; since the necessary and accurate diagnostic tools that meet the criteria of efficacy, accuracy, and reliability are not available.

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Declaration of interest: The authors declare no potential conflicts of interest.

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Prevalence of fibrosis and steatosis determined by transition elastography and controlled attenuation parameter (fibroscanâ) in diabetic patients

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Introduction and Objective: Younossi ZM *et al.*have recently reported a higher prevalence of fatty liver disease associated with metabolic dysfunction (MAFLD) in diabetics (55.5%) versus the general population (25%); however, in Mexico, the prevalence of steatosis and fibrosis related to MAFLD in patients with type 2 diabetes (DM2) is not precisely known. This study aimed to determine the prevalence of hepatic fibrosis and steatosis by transition elastography and controlled attenuation parameter (CAP) using the FibroScanâ equipment in patients with DM2.

Materials and Methods: Observational, descriptive, transversal study included patients who attended the outpatient clinic for DM2 diagnosis between August- 2018 and May- 2022 and who underwent FibroScanâ to determine the absence/presence and degree of fibrosis and steatosis. The following were excluded: patients with risky alcohol consumption, Hepatitis B/C, any type of liver disease or previously diagnosed cirrhosis, and consumption of additional drugs to those for MS. Descriptive statistics were used and the prevalence of steatosis and fibrosis determined by Fibroscanâ was estimated.

Results: 183 patients, 64.3% women, mean age 56.1±10.2 years. According to BMI, 81.4% were also overweight/obese (36.6% overweight, 27.2% grade-I obesity, 12.2% grade-II obesity, and 5.4% grade-III obesity). 53.8% also met the criteria for MS. 71.3% had glycosylated hemoglobin, of which 41.6% were out of the target (HbA1c >7.0). Regarding the degree of fibrosis, we found: F4= 29.1%, F3= 6.9%, F2= 4.6%, F1= 2.3% and F0= 57.1%. Regarding the steatosis degree, we found: S3= 23.4%, S2=18.3%, S1=11.7% and S0= 9.7%. Regarding adherence to treatment, we found poor adherence in 39.0%, good adherence in 61.0% and 6.5% of patients were not determined.

Conclusions: The prevalence of steatosis and fibrosis associated with MAFLD is high in Mexican diabetic patients.

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Declaration of interest: The authors declare no potential conflicts of interest.

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The usefulness of 3 different points of the liver to evaluate fibrosis by transitional elastography

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Introduction and objective: The degree of liver fibrosis is diagnosed, among other studies, with transition elastography; it is known that liver injury is heterogeneous, so underdiagnosing the degree of fibrosis when performing the survey at a single point may be possibly described in a standard way. This study aimed to evaluate the sensitivity of transition elastography at three different points to determine its performance.

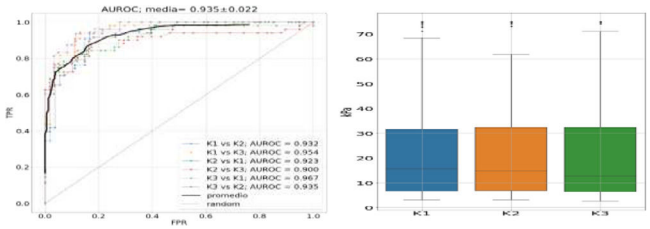
Materials and Methods: Patients with liver disease were included; transition elastography was performed at three different points, point A at the site indicated by the manufacturers; point B, an intercostal space downwards; and point C, an intercostal space upwards; descriptive and inferential statistics were performed.

Results: One hundred nine patients were evaluated, 64 men (59%) and 45 women (41%) average age of 52.6. Paired t-tests were run between the three different combinations (K1 vs. K2, K1 vs. K3, and K2 vs. K3). For all these tests, the value of $p>0.05$, no statistically significant differences were found between the measurements. Correlation tests were performed between the same combinations, finding a value of $p<0.05$ for the three, which means that the observations are correlated. ROC curves were constructed. It can be seen that in all 6 cases, the ROC curve is close to the ideal values. Figures 1 and 2.

Conclusions: For the diagnosis of fibrosis, there is no difference between the three points in the same organ, even though the liver injury is heterogeneous.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.



Figures 1 and 2.
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Liquid biopsy of patients with advanced liver fibrosis reveals the association of methylation in CpGs and miRNAs expression with the degree of severity

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Introduction and Objective: This study aimed to assess whether the expression of specific miRNAs and the percentage of DNA methylation of the Peroxisomal Proliferator-Activated Receptors (PPAR) α, γ and δ genes in tissue and liquid biopsy from patients with advanced liver fibrosis (F3 and F4) is associated to the degree of severity.

Materials and methods: Transjugular liver biopsy and liquid biopsy were collected from 23 patients with sustained viral response to the hepatitis C virus, with advanced residual fibrosis (F3 and F4). The percentage of methylation in CpG islands of the promoters of the PPARα, PPARγ and PPARδ genes and the expression levels of miRNAs were determined. Masson's trichrome hematoxylin-eosin staining was performed. DNA was extracted from tissues and plasma, and percent methylation was measured by pyrosequencing. Extraction and isolation of miRNAs from liver tissue were performed: miR-21, miR-34, miR-122, miR181b, miR192, miR-200a/b and their expression level compared to miR-16 was evaluated. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: Higher promoter methylation percentages were observed in patients with more severe degrees of fibrosis (F4), both in tissue and in liquid biopsy. In addition, overexpression of miRNAs was associated with the degree of fibrosis.

Discussion: Epigenetic mechanisms (DNA methylation and microRNA expression) regulate the expression of multiple genes and their status may be a biomarker associated with the degree of fibrosis.

Conclusion: Liquid biopsy is an effective and accessible method for evaluating the degree of fibrosis.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Increase in liver fibrosis in patients with inflammatory bowel disease at the inflammatory bowel disease clinic, *Centro Medico Nacional 20 de noviembre*

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Introduction and Objective: To determine the progression to liver fibrosis secondary to non-alcoholic fatty liver disease (NAFLD) by non-invasive methods in patients with Inflammatory Bowel Disease (IBD).

Material and Methods: Descriptive, cross-sectional, and retrospective study. Variables analyzed: age, sex, type of IBD, treatment, Fibrosis-4 (FIB-4) and NAFLD fibrosis score (NFS). The SPSS version 25 program was used, with univariate analysis, 95% CI and significant $P < 0.05$.

Results: Of 125 patients, 88 (70.4%) had chronic nonspecific ulcerative colitis (UC) and 37 (29.6%) had Crohn's disease (CD). NAFLD was found in 20 patients (16%), with fibrosis in 20% (4 patients), as well as cirrhosis (20%) without statistical significance (Table 1). Grade F0-F2 (NFS<1.455) was more frequent in both groups, with no significant correlation with IBD. Ustekinumab correlated with NAFLD without fibrosis ($P<0.05$), while mesalazine correlated significantly with liver fibrosis (F3-F4).

Discussion: NAFLD occurs in 50% of patients with IBD. The pathogenesis includes, on the one hand, the release of cytokines and adipokines that lead to increased inflammation and hepatic fibrosis and, on the other, altered intestinal permeability, with the consequent hepatic fatty infiltration. For its diagnosis, non-invasive tools were created, such as NFS and FIB-4, with the best predictive value for advanced liver fibrosis.

Conclusions: The occurrence of NAFLD and progression to fibrosis were significantly correlated with the treatment of the underlying disease.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

	UC n=88	CROHN n=37
Sex (%)		
Mujeres	48 (55)	20 (54)
Hombres	40 (45)	17 (46)
Age(years)		
Average	50 (± 16)	48 (± 17)
Comorbidities (%)		
NAFLD	12 (13.6)	8 (21.6)
HBP	25 (28.4)	10 (27)
T2D	21 (23.9)	5 (13.5)
Insulin resistance	22 (25)	3 (8.1)
Dyslipidemia	43 (48.9)	13 (35.1)
Hypothyroidism	9 (10.2)	2 (5.4)
EII treatment (%)		
Infliximab	22 (25)	2 (5.4)
Certolizumab	28 (31.8)	10 (27.0)
Adalimumab	16 (18.2)	11 (29.7)
Ustekinumab	8 (9.0)	5 (13.5)
Mesalazina	14 (15.9)	7 (18.9)
Diagnostic scales in NAFLD		
FIB-4 (%)		
< 1.45	7 (58.3)	6 (75)
>1.45 <3.25	3 (25)	0 (0)
>3.25	2 (16.7)	2 (25)
NAFLD fibrosis score (%)		
<-1.455	8 (66.6)	6 (75)
-1.455- 0.675	4 (33.3)	1 (12.5)
> 0.675	0 (0)	1 (12.5)

Table 1. Demographic characteristics of patients with inflammatory Bowel Disease
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Effect of zinc supplementation in patients with cirrhosis and dysgeusia

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Introduction and Objective: The prevalence of dysgeusia in patients with cirrhosis is higher than 50%; the aim of the study was to evaluate the effect of zinc supplementation in patients with cirrhosis and dysgeusia.

Materials and Methods: Randomized clinical trial, double-blind, controlled with placebo of 34 patients. The intervention consisted of 100mg/day of zinc for six months. Improvement of dysgeusia was evaluated according to changes in perception (PT) and recognition (RT) thresholds of five flavors. Nutrient consumption was evaluated by SNUT questionnaire. Meanwhile, quality of life (QoL) was evaluated by LDQOL questionnaire. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: 50% (n=17) of patients were male, 76.5% (n=26) presented PT dysgeusia, meanwhile 85%(n=29) presented RT dysgeusia; salty and umami were the most affected flavors. Twenty-eight patients accomplished the follow-up. PT dysgeusia showed significant improvement in the intervention group. (28.6% vs 57.1%, p=0.004) (Figure). Changes in RT and evaluation of each flavor did not show. Patients of intervention group increased protein consumption (61.8 g [48.6-67.1] vs 57.1g [39.5-60.5], p=0.05). According to QoL, patients with zinc supplementation showed higher punctuation of the worry domain (6.0 [5.2-6.4] vs. 4.4[2.9-5.5], p=0.007) and global QoL. (5.5[5.1-6.1] vs 5.0[4.7-5.8], p=0.05)

Discussion: The presence of dysgeusias in patients with cirrhosis could have a negative impact on nutritional status and its consequences; zinc supplementation seems to be a treatment option in these patients.

Conclusions: Zinc supplementation improves the PT, protein consumption and global QoL in patients with cirrhosis and dysgeusia.

Funding: The resources used in this study were from the hospital without any additional financing.

Declaration of interest: The authors declare no potential conflicts of interest.

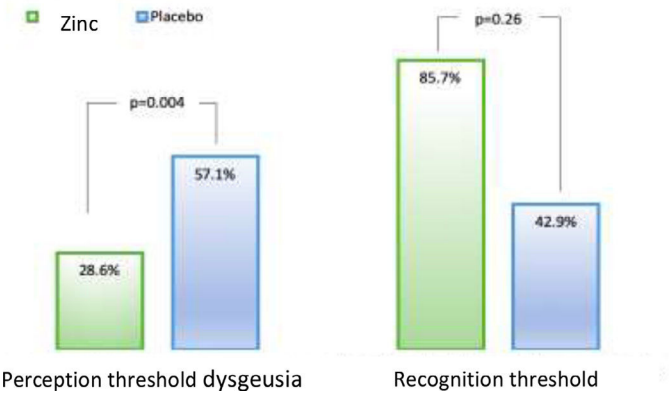

Figure1. Differences in prevalence of dysgeusia in PT and RT after six months
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6-Week mortality predictors in patients with acute variceal bleeding from the western national medical center of the Mexican social security institute

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Introduction and Objectives: To identify the predictive factors for mortality at six weeks in patients with variceal bleeding.

Materials and methods: A retrospective cohort study in the Department of Gastroenterology of the National Medical Center of the West, from January-December 2021.

Results: Seventy patients with variceal bleeding were included (table 1). The 6-week mortality was 25.7% and the early rebleeding rate was 22.9%. The main predictors of mortality were a Child-Pugh class C score OR 7.67(95% CI, 2.25-26.15, p=0.0011), a MELD score ≥20 OR 20.0(95% CI, 5.58-94.74, p=<0.0001), ABC score ≥8 OR 32.0 (95% CI, 3.91-261.54, p=0.0012) and Blatchford score ≥15 OR 9.60 (95% CI, 2.51-38.16, p=0.0013); Similarly, the presence of other decompensations such as acute kidney injury (OR 4.77, p=0.0088), hepatic encephalopathy (OR 18.85, p=<0.0001), ACLF (OR 65.0, p=<0.0001), and a no-SBP infection (OR 3.83, p=<0.0001) were identified as predictors

Discussion: The mortality at six weeks and early rebleeding, as well as mortality predictors, match what is reported in the international literature.

Conclusions: Poor hepatic function reserve, which is related to higher comparisons of Child-Pugh and MELD scores, are independent predictors of mortality in variceal bleeding due to the high portal venous pressure gradients managed by these patients. Similarly, the presence of other decompensations, such as acute kidney injury, hepatic encephalopathy, and ACLF, also increase the risk of death when they occur in conjunction with variceal bleeding.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

TABLE 1. Variables

Age (mean)	58 years	Types of varicose veins	Esophageal 42(60%)
Cirrhosis etiology	Viral 16(22.9%)		Gastrofundic 11(15.7%)
	Alcohol 14 (20%)		Both 15(21.4%)
	MAFLD 9(12.9%)	Endoscopy-bleeding time	Less than 12 hours 27(38.6%)
	Autoinmune 7(10%)		less than 24 hours 34(48.5%)
	Not determined 22(31.4%)		More than 24 hours 8(11.4%)
	No cirrhosis 2(2.8%)	Triggers/descompensations	Portal thrombosis 13(18.5%)
Bleeding episode number	First episode 25(35.7%)		AKI 18(25.7%)
	Second episode 28(40%)		HE 15 (21.4%)
	Third o more 17(24.2%)		ACLF 15(21.4%)
Child-Pugh score	Class A 14(20%)		SBP 0(0)
	Class B 37(52.9%)		Other infections 12(17.1%)
	Class C 17(24.3%)	ABC score (mean)	7 pts
MELD (mean)	15 pts	Glasgow-Blatchford (mean)	11 pts
Active bleeding (jet)	7(10%)	Rockall score (complete) (mean)	6 pts
Transfusión (mean)	1.5 globular concentrates	AIMS 65 (mean)	1 point
Hospital stay (mean)	5.2 days		

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An unusual complication after variceal band ligation: complete esophageal obstruction, a case report and review of the literature

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Introduction and objectives: Endoscopic ligation is the standard therapy for secondary prophylaxis of variceal bleeding, being a simple procedure, although not without complications. A case of a rare complication is presented.

Clinical case summary: 73-year-old woman with cirrhosis and a history of variceal bleeding in secondary prophylaxis. Endoscopy was performed, presenting large esophageal varices with high-risk bleeding stigmas data with ligation of 2 varices. Twenty-four hours later, he started with chest pain and progressive dysphagia to liquids and solids. Tomography showed esophageal dilatation with air-fluid level and distal narrowing. She was admitted for hospital surveillance with no response to symptomatic management and no tolerance to oral administration; an endoscopy was performed 72 hours later, observing complete obstruction of the esophagus lumen due to the tissue surrounding varix with edema and necrosis that prevented the passage of the endoscope. Conservative management was decided, with strict fasting and central parenteral nutrition for three days, with complete resolution of symptoms and tolerance to oral administration on day 5. At 12 weeks later, she reported dysphagia; the control endoscopy showed concentric stenosis in the previous ligation site, requiring dilation with a pneumatic balloon to 13 mm. Figure 1.

Discussion: Among the complications after endoscopic band ligation of esophageal varices, the presentation of complete obstruction is the least frequent, finding only 14 cases reported in the literature. Conservative management and monitoring for the development of posterior stenosis are recommended.

Conclusions: Physicians should be aware of all the probable subsequent complications derived from this procedure.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

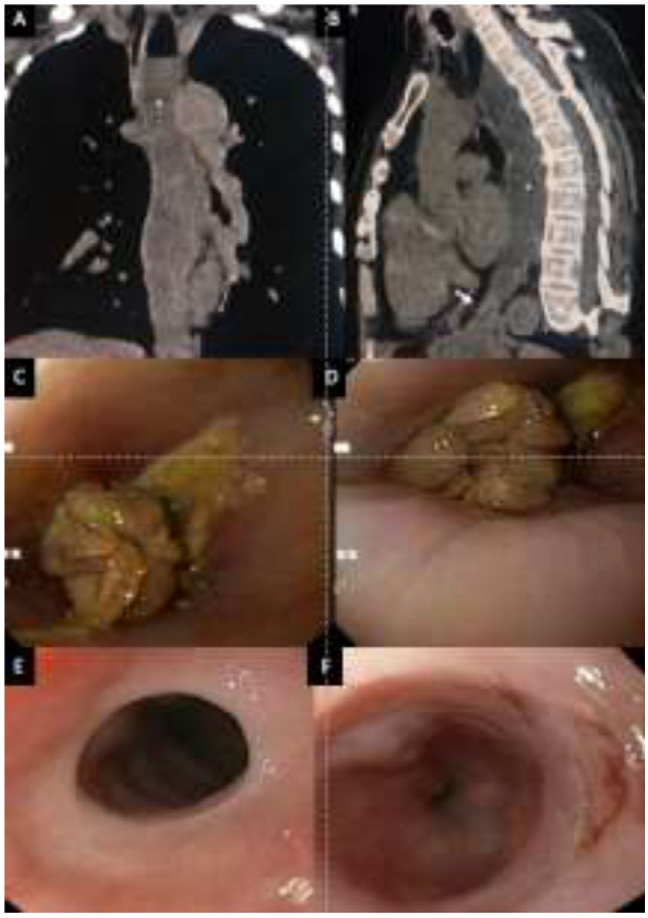

Figure 1. a) Chest CT (coronal) with dilation of the esophagus and an air-fluid level b) Sagittal chest CT, with stenosis in the distal third, c and d) post-ligation endoscopy with a varicose band that obstructs the esophageal lumen, edema and necrosis e) follow-up endoscopy with stenosis due to fibrosis f) post-dilation

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Comparison of the meld-la model as a predictor of early mortality in Mexican patients with chronic decompensated liver disease

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Introduction and Objectives: Here are several scales used to predict early and long-term mortality in patients with chronic decompensated liver disease; the sensitivity is different in each one. A study published in the AASLD 2002 evaluated the MELD-LACTATE scale with good results. This scale has not yet been evaluated in the Mexican population. Evaluate the sensitivity and specificity of MELD-LA to predict early mortality in patients with decompensated cirrhosis in Mexican patients

Materials and Methods: Observational, retrospective, comparative, longitudinal study evaluating early mortality (after 15 days) of Mexican patients with decompensating cirrhosis who were given the MELD-LA scale upon admission to assess its predictive capacity. Patients with decompensated cirrhosis of any etiology were included, mortality at 15 days was evaluated, descriptive statistics were performed, and inferential with ROC curves.

Results: Two hundred thirty-eight patients were included, of which 100 were analyzed; 33 men and 66 women, minimum age 27 and maximum 84 years, mean 51 years, SD 11.7. Alcohol was the main cause of cirrhosis, and the most common cause of decompensation was sepsis. The MELD-LA score performed better in predicting mortality at 15 days; sensitivity and specificity were 0.84 and 0.59; providing the highest AUC was 0.72. The results are shown in figure 1.

Conclusions: The MELD-LA score was shown to be an early and objective predictor of hospital mortality in Mexican cirrhotic patients.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

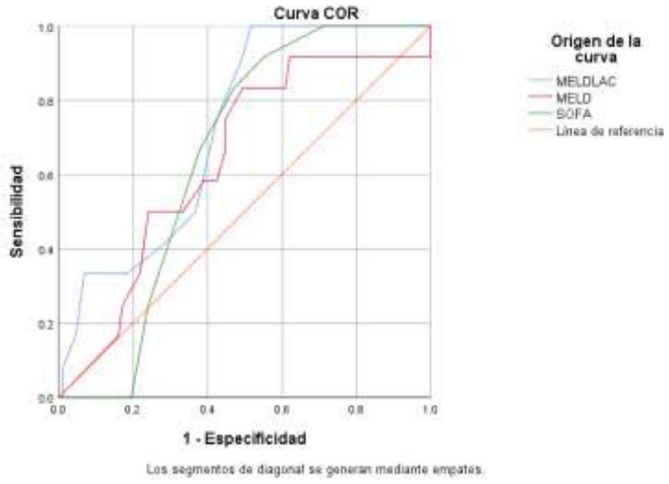

Figure 1.
https://doi.org/10.1016/j.aohep.2022.100796

Norepinephrine in infusion as an alternative to large volume post-paracentesis albumin in patients with cirrhosis

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Introduction and Objective: Circulatory dysfunction syndrome (DCIP) occurs in patients who undergo large-volume paracentesis. Albumin should usually be administered to prevent it. However, in many cases, this resource is not available. Singh V, Kumar B, *et al.* published a study evaluating norepinephrine in preventing DCIP with promising results. This study aimed to assess whether norepinephrine is a helpful resource in preventing DCIP when albumin is unavailable.

Materials and Methods: A prospective, descriptive, and analytical study includes patients with cirrhosis and grade III ascites. Given norepinephrine as an alternative to albumin to prevent DCPI, patients with kidney injury, shunts, and gastrointestinal bleeding were excluded. Descriptive statistics were performed, comparing creatine, Ngal, nystatin C, and sodium at days 0, 3, 6, and 28 days, evaluating whether or not DCPI developed. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: Twelve patients were included, one of whom was ruled out due to precordial pain without electrocardiographic changes; 11 patients were analyzed; 9 men (81.8%); age 52.2 ± 4.5; and 2 (18.2%) P and 9 (81.8%) Child C; 8 (72.7%) due to alcohol, 2 (18.2%) MAFLD, 1 (9.1%) HCV; the drained liters of ascites were 12.5 L with a range of 9 to 18; Renal function measured by creatinine, Cystatin C and NGAL at 0, 3, 6 and 28 days did not show renal dysfunction. The results are shown in Figure 1.

Conclusions: Norepinephrine promises to be an alternative for the preventive management of DCPI.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

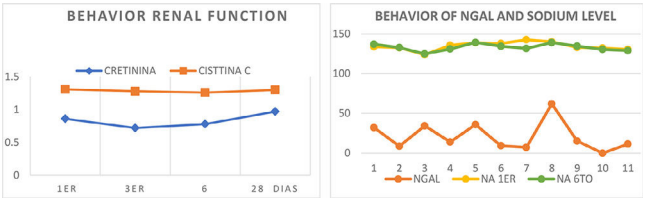

Figure 1
https://doi.org/10.1016/j.aohep.2022.100797

Management of internal hemorrhoidal bleeding refractory to endoscopic treatment in a patient with liver cirrhosis

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Introduction and Objectives: Hemorrhoidal bleeding associated with portal hypertension is a rare complication. Endoscopic management is the initial treatment recommended. There are no established guidelines in refractory bleeding; we present a patient with hemorrhoidal bleeding refractory to endoscopic treatment.

Clinical case: A 72-year-old woman with decompensated liver cirrhosis and hemorrhoidal disease presented hemorrhoidal bleeding treated with endoscopic band ligation; five days later, rectal bleeding returned. Colonoscopy showed post-ligation ulcers and active bleeding; endoscopic bleeding control with band ligation and sclerotherapy was not achieved (Image 1A-1B). Venography of hemorrhoidal veins and embolization with coils and Histoacryl was performed, achieving bleeding control (Image 1B-C), and hepatic-portal vein gradient was measured (33 mmHg).

Discussion: Symptomatic hemorrhoidal disease in liver cirrhosis has a prevalence of 5%, and it is associated with greater vascular collaterality, coagulopathy and high surgical risk. The treatment options go from endoscopic band ligation, sclerotherapy and arterial or vein embolization, with rebleeding rates between 10-13% in different case

series, being the last option of treatment, the portosystemic derivation, which has shown suboptimal results. There are no established guidelines for its management because the evidence of the different therapeutic options is insufficient.

Conclusion: Embolization of hemorrhoidal vessels with refractory bleeding is a good alternative for bleeding control in patients with liver cirrhosis.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

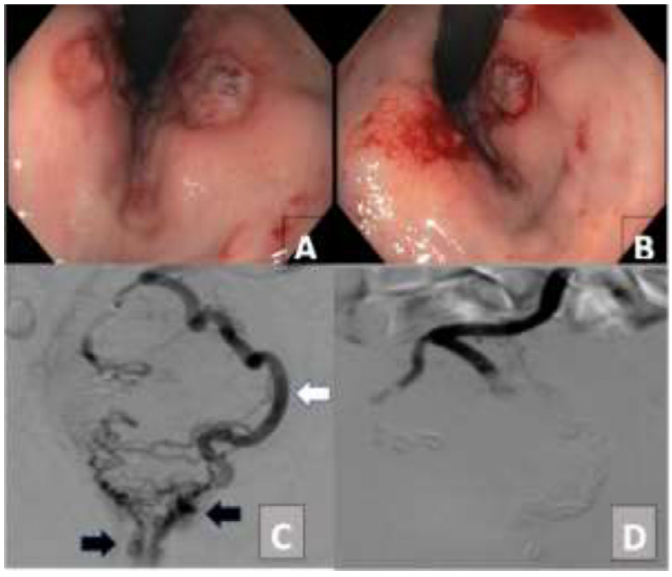

Figure 1. A Retroflection colonoscopy shows post-ligation ulcers with active bleeding. 1.B Venography of superior hemorrhoidal veins with dilatation of left system (white arrow) and contrast leakage at distal rectum (black arrows). 1.C-D. Embolization with coils/Histoacryl, showing absence of distal contrast.

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Causes of decompensation of liver cirrhosis and predictors of in-hospital mortality in patients admitted to the gastroenterology service of the *Regional Hospital Lic. Adolfo López Mateos* in the years 2017 - 2018

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Introduction and Objectives: Identify the main causes of liver cirrhosis decompensation and predictors of in-hospital mortality in patients admitted to the Gastroenterology service of the RH. Lic. Adolfo López Mateos in the years 2017 and 2018.

Material and Methods: Daily digital censuses from 2017 and 2018 were used, and patients diagnosed with decompensated cirrhosis and laboratory studies were included. The statistical software STATA V 16.0 was used, and the incremental model with $p<0.000$ and the VIF test and goodness of fit with the HOSMER-LEMESHOW test were performed.

Results: Two hundred fifty-five Patients were included, and the most frequent causes of decompensation were; ascites at 35%, encephalopathy at 34% and variceal hemorrhage at 22% (image 1). The three variables that resulted in a risk for in-hospital mortality were: elevated creatinine levels, encephalopathy, and spontaneous bacterial peritonitis.

Discussion: Ascites as the first cause of liver cirrhosis decompensation is the same reported in international studies; a difference was observed in the second cause, which could be due to the fact that the sample of patients is small. Patients with any degree of encephalopathy, SBP and elevated creatinine levels had higher in-hospital deaths.

Conclusions: Ascites, followed by hepatic encephalopathy and variceal hemorrhage, were the most frequent causes of decompensation in patients with liver cirrhosis admitted to the Gastroenterology service of RH Lic. Adolfo López Mateos in the years 2017 and 2018. The early identification of poor prognosis factors and the initiation of targeted treatment could improve the prognosis of patients.

Funding: The resources used in this study were from the hospital without any additional financing

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Hepatic hydrothorax resistant to diuretics treated with octreotide

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Introduction and Objective: Hepatic hydrothorax is the excessive accumulation of transudate in the pleural cavity, secondary to portal hypertension in cirrhotic patients without existing cardiopulmonary disease. Treatment includes a reduction in ascites production, prevention of ascites transfer to the pleural space, pleural fluid removal, pleural space obliteration, and liver transplantation. This study aimed to report a case of hepatic hydrothorax treated with Octreotide.

Case Summary: A 63-year-old man with liver cirrhosis due to alcohol. It began with edema in the pelvic limbs, increased abdominal perimeter, MRC II dyspnea, orthopnea, and chest pain radiating to the back. EF: scleral jaundice, 60% left pleural effusion. Gii ascites, MPI edema (+). He was classified as Child-Pugh C (12 points), Hb 6.2, Leu 2.2, Plts 37,000, INR 2.1, chest X-ray: 100% left pleural effusion. A 1200 cc cytological/cytochemical thoracentesis was performed: transudate according to Light's criteria, GASA >1.1, BNP 87 mg/dl; spironolactone was started up to 200/80 mg, persists with 100% pleural effusion. Octreotide 100mcg is started for five days. He showed improvement at the end of treatment.

Discussion: In hepatic hydrothorax, sodium restriction as a treatment is insufficient; the use of diuretics is necessary; up to 30-40% do not respond; the placement of chest tubes is associated with high morbidity, clinical deterioration, TIPS, urgent HT or death. Octreotide, a somatostatin analog, directly inhibits RAAS, improving the efficiency of renal plasma flow and natriuresis.

Conclusions: Octreotide can be a useful alternative in hepatic hydrothorax.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Efficacy and safety of treatment with terlipressin infusion vs. bolus in gastrointestinal bleeding of variceal origin in a third-level hospital

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Introduction and Objectives: Digestive bleeding of variceal origin represents an event with high mortality and pharmacological treatment is the mainstay in its management. In our setting, bolus terlipressin is the available treatment, although with frequent adverse effects, so we compared the efficacy and safety of bolus terlipressin vs. infusion for variceal bleeding.

Materials and methods: Experimental, randomized and comparative study in which adult patients from the Hospital de Especialidades Puebla were included from March 1, 2021, to October 31, 2021, with portal hypertension who presented with upper gastrointestinal bleeding of variceal origin and were administered terlipressin in infusion and in boluses. The protocol was approved by the local ethics committee and all patients participated with informed consent. Statistical analysis was performed in the IBM SPSS v. 28.

Results: 14 patients were randomly admitted, 7 to the infusion group and 7 to the bolus group. There were significant differences in the variables (Table 1) of days of hospital stay (p=0.023), adverse effects (p=0.018) and drug requirement (p=0.001); in the rest of the variables, there were no significant differences. Table 1.

Conclusions: Given the size of our sample and study design, larger studies with better statistical power are needed to corroborate our results.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1. Comparative table of results of the study variables between the control group (bolus) and the experimental group (infusion)

Study variables	Bolus (n=7)	Infusion (n=7)	P Value (CI 95%)	Correlation	RR
Treatment failure	0 (0.0%)	0 (0.0%)	NA	NA	NA
Adverse effects	4 (57%)	0 (0.0%)	0.018	5.60	3.33 (1.2-8.5)
Requirement of red cell concentrates	1 (0-2)	0.86 (0-3)	0.196	0.311	NA
Days of hospital stay	3.643 (3-5)	3.171 (3-3.5)	0.023	1.590	NA
Rebleeding at 6 weeks	0 (0.0%)	0 (0.0%)	NA	NA	0
Drug requirement	22.29	12.14	0.001	0.0	NA

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Evaluation of the early response to empirical treatment and its association with cultures in patients with spontaneous bacterial peritonitis (SBP)

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Introduction and Objectives: Spontaneous bacterial peritonitis (SBP) is a frequent complication in cirrhotic patients; the start of treatment is empirical and is adjusted with cultures. The antibiotic of choice is cephalosporins, which have reported high resistance. Improving SBP conditions has an impact on the evolution of patients. This study aimed to assess the early treatment response of SBP treated with empiric antibiotics.

Patients and Methods: Patients with a diagnosis of cirrhosis and SBP were included who underwent diagnostic paracentesis and paracentesis thee days after starting treatment; a decrease in ascites cellularity was evaluated as a criterion of response to treatment and the culture report. Descriptive and inferential statistics were performed. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: Six hundred twenty-one patients diagnosed with liver cirrhosis were included. Forty-seven met the criteria for SBP. Thirty men (63%) and 17 women (36%); the causes of cirrhosis were: Alcohol 25 (53%), MAFLD 9 (19%), autoimmune 2 (4%) and unknown 10 (21%) By Child-Pugh B 12 (25%) and 35 (74%) C. 89% (42) received cephalosporins, of which 78% (33) responded to treatment (figure 1), of which 66% (23) did not isolated agent in culture, only 31% (10) developed bacterial agent, mainly E. coli (60%).

Conclusions: SBP is the most common cause of infections in cirrhotic patients, with a high impact on morbidity and mortality. Despite reports of resistance to cephalosporins in our population, the response to empirical treatment with cephalosporins is still optimal.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

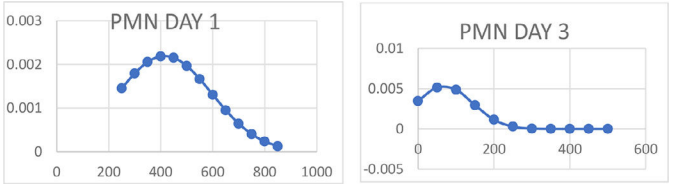

Figure 1: Comparative table of neutrophils on day zero and day three of treatment.

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MELD Na and MELD 3.0 have the best performance in predicting the risk of death at 28 days in patients with severe alcoholic hepatitis in the Mexican population

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Introduction and Objective: To compare various prognostic scales to verify which one has the best performance in predicting 28-day mortality in patients with severe toxic-alcoholic hepatitis (AH).

Materials and Methods: Observational, cohort study. Data were collected from patients with severe AH who were hospitalized between January 2010 and May 2022. MELD, MELDNa, MELD3.0, ABIC, Maddrey, and Glasgow scale for AH were calculated at admission and their outcome at 28 days was verified. ROC curves were constructed to compare the different prognostic scales.

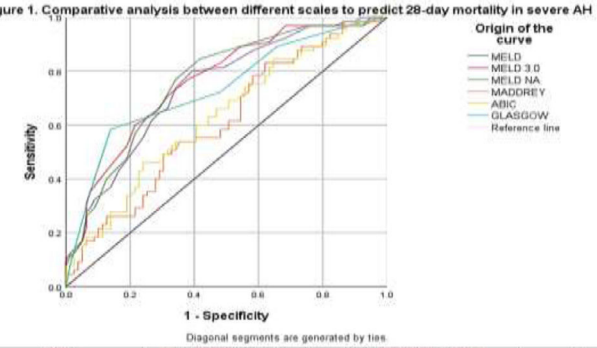
Results: A total of 144 patients were included, 129 (89.6%) men, with a mean age of 43.3±9.3 years, and median grams of alcohol consumed/day was 320 (range: 60-1526). 65 (45.1%) died. The mean of MELD, MELDNa and MELD3.0 was higher among the deceased vs. survivors (33.5±7.5 vs. 27.1±6.2; 34.6±5.7 vs. 29.1±5.7; and 35.8± 6.0 vs. 30.1±5.5 respectively; p<0.0001). The ROC curve analysis comparing the prognostic scales is shown in Figure 1.

Conclusions: AH mortality is high. MELDNa and MELD3.0 have the best performance in predicting on admission which patients with AH are at risk of dying in the following 28 days and can be useful tools for prioritizing patients who are candidates for liver transplantation.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Figure 1. Comparative analysis between different scales to predict 28-day mortality in severe AH



Diagonal segments are generated by ties

Scale	Area under the curve	95% confidence interval	P
MELD	0.743	0.663 - 0.823	< 0.0001
MELD 3.0	0.760	0.682 - 0.838	< 0.0001
MELDNa	0.761	0.682 - 0.839	< 0.0001
Maddrey	0.611	0.519 - 0.702	0.023
ABIC	0.630	0.539 - 0.721	0.007
Glasgow	0.735	0.652 - 0.818	< 0.0001

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Characterization of acute kidney injury among Mexican patients with cirrhosis

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Introduction and Objectives: Acute kidney injury is common in patients with cirrhosis and consists of various phenotypes; the first stage was divided into 2 phases; stage 1B has similar mortality to the higher stages; creatinine is not the best marker, limited by sarcopenia in cirrhosis. This study aimed to determine the characteristics of acute kidney injury in Mexican patients with cirrhosis and to evaluate its progression.

Materials and Methods: Retrospective, descriptive study, including cirrhotic patients of any etiology who developed acute kidney injury. The characteristics and progression of the disease were evaluated according to treatment and possible markers, describing the quantitative variables as mean and standard deviation for the qualitative variables in frequencies and percentages.

Results: Ninety patients were included, 62.2% men, mean age 52 ±11, 55.5% of alcoholic etiology followed by unknown and NASH (26 and 13% respectively), 4.4% in stage A, 3.5% in stage B and 58.8% in stage C for Child-Pugh; 31.1% with ACLF. The characteristics of renal failure are shown in Table 1 and the progression in Table 2.

Conclusions: Renal failure in Mexican cirrhotic patients is low (30%), as is mortality (4%).

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1. Characteristics of patients with Acute Kidney Injury by Stage according to the International Ascites Club.

Characteristic	Acute Kidney Injury				
	AKI ICA Ia (N=23)	AKI ICA Ib (N=22)	AKI ICA II (N=32)	AKI ICA III (N=13)	TOTAL
MEAN AGE – yr	54.31 ± 11.89	53.7 ± 13.43	52 ± 11.34	58 ± 14.44	-
GENDER %(N)					
Male	15.5 (14)	17.7(16)	22.2 (20)	6.6 (6)	62.2 (56)
Feminine	10 (9)	6.6 (6)	13.3 (12)	7.7 (7)	40 (36)
ETIOLOGY OF CIRRHOSIS %(N)					
Alcoholic	13.3 (12)	14.4 (13)	22.2 (20)	5.5 (5)	55.5 (50)
Cardiac	1.1 (1)	-	-	-	1.1 (1)
AIH	-	-	1.1 (1)	-	1.1 (1)
NASH	2.2 (2)	1.1 (1)	6.6 (6)	3.3 (3)	13.3 (12)
NOT AFFILIATED	8.8 (8)	8.8 (8)	4.4 (4)	4.4 (4)	26.6 (24)
HBV	-	-	-	1.1 (1)	1.1 (1)
HCV	-	-	1.1 (1)	-	1.1 (1)
CHILD PUGH %(N)					
A	2.2 (2)	-	1.1 (1)	1.1 (1)	4.4 (4)
B	13.3 (12)	8.8 (8)	11.1 (10)	2.2 (2)	35.5 (32)
C	10 (9)	15.5 (14)	23.3 (21)	11.1 (10)	58.8 (53)
ASSOCIATED COMPLICATIONS					
Hemorrhage %(N)	14.4 (13)	7.7 (7)	8.8 (8)	4.4 (4)	35.5 (32)
Ascites %(N)	42.2 (38)				
GI	-	-	2.2 (2)	-	2.2 (2)
GII	3.3 (3)	6.6 (6)	12.2 (11)	6.6 (6)	28.8 (26)
GIII	2.2 (2)	3.3 (3)	3.3 (3)	2.2 (2)	11.1 (10)
ENCEPHALOPATHY (WH) %(N)	58.8 (53)				
I	-	-	-	-	-
II	13.3 (12)	7.7 (7)	16.6 (15)	6.6 (6)	44.4 (40)
III	-	5.5 (5)	3.3 (3)	5.5 (5)	14.4 (13)
IV	-	-	-	-	-
ACLF %(N)	31.1 (28)				
I	-	5.5 (5)	3.3 (3)	1.1 (1)	9.9 (9)
II	-	2.2 (2)	6.6 (6)	6.6 (6)	15.5 (14)
III	-	1.1 (1)	3.3 (3)	1.1 (1)	5.5 (5)
Associated Infections %(N)	34.4 (31)				
UTI	7.7 (7)	7.7 (7)	7.7 (7)	7.7 (7)	31.1 (28)
SBP	-	1.1 (1)	1.1 (1)	1.1 (1)	3.3 (3)
USE OF DIURETICS %(N)	25.5 (23)				
NO	21.1 (19)	20 (18)	22.2 (20)	11.1 (10)	74.4 (67)
YES	4.4 (4)	4.4 (4)	13.3 (12)	3.3 (3)	25.5 (23)

Table 2. Progression of kidney injury in cirrhotic patients.

PROGRESSION	SI 51.1% (N = 46)					NO 48.8 % (N = 44)				
AKI ICA% (N)	IA	IB	II	III	TOTAL	IA	IB	II	III	TOTAL
AKI	15.2 (7)	21.7 (10)	32.6 (15)	10.8 (5)	80.4 (37)	-	-	-	-	-
CKD	-	-	10.8 (5)	6.5 (3)	17.3 (8)	-	-	-	-	-
HRS	-	-	-	2.1 (1)	2.1 (1)	-	-	-	-	-
TREATMENT %(N)										
Albumin	-	10.8 (5)	26 (12)	13 (6)	50 (23)	-	18.1(8)	13.6(6)	4.5(2)	36.3(16)
Hyperhydration	15.2 (7)	10.8 (5)	17.3 (8)	6.5 (3)	50 (23)	32 (14)	13.6(6)	13.6(6)	4.5(2)	63.6(28)
NGAL >220mcg/g%(N)	23.91 (11)					11.36 (5)				
SEDIMENT %(N)										
Bacteria	-	-	4.3 (2)	-	4.3 (2)	4.5 (2)	2.2 (1)	2.2(1)	2.2 (1)	11.3(5)
Soft	-	-	-	-	-	11.3(5)	9 (4)	2.2(1)	-	22.7(10)
epithelial cells	-	-	2.1 (1)	-	2.1 (1)	-	-	-	-	-
Erythrocytes	-	-	-	-	-	2.2 (1)	2.2 (1)	-	-	4.5 (2)
Granular Casts	2.1 (1)	2.1 (1)	10.8 (5)	2.1 (1)	17.9 (8)	-	2.2 (1)	2.2 (1)	6.8 (3)	11.3 (5)
Hyaline Casts	-	-	6.5 (3)	2.1 (1)	8.6 (4)	-	-	2.2 (1)	-	2.2 (1)

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Etiology and find in portal vein thrombosis at the Hospital de Especialidades del Centro Médico Nacional La Raza

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Introduction and Objectives: To assess the reasons and forms of presentation and to correlate disease status to the degree of spread and outcome.

Materials and methods: Descriptive and retrospective study was performed on patients with DVT by review of clinical records. The patient was divided into non-cirrhotic, cirrhotic and cirrhotic with hepatocarcinoma; age, gender, a form of diagnosis, degree of spread of thrombosis and outcome were assessed. Qualitative variables were expressed as frequency and percentage, and numerical variables as means and standard deviation.

Results: We studied sixteen patients with a median age of 61 years. 3 (18.75%) were non-cirrhotic, 7 (43.75%) were cirrhotic and 6 (37.5%) were cirrhotic with hepatocarcinoma, 4 (30. 76%) due to HCV, 2 (15.38%) autoimmune, 1 (7.69%) due to alcohol, 1 (7.69%) MAFLD, mixed in 2 patients and 3 (23.07%) undetermined. Non-cirrhotic patients, 1 (33.33%) protein C deficiency, 1 (33.33%) antithrombin deficiency; 100% with abdominal pain, the cirrhosis without HCC, 2 (28.57%) were asymptomatic and 5 (71.4%) with decompensation, the patients with CH+HCC, 3 (50%) with encephalopathy. Complete DVT was onset in 14 (87.5%) and in 2 (12.5%), it was partially. It was located in the PV and/or its intrahepatic branches in 13 (81.2%) and in 3 (18.75%) extensions to the superior mesenteric vein and/or splenic vein. Patients without cirrhosis all received anticoagulant treatment; of patients with DVT with cirrhosis with or without HCC, 53% received treatment. They were mainly being treated with low-molecular weight heparin, and oral anticoagulants. In cirrhotic patients, 8 (61.52%) died as compared to non-cirrhotic patients who were discharged.

Conclusions: In our setting, DVT was more frequent in patients with cirrhosis, particularly those with late liver disease and HCC, with uncompensation as the main clinical manifestation in this group of patients.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Variables	N= 16 Non-cirrhotic	Cirrhotic	Cirrhotic HCC
Patients	3 (18.75%)	7 (43.75%)	6 (37.5%)
Age	46	60	61.8
Gender	Woman 1 (33.33%) Man 2 (66.66%)	Woman 5 (71.4%) Man 2 (28.56%)	Woman 3 (50%) Man 3 (50%)
Etiology cirrhosis			
HVC	-	4 (30.76%)	1 (7.69%)
Autoinmune	-	2 (15.38%)	-
OH	-	1 (7.69%)	-
Mixed	-	-	2 (15.38%)
Undetermined	-	.	3 (23.07%)
Cause		-	-
Protein C	1 (33.33%)		
Antithrombin deficiency	1 (33.33%)		
Unidentified	1 (33.33%)		
Extension			
Partial	-	1 (14.28%)	1 (16.66%)
Complete	3 (100%)	6 (85.68%)	5 (83.3%
Treatment	3 (100%)	4 (57.12%)	2 (33.32%)
Outcome			
Egress	3 (100%)	3 (42.84%)	2 (33.32%)
Death		4 (57.12%)	4 (66.64%)

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Prevalence of hepatobiliary manifestations and its relationship with the time of evolution of inflammatory bowel disease in patients attended at Centro Médico Nacional 20 de noviembre

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Introduction and Objective: This study aimed to describe the prevalence of hepatobiliary manifestations of Inflammatory Bowel Disease.

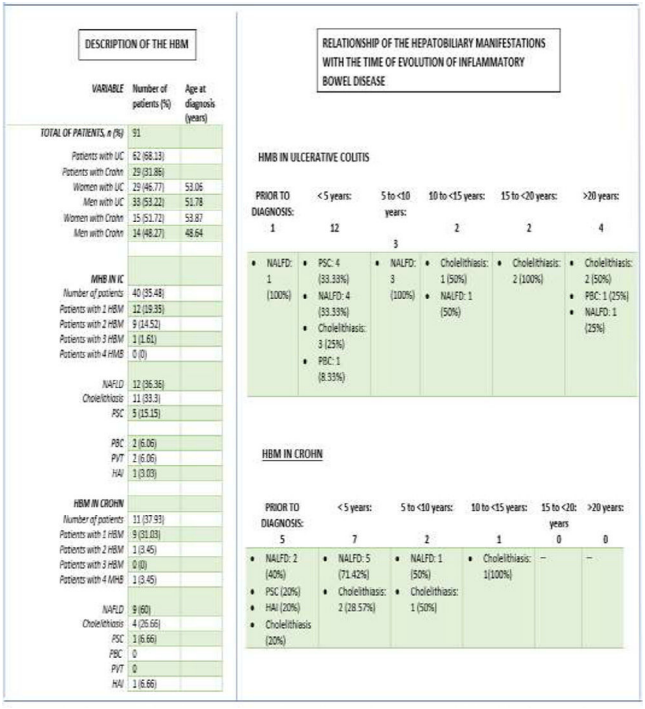
Materials and Methods: A retrospective, observational, cross-sectional study. Sixty-two patients with UC (UC) and 29 patients with Crohn's disease were included. Medical notes and imagenological studies were reviewed from the first registered consultation in search of known hepatobiliary manifestations (HBM) of Inflammatory Bowel Disease (IBD). Data were analyzed using STATA software version 16.

Results: HBM were found in 35.48% of CUCI and 37.93% of Crohn's. In both IBD it was more common to find only 1 HBM (UC: 19.35%; Crohn: 31.03%), being the 3 most common NAFLD (UC: 36.36%; Crohn: 60%), cholelithiasis (UC: 33.3%; Crohn: 26.66 %) and PSC (SITC: 15.15%, Crohn's: 6.66%). HBM were more frequent in less than <5 years after diagnosis; however, in patients with UC, HBM were found at a longer time of disease's evolution.

Conclusions: It is essential to monitor liver function in patients with IBD at regular intervals; as well as implement screening strategies with imagenological studies to detect HMB since it must be considered that even in a short evolution time, we must carry out an early screening in search of these MHB.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.



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Precipitating factors of kidney injury in patients with liver cirrhosis

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Introduction and Objectives: This study aimed to determine the precipitating factors of acute kidney injury (AKI) in hospitalized patients with ACLD (Advanced chronic liver disease)

Materials and methods: Retrospective, descriptive, cross-sectional study at HJM Gastroenterology service. We included all patients with ACLD hospitalized in the last six months who presented AKI, with a previous baseline creatinine, without proteinuria in the general urinalysis, renal ultrasound without alterations and who met the criteria for AKI by KDIGO. Prognostic scales (Child-Pugh, Meld Na and CLIF Score) were determined to classify into two groups: Those with ACLF and Non-ACLF. The results were analyzed with measures of central tendency.

Results: A total of 47 patients entered the study, divided into two groups: ACLF (N=18) and no-ACLF (N=29) (Table 1).

Conclusions: As can be seen, regardless of the comorbidities and etiology of cirrhosis, the most important factor in acute kidney injury is an impaired liver function associated with infectious processes that can precipitate ACLF and death.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

	ACLF 18 (38.29%)	NO ACLF 29 (61.72%)
GENDER		
MALE	15 (83.5%)	21 (72.41%)
FEMALE	3 (16.6%)	6 (20.68%)
AGE	53.1	56.4
ETIOLOGY		
UNDETERMINED	1 (5.3%)	3 (10.34%)
ALCOHOL	12 (66.6%)	21 (22.14%)
NASH	2 (11%)	2 (6.8%)
AIH	2 (11%)	2 (6.8%)
PBC	1 (5.5%)	0
VIRAL	1 (5.5%)	1 (3.44)
CHRONICDEGENERATIVES		
NONE	12 (66.6%)	15 (51.7%)
DIABETES MELLITUS	1 (5.5%)	6 (20.6%)
HYPERTENSION ARTERIAL	3 (16.6%)	4 (13.7%)
CANCER	1 (5.5%)	1 (3.4%)
HYPOTHYROIDISM	0	1 (3.4%)
DYSLIPIDEMIA	1 (5.5%)	1 (3.4%)
EPOC	0	1 (3.4%)
EPILEPSY	0	1 (3.4%)
KIDNEY INJURY		
ICA-AKI I	2 (11.11%)	21 (72.14%)
ICA- AKI II	4 (22.22%)	4 (13.79%)
ICA- AKI III	12 (68.66%)	4 (13.59%)
ETIOLOGY KIDNEY INJURY		
DEHYDRATION	1 (5.5%)	5 (17.24%)
INFECTION	8 (44.44%)	5 (17.24%)
ALCOHOL	7 (38.81%)	3 (10.34%)
THROMBOSIS	1 (5.55%)	0
HEMORRHAGE VARICEAL	1 (5.55%)	14 (48.21%)
GRADE III ASCITES	0	2 (6.89%)
CHILD PUGH		
A	0	4 (13.79%)
B	0	17 (58.62%)
C	18 (100%)	8 (27.58%)
MELD NA	35.11 points	22.17 points
MORTALITY	8 (44.44%)	0

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Frequency of the association of metabolic syndrome in patients with liver cirrhosis hospitalized for variceal hemorrhage at *Hospital Juárez de México*

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Introduction and Objectives: Clinical studies show a high prevalence of components of the metabolic syndrome (MS) in patients with liver cirrhosis not associated with NAFLD as a factor that increases portal hypertension (PH) and the frequency of variceal hemorrhage. This study aimed to determine the frequency of variceal hemorrhage among hospitalized patients with non-NAFLD liver cirrhosis who meet the criteria for MS and patients without MS in the Gastroenterology Service of the HJM from January to April 2022.

Materials and Methods: Comparative, descriptive, retrospective and cross-sectional study of a cohort of patients with liver cirrhosis hospitalized for variceal hemorrhage. Forty files were reviewed, excluding those with NAFLD etiology, divided into group A with MS and group B without MS.

Results. Of the sample (n=40), 70% were men and 30% were women.

Results: Table 1. characteristics of patients with variceal hemorrhage with and without metabolic syndrome

Conclusions: Despite the small number of patients, it is observed that MS, diabetes mellitus and arterial hypertension are independent factors for the development and evolution of PH, so they should be considered in the primary and secondary prevention of variceal hemorrhage.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

	Group A. Liver cirrhosis and metabolic syndrome (24 PATIENTS-60%)	Group B. Liver cirrhosis without metabolic syndrome. (16 PATIENTS-40%)
WOMEN AND THEIR AVERAGE AGE	25%, 72.7 YEARS	37.5%, 61.1 YEARS
MEN AND THEIR AVERAGE AGE	75%, 50.4 YEARS	62.5%, 53.2 YEARS
SMOKING	29.1%	25%
ALCOHOLISM	66.6%	43.75%
ETIOLOGY		
BY CONSUMPTION OF ALCOHOL AUTOIMMUNE HCV INDETERMINATE	66.6% 12.5% 12.5% 8.3%	43.75% 25% 18.75% 12.5%
COMORBIDITIES	87.5% WITH AT LEAST ONE COMORBIDITY	37.5% WITH AT LEAST ONE COMORBIDITY
DIABETES MELLITUS TYPE 2 SYSTEMIC ARTERIAL HYPERTENSION DIABETES MELLITUS TYPE 2, SYSTEMIC ARTERIAL HYPERTENSION	57.1% 9.5% 28.5%	12.5% 12.5% 12.5%
CHILD-PUGH		
A B C	41.6% 41.6% 16.6%	56.2% 37.5% 6.25%
MELD-NA AVERAGE	15 POINTS	14.6 POINTS
APRI AVERAGE	1.66	1.58
FIB-4 AVERAGE	5.4	5.1
HBA1C AVERAGE	6.2%	6%
IMC AVERAGE	29.1 KG*M2	25.3 KG*M2

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Prevalence of hepatobiliary manifestations in patients with inflammatory bowel disease

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Introduction and Objectives: This study aimed to analyze the prevalence of hepatobiliary manifestations in patients diagnosed with chronic nonspecific ulcerative colitis (UC) and Crohn's disease (CD), in a tertiary care hospital in Mexico.

Materials and Methods: A retrospective observational study was conducted based on clinical records of patients diagnosed with UC or Crohn's disease who attended the Gastroenterology service of the *Centro Medico Nacional La Raza* in the period from 2017 to 2022 in the gastroenterology. The data was collected from the clinical file. Means and standard deviation were used for the analysis of

quantitative variables, and frequencies (percentages) were used for qualitative variables.

Results: A sample of one hundred and twenty-two patients (56.5% were men and 43.4% were women) was analyzed, of which 87 (71.3%) corresponded with a diagnosis of UC and 35 (28.7%) with a diagnosis of CD. Hepatobiliary manifestations were found in 27 patients (22%), with steatosis (9%) and PSC (5.6%) being the most frequent. Only in one patient, two simultaneous manifestations were found (HAI and PSC). Thirty-eight patients presented alterations in hepatic biochemical tests, of which 29% did not correspond to any known hepatic complication at that time. (Figure 1).

Discussion: Although the best-described manifestation in IBD is PSC, in our study, they stand out because a considerable percentage of patients present alterations in hepatic biochemical tests or in imaging studies, which are not related to a known hepatobiliary pathology and which may be of multifactorial etiology.

Conclusions: The prevalence of hepatobiliary alterations in IBD is considerable, which is why clinical, biochemical and imaging studies monitoring are required periodically to perform the appropriate diagnostic and therapeutic procedures in a timely manner.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

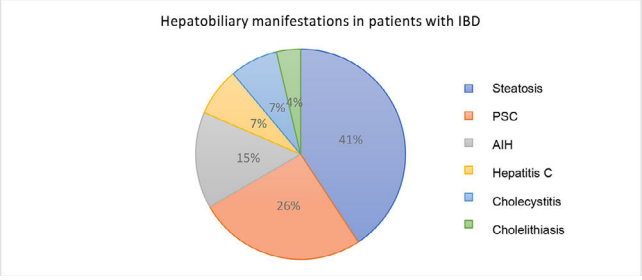

Figure 1.
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Left-sided portal hypertension as a complication of chronic pancreatitis in a young patient. A case report

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Introduction and Objectives: Left-sided portal hypertension occurs due to obstruction, stenosis, or thrombosis of the splenic vein. The most common causes are pancreatic, including chronic pancreatitis (31.8%-53.8%), pancreatic pseudocyst, and neoplasms.

Clinical Case: A 22-year-old man with an 11-year history of transflective pain episodes every three months, without any other symptoms. In the last six months, increased frequency and intensity. He was admitted to the emergency room for mild acute pancreatitis, amylase 181u/l, lipase 230u/l, CRP 35.7mg/L, Procalcitonin 0.04ng/ml, INR 2.4. Abdominal USG is performed with pancreatitis and intra and extrahepatic bile duct dilatation; Contrast-enhanced CT: pancreas with dilation of the main duct of 12 mm and intraductal and intraparenchymal calcifications, portal vein with a diameter of 11.8 mm with stenosis of 80% of its lumen, perigastric, periesophageal and perisplenic collateral veins, stomach with thickening of its folds (14.3 mm) and splenomegaly. He developed hematemesis and melena, panendoscopy showed a large esophageal varix which was ligated, gastric varix GOV 1. Bleeding persists, so arterography and portography were performed, which was ligated, gastric varix GOV 1. Bleeding persists, so arterography and portography were performed, which showed: splenic vein occlusion data and partial portal vein stenosis in its proximal segment. Figure 1.

Discussion: Left portal hypertension is an etiology related to pancreatic pathologies. It should be suspected if there is a history of pancreatitis coupled with de novo digestive bleeding, splenomegaly without data of cirrhosis or hematological diseases and in a patient with IGV.

Conclusion: It should always be considered regardless of the age of the patients, especially with gastrointestinal bleeding, in order to provide proper treatment.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

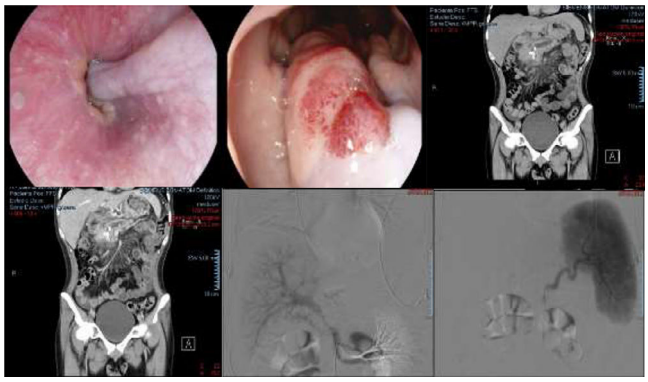

Figure 1. Endoscopy A) esophageal varix B) Thickened gastric folds with areas of subepithelial hemorrhage. Contrast-enhanced CT c) Intraductal calcifications and dilation of the main duct. d) Gastric enhancement is observed after contrast administration of perigastric veins. Arteriography and portography E) proximal portal vein stenosis F) splenic vein stenosis.
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Frequency of bleeding due to ulcer associated with H. Pylori (HP) in patients with liver cirrhosis at Hospital Juárez de México

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Introduction and Objectives: There are few clinical studies that report the prevalence of ulcers associated with H. pylori in cirrhotic patients determined by endoscopic biopsies 5% to 20% vs. 2%-4% of the general population. The risk of ulcer bleeding is higher in this

group than in the general population. This study aimed to determine the frequency of ulcers due to HP as a cause of hemorrhage in patients with liver cirrhosis who were admitted to Gastroenterology from January 2022 to January 2023.

Materials and Methods: Descriptive, retrospective, observational and cross-sectional study of a cohort of cirrhotic patients hospitalized due to gastrointestinal bleeding secondary to an ulcer associated with H. pylori. Two hundred sixty-three endoscopies of cirrhotic patients were reviewed, excluding variceal hemorrhage, obtaining epidemiological data, cirrhosis etiology, biopsy report, and Child-pugh. Data are analyzed with measures of central tendency.

Results: Two hundred sixty-three reports reviewed; 40 due to ulcer with H.pylori (N=40), 57.5% men (n=23) average 51 years old, 42.5% women (n=17) average 61 years old. Cirrhosis due to alcohol consumption 57%, MAFLD 20%, Autoimmune 17.5%, HCV 7.5%. 7.2%, 92.5% of biopsies with HP activity, 55% duodenal and 45% gastric.

Discussion: 15% of the cirrhotic patients presented hemorrhage due to duodenal or gastric ulcer associated with PH, more frequent in men with cirrhosis due to alcohol, Child-pugh A.

Conclusions: The association of ulcer bleeding with PH was presented in a percentage to be considered where the deterioration of liver function did not have an influence. However, the impact that has on the evolution, decompensation and prognosis of cirrhotic patients and the effectiveness of the treatment should be further investigated.

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Notable intestinal dysbiosis orchestrated by *Escherichia/Shigella*, decreased levels of SCFTA (short chain fatty acids) and alterations in metabolic pathways characterize patients with alcohol-decompensated cirrhosis in western Mexico

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Introduction and Objectives: To evaluate the composition and functions of the intestinal microbiota in patients with alcohol-decompensated cirrhosis.

Materials and methods: Fecal samples of eighteen patients and eighteen healthy controls (HC) were obtained. Microbial composition was characterized by 16S rRNA amplicon sequencing, SCFAs quantification was performed by gas chromatography (GC), metagenomic predictive profiles were analyzed by PICRUSt2.

Results: Gut microbiota in the cirrhosis group revealed a significant increase in the pathogenic genera *Escherichia*|*Shigella* and *Prevotella*, a decrease in beneficial bacteria, such as *Blautia*, *Faecalibacterium*, plus a decreased α-diversity ($p<0.001$) compared to HC. Fecal SCFAs concentrations were significantly reduced in the cirrhosis group ($p<0.001$). PICRUSt2 analysis indicated a decrease in acetyl-CoA fermentation to butyrate, as well as an increase in pathways related to antibiotics resistance and aromatic amino acid biosynthesis.

Discussion: The gut microbiota dominated by the *Escherichia*|*Shigella* general correlates with low SCFA concentrations and an increase in metabolic pathways related to pathogenicity and the production of substances associated with endotoxemia.

Conclusions: Gut microbiota of these patients possesses a pathogenic/inflammatory environment. Therefore, future strategies to balance intestinal dysbiosis should be implemented. These findings are described for the first time in the population of western Mexico.

Funding: The resources used in this study were from the hospital without any additional financing

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Epidemiologic profile of non-alcoholic fatty liver disease in apparently healthy blood bank donors

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Introduction and Objectives: To determine the prevalence of non-alcoholic fatty liver disease in a healthy population of the blood bank from Hospital General de México "Dr. Eduardo Liceaga," as well as to describe the characteristics of the subjects who experience this disease.

Materials and methods: Prolective, cross-sectional, descriptive, and analytical study. We included donors ≥18 years old. We excluded subjects with known liver disease and dangerous alcohol consumption. Vibration-controlled transient hepatic elastography was the method of estimation of steatosis and hepatic fibrosis. We used descriptive statistics.

Results: A total of 258 donors were included. 67 (25.96%) had non-alcoholic fatty liver disease, 29 were women (43.28%) and 38 (56.72%) men. S1 steatosis was found in 14 subjects (20.90%), S2 in 23 (34.32%), and S3 in 30 (44.78%). 23 (34.32%) were overweight, 23 (34.32%) grade 1 obese, 11 (16.44%) grade 2 obese, and 5 (7.46%) grade 3 obese; only 5 (7.46%) had normal body mass index. 21 (72.41%) women have waist circumference ≥88 and 23 (60.52%) men ≥102 cm. 28 (41.79%) subjects have blood pressure ≥130/85 mmHg;

24 (35.82%) have glucose ≥100 mg/dl; and 40 (59.70%) triglycerides ≥150 mg/dl. Advanced fibrosis (F4) was found in 3 (4.47%) donors.

Discussion: One in four apparently healthy subjects has non-alcoholic fatty liver disease. These subjects are a sample of the Mexican population that could represent the behavior of the population of our country.

Conclusions: Non-alcoholic hepatic steatosis is a prevalent disease that is closely related to the increase in overweight and obesity in the Mexican population.

Funding: The resources used in this study were from the hospital without any additional financing

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Susceptibility to liver damage in women due to risky alcohol consumption

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Introduction and Objectives: Liver damage from alcohol consumption is different between genders, and the susceptibility shown by women is greater than that of men; there are several factors for this difference to exist. We evaluated the complications of cirrhosis due to alcohol in a group of women and compared it with a group of men. This study aimed to compare the effect of alcohol consumption and complications between both genders.

Materials and methods: An observational, descriptive, and analytical study compares the pattern of alcohol consumption, the number of grams of alcohol between men and women, and its complications.

Results: Two hundred and twenty-two patients were included; 122 women (55.0%) with 51.7±11.5 years of age, Child-Pugh A=24 (10.8%), B=69 (30.6%) and C=130 (58.6%). The grammage/day of alcohol was Women 175.6.9±131.4 and Men 301.5±106.7. The type of consumption was regular risk M=6.6%; excessive M=45.9% and H=58.0%; intoxication M=11.5% and H=8.0%; binge M=36.1% and H=34.0%.

Next, the comparison of medians with the Mann-Whitney U test for MIH by type of consumption with significant differences is described. Table 1.

Conclusions: It was found that women develop more liver damage and more complications with lower consumption of grams of alcohol.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1.

Factors	Men	Women	P
HTDA- excessive consumption OH	51(56,48)	60 (65,51)	p<0.0001
HTDA- Grams of oH	195(412,180)	135(180,120)	p<0.0001
Water retention- excessive OH consumption	18(19,16)	18(25,18)	p=0.039
Kidney damage- excessive consumption of OH	390(450,312)	107(106,60)	p=0.046.
Hepatitis toxic A- excessive OH intake	52(55,51)	40(47,36)	p=0.09
Encephalopathy- excessive consumption in weight/day	315(357,277)	136(225,88)	p=0.034
ACLF-atracón	50(53,31),	39(43,25)	p=0.025

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Differences in mortality and prognostic scales according to ACLF grade

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Introduction and Objective: ACLF is a syndrome characterized by acute decompensation of hepatic cirrhosis, organ failure(s) and high short-term mortality. The most used diagnostic criteria are those proposed by EASL-CLIF, according to the CANONIC study. This study aimed to compare severity scales and mortality according to ACLF grade.

Materials and Methods: Retrospective analysis of patients with hepatic cirrhosis admitted consecutively to the Gastroenterology Department of CMNO. ACLF diagnosis was made according to EASL-CLIF criteria; patients were followed for 28 days. As to statistical analysis, Anova or Kruskal Wallis was used for continuous variables and Chi-Square for categorical variables. Significance was set at p<0.05.

Results: Of 268 admitted patients with hepatic cirrhosis, 87 (32.4%) met ACLF criteria, of which 45 (51.7%) were female, with a mean age of 61.7 years (10.4 SD). The most common cirrhosis etiology was alcoholic, followed by chronic HCV infection. As to ACLF grade, 40 patients (45.9%) were grade 1, 17 (19.5%) grade 2 and 30 (34.4%) grade 3. Statistically significant differences were found in Child-Pugh, CLIF-C and MELD-Na, as well as in 28 days mortality (p<.0001) and biochemical variables (Table 1).

Discussion: Our study found higher mortality than that reported in other series, probably due to the availability of liver transplants.

Conclusion: ACLF is an entity related to high short-term mortality.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1.- Patient characteristics according to ACLF grade. Variables are reported as mean and standard deviation (SD) or median and interquartile range according to their distribution.

	Grade 1 (n=40)	Grade 2 (n=17)	Grade 3 (n =30)	p-value
Age (y)	61.8 (11.3)	61.2 (10.1)	61.8 (9.4)	.983
Child-Pugh	10 (9-11.75)	11 (9-12.5)	12 (11.75-13.25)	<.0001
CLIF-C	47 (10.6)	51.1 (8.4)	62 (8.7)	<.0001
MELD-Na	24.4 (5.2)	25.3 (7.7)	32.4 (6.7)	<.0001
28 days mortality	16 (40%)	10 (58.8%)	28 (93.3%)	<.0001
Leukocytes × 10^9/L	8.08 (4.75-10.67)	8.5 (6.4-14.6)	11.5 (7.4-18.4)	.02
Creatinine (mg/dl)	2.02 (1.5-2.2)	2.2 (1.5-3.2)	24 (1.5-3.3)	.145
Total bilirrubin (mg/dl)	2.7 (1.5-5.2)	3.1 (1.5-12.8)	10.7 (5.1-17.3)	<.0001
INR	1.4 (1.2-1.8)	1.7 (1.4-2)	2.3 (1.8-3)	<.0001

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Acute-on-chronic liver failure or Alcoholic Hepatitis? In patients with chronic alcoholic liver disease

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Introduction and Objectives: This study aimed to determine if there is an overlap of alcoholic hepatitis and ACLF criteria and if the presence of ACLF predicts a poor prognosis.

Material and methods: Retrospective, cross-sectional, descriptive study of patients with chronic liver disease due to alcohol admitted under the Gastroenterology department (July to December 2021) to whom criteria for alcoholic hepatitis and ACLF were applied. ACLF was defined using the EASL-CLIF criteria. The American College of Gastroenterology criteria were used for the diagnosis of alcoholic hepatitis.

Results: ***Table 1.*** *Characteristics of patients with ACLF and alcohol hepatitis*

Discussion: Alcoholic hepatitis constitutes an acute deterioration of alcoholic liver disease than can transform into ACLF, accompanied by high short-term mortality. Diagnosis and treatment are currently insufficient due to a poor understanding of pathogenesis and the multiple etiologies involved.

Conclusions: There is an overlap in diagnostic criteria for ACLF and alcoholic hepatitis. Half of the patients who presented both entities died, so the presence of ACLF represents a poor prognosis for alcoholic hepatitis.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

			ACLF + alcoholic hepatitis	Alcoholic hepatitis
Demographic data	Male(*n*)		17	7
	Female(*n*)		2	0
	Mean age in years (*range*)		47.5*(25-58)*	53.8*(33-76)*
Clinical data	Type 2 diabetes mellitus		3	1
	Arterial Hypertension		1	0
	Ischemic cardiomyopathy		1	0
	Child-Pugh A		0	0
	Child-Pugh B		1	1
	Child-Pugh C		18	6
	Mean MELD score(*range*)		34.5*(26-42)*	24.5*(13-37)*
	Mean Maddrey's discriminant function (*range*)		88.2*(31-154.7)*	46.7*(16-139)*
	Mean total serum bilirubin (*range*)		16.62 mg/dl(3.19-48.52 mg/dl)	10.52 mg/dl(2.15-43 mg/dl)
	Mortality (%)		9(47.36%)	0(0%)
	Cause of death	SBP	5	-
		Pneumonia	1	-
		Variceal hemorrhage	1	-
		UTI	1	-

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Characteristics of patients with acute over chronic liver failure (ACLF) and risk of mortality due to amount of alcohol, MELD and MELD NA

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Introduction and Objective: To assess patients with ACLF, MELD and MELDNA scales and the amount of alcohol consumption as predictors of mortality.

Materials and Methods: Retrospective, analytical, and retrolective study, the records of patients who met the criteria of ACLF, age, gender, cause of liver disease, degree of ACLF, alcohol consumption, MELD and MELDNA were reviewed, descriptive and inferential statistics were performed, RR was calculated with a p< 0.5.

Results: We included 88 patients, 23 women (26%) and 65 men (74%) of alcoholic origin 62 (70%) and non-alcoholic 26 (30%). By grade of ACLF, 26 (30%) grade I, 41 (47%) grade II, and 21 (24%) grade III. Mortality of 40 (45%), grade I 9 (23%), grade II 17 (43%), and grade III 14 (35%). Deaths in the alcohol group 25 (62.5%) and non-alcohol 15 (37.5%). Pearson correlation calculation was performed death p=0.21 with R1, for MELD NA p=0.15 R2 and MELD p=.003 R3. The grams of alcohol ingested per day ranged from 30 to 1600, with a median of 120.

Discussion: Patients with ACLF in our population are mostly men, of alcoholic origin, with mortality in grade 2 of ACLF of 45%, which is high. The correlation was made with the amount of alcohol they consumed, without finding that it is a factor that impacts the development of ACFL or mortality; this suggests that the inflammatory response is multifactorial, as well as its outcome. The MELD scale better predicts mortality risk.

Conclusions: The amount of alcohol in our population does not increase the risk of mortality.

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Characterization of primary biliary cholangitis in a Mexican population in patients from the *Hospital General de México*

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Introduction and Objectives: Primary biliary cholangitis (PBC) is characterized by the presence of specific antimitochondrial autoantibodies (AMA), antinuclear autoantibodies (ANA), or documented by liver biopsy, treatment with ursodeoxycholic acid (UDCA) has implication in disease progression and survival without a liver transplant. This study aimed to know the clinical characteristics of patients with PBC.

Materials and Methods: Observational, descriptive, longitudinal and retrospective study, case series study. It included patients aged 18 to 80 years seen in the Liver Clinic consultation with a diagnosis of PBC in the Hospital General de Mexico from 2015 to 2022.

Results: Sixty patients were evaluated; 95% were women, the most frequent age of presentation was between the fifth and sixth decade of life, the prevalence of AMA was 95%, the other 5% were diagnosed by liver biopsy or specific ANA, the presence of other antibodies was 26% of which the most frequent, were ANA. Transitional elastography was performed in 68% of the patients and documented significant fibrosis in 68% and some degree of steatosis in 30%. The association with autoimmune diseases is 33%; Sjögren's syndrome and scleroderma are the most representative. Overlap with autoimmune hepatitis was documented in 25%. Osteometabolic disease was present in up to 35%. The response to treatment to AUDC, as measured by the Paris II Score, was 31%.

Conclusions: The clinical characteristics are similar to those described in the literature. The low response rate to UDCA is striking, which is a factor implicated in the progression of the disease, which correlate with the high degree of documented fibrosis.

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Autoimmune hepatitis (HAI) is likely induced by Epstein Barr Virus (EBV) infection

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Introduction and Objectives: HAI is an immune-mediated chronic inflammatory liver condition of uncertain etiology. There are genetic factors and triggering agents such as toxicity, infections, and medications, among others.

Case summary: An 18-year-old woman with nausea, vomiting, abdominal pain and jaundice, positivity for Hepatitis A IgM (IGM-HAV). PCR SARS COV 2 negative, creatinine 0.56, FA 297, GGT 463, DHL 756, INR 1.4 BT 5.32, BI 2.87, BD 2.45, ALB 3.57, AST 136, ALT 135, Hb 8.9, Neutrophils 500. Hematology concludes with hemophagocytic syndrome (SH). HCV AND HBV negative, IGG 1560, ANTI DNA 108, ANA 1:80, IGM-HAV reactive, EBV 29.9125 copies/ml. Cyclosporine is administered by SH. 10 months after she is assessed in the liver clinic for the persistence of transaminasemia. By ultrasound hepatosplenomegaly, without dilation of the bile duct. Liver biopsy reported inflammatory infiltrate of periportal predominance with interface activity, macrovesicular steatosis, without fibrosis, without hemophagocytosis, with biochemical and histological data compatible with HAI with a simplified score of 7 points. (Fig. 1).

Discussion: HAI is associated with positive autoantibodies, hypergammaglobulinemia and necro inflammatory features in histology. HAV and EBV can induce HAI, as it induces autologous antibodies against triose phosphate isomerase. The patient has complicated EBV infection with SH and persistence of IGM-HAV for 11 months. Liver biopsy with autoimmune hepatitis data, probably as a result of EBV infection and false positive for IgM-HAV for EBV coinfection.

Conclusion: A woman with EBV, probable false-positive HAV and EBV-induced HAI is reported.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

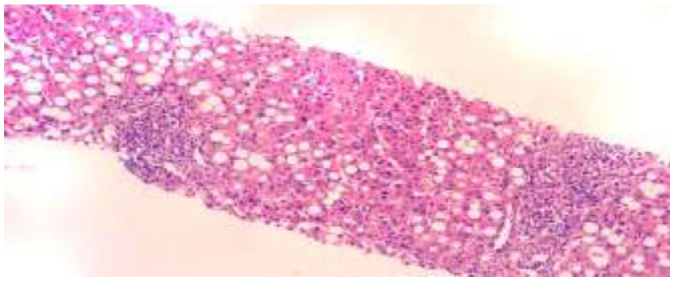

Figure 1. Liver histological cut with hematoxylin eosin 100x. predominantly lymphoid, moderate, portal inflammation with interphase and lobular activity in addition to moderate macrovesicular steatosis.

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Reactivation autoimmune hepatitis report of two cases

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Introduction and Objectives: To present two clinical cases of patients with autoimmune hepatitis (AIH). After infection by SARS-COV2, presented reactivation of the disease.

Materials and methods: 42-year-old female with a history of celiac disease, choledocholithiasis, Arterial hypertension and CACU. Autoimmune hepatitis since 2012 treated with Prednisone, ursodeoxycolic acid and mycophenolic Ac. In March 2022, she presented infection by SARS COV-2 and relapse of AIH due to elevated transaminases; remission was reinduced with prednisone, showing biochemical improvement

48-year-old male history of psoriasis diagnosed with AIH in 2018 under treatment with Prednisone and Azathioprine. In February 2022, he presented a serious infection by SARS-Cov 2, restarting the remission reinduction scheme with prednisone and Azathioprine.

Discussion: In the bibliography consulted, there are no reports about the reactivation of the disease after infection by SARS-CoV-2, although there is a case report for autoimmune hepatitis and an autoimmune hepatitis overlap syndrome/primary biliary cholangitis triggered by COVID-19.

Conclusions: The spectrum of affectations after the pandemic by SARSCOV-2 is still wide, so we consider it important to expose these cases where the history of the infection in the face of an exacerbation by SARSCOV-2; in our experience, remission was reinduced with prednisone and azathioprine of according to international schemes, with good response from patients. We consider it important to report these cases since there is an association between AIH and viral infections such as Epsteinbar, so there may be a clear association between Sarc-cov2 infection and relapse.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1. Biochemical characteristics of the two patients

Patient 1 Date	AST	ALT	IgG	Alkaline phosphatase	BT	platelets
04.11.21	26	48	2765	101	0.5	233
10.03.22	756	1204	4276	183	4.6	200
24.03.22	281	800	4544	174	2.7	35
Patient 2						
25.11.21	102	130	2292	X	1.1	85
28.03.22	638	731	3577	138	10.1	94

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Overlay of autoimmune cholangitis and autoimmune hepatitis

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Introduction and Objectives: The "overlap syndrome" is a variant of autoimmune hepatitis (AIH) in addition to cholestatic liver disease. AIH can present concurrently with primary biliary cholangitis (PBC) 7% to 13%, primary sclerosing cholangitis (PSC) 6% to 11% or autoimmune cholangitis (AIC) 3% to 9%, the rarest and associated with a poor prognosis. Diagnosis requires biochemical alteration, immunological studies and biopsy, plus the exclusion of viral, toxic, metabolic and hereditary etiologies. Therapy, including corticosteroids, ursodeoxycholic acid and

immunosuppressants, should be individualized and guided by the severity of the cholestasis findings.

Materials and Methods: 66-year-old female. She presented in 2018 with the detection of hepatic steatosis, a weight loss of 32 kg in 2 years. Asthenia, adynamia, pruritus and scleral jaundice progressing to generalized. In laboratories: BT 11.37 (BI 8.5), AST 187, ALT 148, GGT 1761, FA 1819, ANAs positive anti centromere 1:40 and Hep-2 cells 1:640, cholangioresonance without data of CEP. Treatment with ursodeoxycholic acid was started, with no response, and a liver biopsy was performed compatible with HAI+CAI, Fig. 1 and 2. We started therapy with prednisone and azathioprine.

Conclusions: Recognizing that AIH and IAC are diseases with high morbidity that progress to chronic liver damage with fibrosis and cirrhosis, their early identification would help in the establishment of timely and effective treatment.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

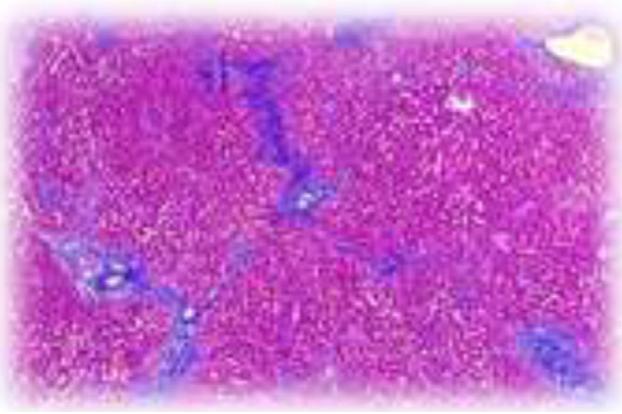

Fig.1: Masson's trichrome stain: fibrous portal expansion with the formation of incomplete portal-port bridges.

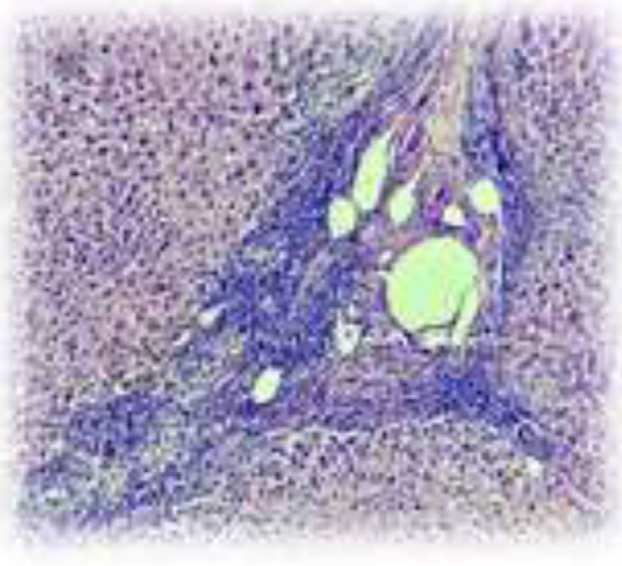

Fig. 2: No bile duct, granulomatous inflammation with inflammatory infiltrate predominantly lymphocytes, plasma cells and epithelioid macrophages that exceed the limiting plaque. Intracellular cholestasis.

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Accuracy of NVP score as a predictor of gastroesophageal varices in primary biliary cholangitis

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Introduction and Objective: The presence of gastro-oesophageal varices (GOV) in patients with primary biliary cholangitis (PBC) denotes a poor prognosis and may precede jaundice and cirrhosis. The appropriate time to begin screening with oesphageo-gastro-duodenoscopy (OGD) is controversial. Recently, non-invasive tools such as GOV predictors in CBP, such as New Castle Varices PBC Score (NVP Score), are cost-effective. This study aimed to determine the accuracy of NVP Score as a predictive tool for GOV in PBC patients.

Materials and Methods: A Cross-sectional, retrospective, observational study of 47 PBV patients who underwent OGD as screening. NVP score was calculated and its accuracy, p-value and AUC were determined.

Results: 47 patients were included; 43 (91.4%) were female, with a median age of 59 years. Initially, 70% of PBC patients had GOV. NVP Score was calculated, with a cut-off of 0.3, establishing sensitivity of 100%, specificity of 50%, PPV of 82.5% and NPV of 100%, p=0.05.

Discussion: GOV prevalence in our population study is high (70%) even in early disease stages due to the presinusoidal component of portal hypertension and other factors. This evidence shows the importance of early GOV diagnosis in PBC patients, using non-invasive tools as a cost-effective strategy.

Conclusions: NVP score is a useful non-invasive tool that accurately predicts the presence of GOV in PBC patients.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

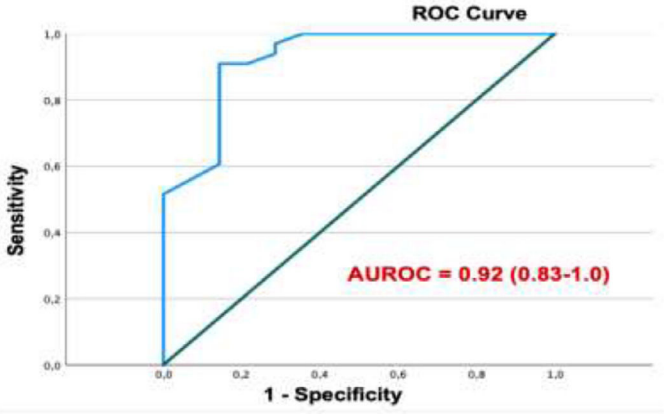

Fig. 1. ROC Curve of the NVP Score

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Trends of autoimmune liver diseases in the University Hospital, UANL for 26 years. A single-center experience in Mexico

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Introduction and Objectives: Autoimmune liver disease (AILD) is one of the main causes of chronic liver disease (CLD). It comprises autoimmune hepatitis (AIH), primary biliary cholangitis (PBC), primary sclerosing cholangitis (PSC), and immunoglobulin G4-associated cholangitis (IgG4-AC). Patients who exhibit features of two or more AILD are classified as overlap syndromes (OS); the most commonly seen is AIH/PBC. The aim of this study was to report trends of AILD in a liver unit (LU) over 26 years.

Material and Methods: Clinical records of patients who attended for the first time to LU, from January 1995 to December 2020 were included. There were 469 patients classified as AILD, and 462 were included, 408 (88%) females, mean age was 48 ± 14 (range. 4 - 78yo). Patients were divided into the three most common AILD: AIH, PBC, and OS. PSC and IgG4-AC were not included because they are very rare in our population. Diagnosis of AILD was made according to international guidelines, considering clinical manifestations, autoantibodies such as antinuclear antibodies (ANA), smooth muscle antibody (SMA), liver-kidney microsomal antibody (LKM), antimitochondrial antibodies (AMA), and when available: type 2 AMA, ANA gp210, liver biopsy, and non-invasive study of liver fibrosis. Inclusion criteria: patients with confirmed or suspected AILD in their first visit to the outpatient clinic. Diagnosis could be confirmed in subsequent visits. Other etiologies of CLD were excluded.

Results: Over 26 years, trends of AILD have increased at the expense of AIH mainly (figure). The distribution of AILD was: AIH 289, PBC 143, and OS 30. Half the patients had cirrhosis (48%) on admission (AIH 58%, PBC 41%, and OS 31%). We found no statistically significant difference between AILD groups in cases and percentage of cases, ($F(2,23) = 3.252$, $p = 0.057$) and ($F(2,23) = 0.996$, $p = 0.385$) respectively. Autoantibodies available on admission were 95% in AIH, 82.5% in PBC, and 93% in OS. In AIH patients, 95% had ANA and/or AML positivity (≤1:40), and 78% (≤1:80), 11% had LKM positive. In PBC patients, 80% were positive for AMA, and of these, 48% had AMA2 positive. OS patients had 68% ANA and 69% AMA positivity. (Figure 1).

Conclusions: The most common AILD seen in a period of 26 years was AIH; a high proportion of these patients had ANA and/or AML positive. Half of the PBC patients with AMA positive were also AMA2 positive. Two-thirds of OS patients exhibited ANA and AMA, confirming AIH/PBC. As in other CLD in Mexico, half the patients had cirrhosis on admission.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

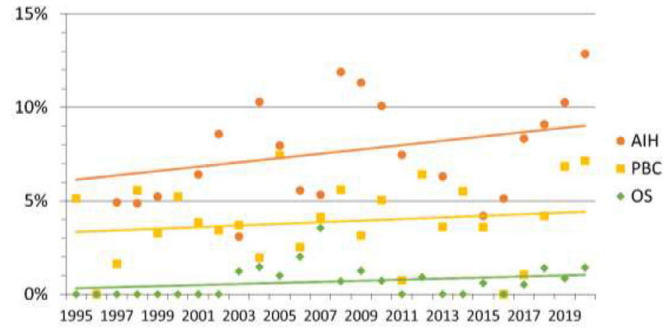

Figure 1. Trends gave in cases/year

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Risk of multiple drug interactions potentially linked to safety in patients receiving pangenotypic direct-acting antivirals for the treatment of Hepatitis C

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Introduction and Objectives: Previous studies have evaluated the risk of drug-drug interactions (DDI) in HCV patients receiving pangenotypic direct-acting antivirals (pDAA), but all are based on pairwise interaction. The aim of the study was to describe the prevalence of the risk of potential multiple DDI (multi-DDI) and its clinical impact in patients treated with pDAAs.

Materials and Methods: Retrospective observational study from a Spanish database of 1.8 million inhabitants, including patients treated with Sofosbuvir/Velpatasvir [SOF/VEL] or Glecaprevir/Pibrentasvir [GLE/PIB] (2017- 2020). Demographics, comorbidities, comedications, and DDIs were evaluated for the pDAA therapy period. The severity and impact of the DDIs were evaluated using the University of Liverpool tool. Additionally, the ICD-9 coding system was used to identify the presence of suspected adverse drug reactions (SADR) during the treatment with pDAAs. An indirect indicator of effectiveness was evaluated (requirement of a new DAA in the six months after the end of the pDAA).

Results: 1620 patients were included; 730 with SOF/VEL (median age: 55 y; 62% men; 37.8% F3/4) and 890 with GLE/PIB (53 y; 60% men; 28% F3/4). The most prescribed drugs were nervous drugs (35.8%), digestive (24.1%) and cardiovascular (14.2%). 77.5% of patients received ≥2 comedications. The number of patients receiving ≥ 2 comedications at risk of multi-DDI with pDAAs was 123 (9.8%, 123/1256), 52 with SOF/VEL and 71 with GLE/PIB. Patients showing increased risk in comedication as a DDI outcomes were 31% (22) with GLE/PIB and 11% (6) with SOF/VEL ($p < 0.001$). The risk of decrease in pDAA with GLE/PIB was 32% (23) and with SOF/VEL 46% (24) (p=NS). Regarding SADR, there was a higher number in the GLE/PIB group (14) vs. SOF/VEL group (4) ($p<0.05$). 84% (16/18) of patients with SADR had a multi-DDI profile. 13% of total multi-DDIs patients showed SADR; GLE/PIB group showed SADR in 18% (13/71) vs. 6% (3/52) in SOF/VEL group ($p < 0.05$). Most SADR were reported with statin group, being the percentage higher in the GLE/PIB group vs. SOF/VEL group ($p < 0.05$).

Both pDAAs showed a similar percentage of patients restarting a new pDAA within the six months after the end of treatment (1.0% and 1.1%, respectively, p=NS).

Conclusions: In Spain, about 10% of HCV patients taking ≥ 2 comedications are at risk of multiple DDI with pDAAs. The potential risk of increased comedication as DDI outcome and the presence of suspected adverse reactions were higher in GLE/PIB in comparison with SOF/VEL.

Funding: The resources used in this study were from the hospital without any additional financing

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Screening program for hepatitis c virus in an open population at a third-level healthcare center

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Introduction and Objective: Worldwide, there are 71 million people with chronic hepatitis C (HCV), and yearly 1,5 million become infected. In Mexico, it is estimated between 400,000 to 600,000 viremic. Among the WHO goals for 2030 is to detect >90% of people with HCV. This study aimed to describe the screening strategy carried out in the open population using two-step HCV screening tests at the Hospital General de México from January to December 2021.

Materials and Methods: Study in an open population that attended the General Hospital of Mexico for any reason, and agreed to take the risk factor questionnaire and underwent a rapid test for the detection of anti-HCV antibodies (RT), which were reactive, load viral (PCR to detect HCV-RNA). Descriptive statistics and the statistical package STATA v.14 were used.

Results: In 2021, 33,523 subjects were examined; 71.5% were women, mean age of 47±10 years. Reported at least one risk factor for HCV 53.5%. The most frequent risk factors were: Multiple sexual partners/history of sexually transmitted diseases (STDs) 36.2%, tattoos/piercings 26.7%, surgery before 1995 20.2%, transfusion before 1994 5.4 % and health workers after accidental puncture 4.2%. Of the 33,523, 0.7% were reactive in RT. Of the reagents in RP, the PCR was positive in 57.9% (prevalence of viremia= 0.4%). Of the viremic patients, the risk factors identified were blood transfusion before 1995 37%, multiple sexual partners/STDs 35%, surgery before 1995 30%, tattoos/piercings 30%, and injected drugs only 3.5%. All viraemic (100%) linked to treatment.

Conclusions: HCV prevalence was similar to that previously reported. Traditional risk factors such as transfusion or surgery remain highly prevalent. Timely diagnosis of HCV allows linkage to treatment.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Use of glecaprevir and pibrentasvir as rescue therapy in patients with resistance to direct-acting antiviral agents

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Introduction and Objective: Hepatitis C virus infection is one of the main causes of chronic liver disease. Treatment with direct-acting antivirals (DAAs) has shown high efficacy in achieving sustained viral response with a low risk of relapse. There are no specific algorithms for treatment in patients with resistance to DAAs). Treatment with Sofosbuvir, velpatasvir and voxilaprevir is suggested for 12 weeks with a sustained viral response of 95%, except in moderate/severe liver disease. There is a combination of sofosbuvir plus NS3 protease inhibitor and an NS5A with favorable results.

Materials and Methods: 65-year-old female, positive smoker, occasional alcoholism. Car accident and transfusion in 1992. Surgeries: hysterectomy and cholecystectomy. Chronic: DM2, irritable bowel syndrome, hypothyroidism under treatment, anxiety disorder treated with venlafaxine and clonazepam. In 2010 Hepatitis C was detected, and he received peginterferon and ribavirin without response. Triple therapy (peginterferon, boceprevir and ribavirin) was used with partial response; he presented relapse. In 2015 she received daclastavir, sofosbuvir and ribavirin with no response. Viral load in 2017 and result of resistance Genotype 1a: polymorphism Q80K (resistance to Simeprevir), mutation V36M (resistance to Boceprevir, Simeprevir, telaprevir and possibly Asunaprevir, Grazoprevir and Paritaprevir), mutation L31V (resistance to Daclatasvir, Elbasvir, Ledipasvir, OmbitaSvir), received Sofosbuvir Velpatasvir 12 weeks post-treatment undetectable viral load, at 24 months detectable viral load, Glecaprevir biprentasvir was indicated for 16 weeks with a sustained viral response; elastography 6.8 kPa, discharge due to healing. The trial was approved by the research ethics committee, and informed consent was obtained.

Conclusions: According to the evidence, there are treatment schemes suggested internationally. However, their availability is not the same in our country, so according to the results obtained in this patient, this rescue scheme with Glecaprevir Biprentasvir is suggested for 18 weeks if there is no response to Sofosbuvir/velpatasvir, and no availability of other DAAs.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

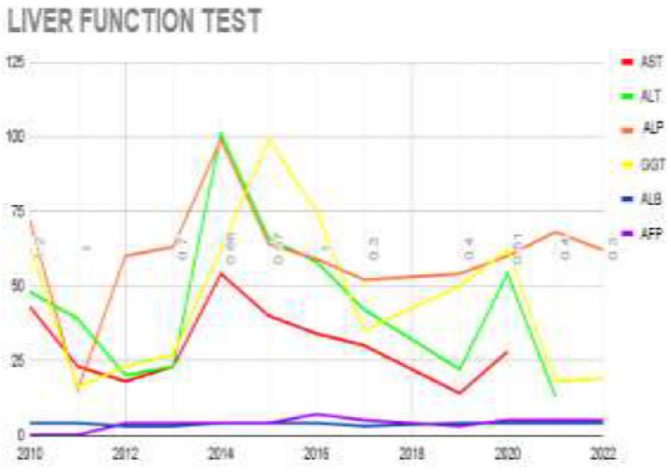

Fig. 1.

Fig. 2

https://doi.org/10.1016/j.aohep.2022.100826

Treatment with nucleoside and nucleotide analogues in patients with chronic hepatitis B virus infection

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Introduction and Objective: This study aimed to compare the efficacy of treatment with entecavir (ETV) and tenofovir (TDF) in patients with chronic hepatitis B infection.

Material and Methods: Cross-sectional, descriptive, retrolective study. Realized in the "Hospital de especialidades Siglo XXI". We included patients >18 years with chronic hepatitis B infection in treatment and follow-up from January 1st, 2015, to March 1st, 2021. Descriptive statistics were performed and to show differences Wilcoxon test was used. Approved by the institutional ethics committee and informed consent was obtained.

Results: We included 33 patients, male gender predominated in 51.5% (17), mean age was 59 years (+/- 11.25). Co-infected with HIV were 18% (6). Median baseline viral load was 2500,00 (3940 – 191500,000 copies/ml). Median baseline APRI 0.3 (0.2-1.6) and FIB-4 1.33 (1.0-2.2). Exposure to previous treatments was 45.8% (16). The mean follow-up was 9.48 years (+/-4.82). Current treatment TDF 60.6% (20), ETV 27% (9). Incidence of hepatocellular carcinoma occurred in 3% (1). At 6 and 12 months of treatment, 69% and 64% (16/23 and 16/28), respectively, with undetectable viral load. There was a difference in baseline APRI compared to current $p < 0.05$; there was no difference in APRI throughout treatment.

Discussion: Treatment is effective for HBV both in chronic infection and liver cirrhosis, maintaining viral suppression with low seroconversion rates and low incidence of hepatocellular carcinoma.

Conclusion: Treatment with nucleotide and nucleoside analogues is effective for the suppression of the hepatitis B virus.

Funding: The resources used in this study were from the hospital without any additional financing

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Spontaneous elimination of the Hepatitis C virus at the *CMN la Raza* specialty hospital

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Introduction and Objectives: This study aimed to estimate risk factors for viral exposure in patients with spontaneous elimination of HCV in the Hepatitis clinic of CMN La Raza.

Materials and Methods: Retrospective, observational, descriptive, cross-sectional and single-center study. Records of patients with antibodies against HCV determined by third-generation ELISA from July 2017 to February 2020 were reviewed; those that did not have sufficient information to carry out the analysis were eliminated, patients with the positive anti-HCV test were selected, confirmatory test with HCV PCR detectable by Abbot's real-time PCR. Risk factors for exposure to HCV and demographic data were collected. The results were analyzed with measures of relative frequencies and obtaining percentages, mean and average.

Results: Sixty patients (12.4%) with undetectable anti HCV+/PCR were included; 22 were men (35%) and 40 were women (65%), mean age of 54.4 years. Risk factors for exposure to HCV were: surgery (90%), transfusions (37%), dental interventions (10%). None presented a clinical picture suggestive of viral hepatitis. Associated comorbidities: systemic arterial hypertension (25%), Diabetes mellitus 2 (14%), obesity (8%).

Conclusions: All the patients studied had risk factors for exposure to HCV, as reported in the literature. A higher frequency of spontaneous elimination of HCV was found in the female gender. All patients with an anti-HCV + test must undergo an HCV RNA test to confirm infection and start antiviral treatment since the spontaneous elimination of HCV is low.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

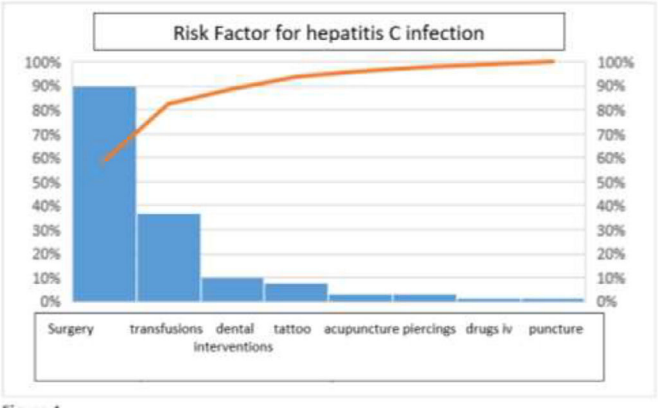

Figure 1.

https://doi.org/10.1016/j.aohep.2022.100828

Incidence and risk factors of Chronic Viral Hepatitis type C in persons deprived of their liberty in the Social Rehabilitation Center (CERESO) of the state of Veracruz

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Introduction and Objectives: People deprived of liberty (PPL) is a key population for the elimination of chronic viral hepatitis c (VHC) by 2030, according to the WHO. The objective of our work is to know the incidence of the prison population in the 17 social rehabilitation centers (CERESO) of the state of Veracruz.

Material and Methods: A descriptive, cross-sectional, observational study was carried out in the 17 CERESOS of the state of Veracruz at 6466 PPL, by means of dry blood test screening. APRI/FIB-4 index, glomerular filtration rate, sexual orientation, HIV, BMI and comorbidities were determined.

Results: The incidence of VHC in PPL was 0.6% (36 patients); 100 were men. 100% were found without HIV. 69 % of PPL reported being users of intranasal or intravenous psychoactive substances (UDIS) 61% had piercings and/or tattoos. 80.6% reported not having a school education or did not mention it, and only 14% had completed primary school. The population with the highest risk comprised the age range between 30 and 39 years (49%). According to APRI, only 14% were staged F3. Only one patient presented F4. Figure 1.

Conclusions: The incidence of PPL in the CERESOS of the state of Veracruz is below that observed in the world literature on the prison population. The low incidence could be explained by having the PPL that declared consumption of 0.4% of having been UDIS, compared to other CERESOS in the north of the country. The presence of VHC was observed in CERESOS with a population of 400 PPL and without the presence of VHC in CERESOS with a population of fewer than 100 PPL, a factor could be overpopulation.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

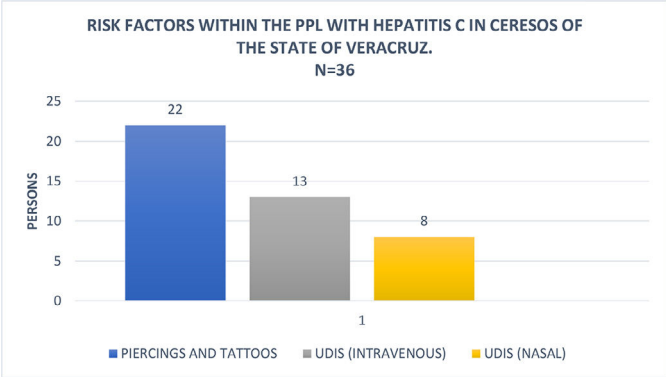

Figure 1.
https://doi.org/10.1016/j.aohep.2022.100829

Detection of Hepatitis C and risk factors in the general population of the *Centro Médico Nacional La Raza*

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Introduction and Objective: Detection of hepatitis C virus (HCV) infection is effective because there is an effective treatment. In Mexico, a seroprevalence of 1.4% is reported for the population, with the main risk factors being transfusion of blood products and unprotected sexual intercourse. This study aimed to detect anti-HCV and risk factors in La Raza National Medical Center.

Material and methods: Observational, longitudinal and descriptive study. A survey of risk factors was applied to the general population, signing informed consent, and a capillary sample was taken to determine anti-HCV with rapid immunochromatographic tests with colloidal gold for qualitative detection. Data were expressed as means, frequencies and percentages.

Results: 279 tests were performed. There were 175 women (62.7%) and 104 men (37.2%), and the average age was 44.3 years. The risk factors were: unprotected sexual contact (n=141, 50.5%), presence of piercings or tattoos (n=86, 30.8%), accidents with sharp material (n=67, 24%), contact with catheters or endoscopes (n=52, 18.6%), sharing razor blades or toothbrushes (n=38, 13.6%), multiple sexual contacts (n=35, 12.5%), contact with HCV-positive patients (n=27, 9.6 %), transfusions before 1995 (n=17, 6%), STDs (n=14, 5%), intranasal drug use (n=8, 2.8%), sexual drug use (n=5, 1.7%) and others (n=19, 6.8%). None was reactive. Figure 1.

Conclusions: No anti-HCV reactive cases were detected. The risk factor, unprotected sexual intercourse, is the main one and the second is the presence of tattoos and piercings, but this did not influence the prevalence.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

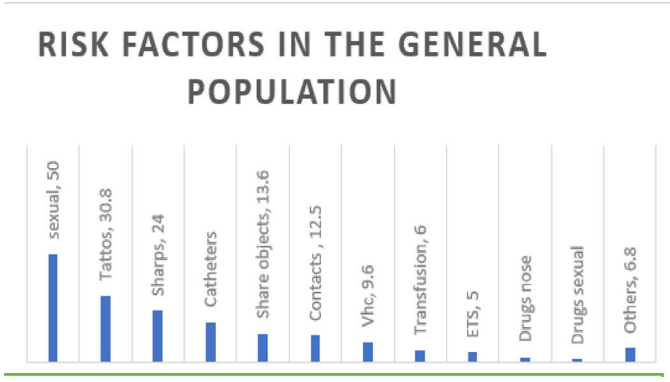

Figure 1.
https://doi.org/10.1016/j.aohep.2022.100830

Metabolic-associated fatty liver disease (MAFLD) is not associated with bone mineral density (BMD) alterations in Mexican women: a cross-sectional study

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Introduction and Objective: This study aimed to determine the association between bone mineral density (BMD) and metabolic-associated fatty liver disease (MAFLD) in Mexican women through a cross-sectional study at a specialized medical center in Mexico City.

Material and methods: Data on cardiovascular risk factors were obtained; transient vibration-controlled elastography (VCTE) and dual-energy X-ray absorptiometry (DEXA) were performed. Patients were divided according to the presence or absence of MAFLD, according to the controlled attenuation parameter (CAP). The correlation test between T-score and CAP values was calculated to analyze the relationship between bone mineral density and MAFLD; additionally, the correlation between MAFLD vs. low BMI was determined and the risk ratio was calculated.

Results: MAFLD prevalence of the women enrolled was 63.33% osteopenia and osteoporosis were present in 43.3% and 6.7%, respectively; the bone mineral density (T-score) of the lumbar spine, hip and femur does not show statistical differences between the groups

(lumbar spine: −0.83 vs. −0.10 p = 0.10; hip: −0.54 vs. −0.04 p = 0.37). The OR calculated it was 0.750 (95% CI: 0.169 – 3.327).

Discussion: We show that MAFLD and low bone mineral density are common diseases in Mexican women under 60 years of age with prevalence rates greater than 40%; however, these diseases are not associated. The results are consistent with previously reported data, showing that BMI is higher in patients with MAFLD, reinforcing the importance of this factor and its impact on both diseases.

Conclusions: A high prevalence of MAFLD was found in Mexican women regardless of BMD status.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

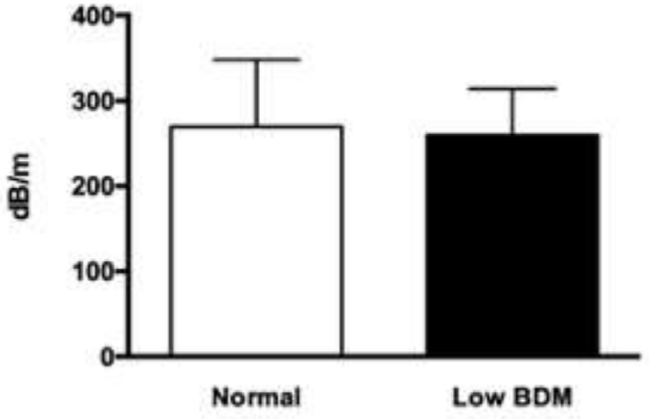

Figure 1. Comparison of the hepatic steatosis degree by means of the controlled attenuation parameter (CAP).
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Mediterranean diet vs. regional diet in a Mexican population with MAFLD: 3-month cohort

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Introduction and Objectives: Metabolic Associated Fatty Liver Disease (MAFLD) is the hepatic manifestation of a multisystemic disease. The Mediterranean diet has been proposed as an effective option in the initial treatment of these patients. The Regional diet is based on traditional Mexican food, favoring the consumption of fiber and antioxidants. This study aimed to compare the Mediterranean diet (MD) versus the regional diet (RD) in patients with MAFLD in a three-month cohort.

Materials and Methods: Prospective, comparative, longitudinal and experimental study in patients diagnosed with hepatic steatosis by ultrasound and transient elastography (FibroScan). Student's T-test was used for related samples for numerical variables. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: Twenty-one patients were studied, mean age of 58.3±8, female gender predominated (57.1%). Two groups were selected randomly; 8 (%) participants were assigned to the MD group and 13 (%) to the RD group. The comorbidities reported were diabetes mellitus (71.4%), followed by systemic arterial hypertension (38.1%). Most participants showed obesity at baseline (61.9%). The group with MD showed a significant reduction in steatosis and visceral fat (p<0.0002); no significant changes were observed in Kpa (p=0.291) (Table 1)

Conclusions: The Mediterranean diet was shown to be effective in reducing intrahepatic fat. The inclusion of foods such as beans, corn, and prickly pear (nopal) should be promoted, reducing the risk of expression of chronic diseases associated with metabolic disorders in Mexico.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1.

	Mediterranean diet		Regional diet	
	Baseline	End	Baseline	End
Visceral fat (%)	**15.6±6.9****	**14.6±6.3****	13.5±4.3	21.1±25
Total fat (%)	36.3±5.2	33±5.9	40±6.9	41.340±7.5
Weight (kg)	84.8±18	82.4±16	79.9±11	76±12
BMI	30.1±5.9	29.5±5	34.1±5.6	31.1±4.8
Systolic BP (mmHg)	122.3±16	118±11	130.7±14	128.7±13
Diastolic BP (mmHg)	72±10	76±5.3	75.1±10	79.1±10
Cap	**293.8±39****	**245.8±28****	294.4±52	280.1±53
Kpa	7.6±8.4	7.5±6.6	6.1±1.9	7.5±3.4
AST (U/L)	25.5 ± 10.8	18.8 ± 3.5	**39.3 ± 21.6****	**27.84 ± 8.3 ****
ALT (U/L)	33.33 ± 12.1	21.7 ± 8.0	40.7 ± 26.4	27.05 ± 9.4
GGT (U/L)	41.83 ± 22.4	31.5 ± 21	53.6± 0.16	45.35 ± 24.3
Glucose (mg/dL)	103.50 ± 18.0	100.5± 11.2	109± 0.06	104.96 ± 15.5
Triglycerides (mg/dL)	190.66 ± 144.4	140.9± 52	152.1± 0.13	132.52 ± 31.2
Cholesterol (mg/dL)	201.66 ± 52.5	168± 61	199.6± 48.9	182.73 ± 23.4
Platelets (mcL)	256.83 ± 30.6	258.5± 41.7	241.3± 48.8	238.90 ± 37.1
Albumin (g/dL)	4.24 ± 0.7	4.5± 21.7	4.4± 28.2	4.40 ± 0.3
Globulin (g/dL)	2.76 ± 0.7	2.9± 0.71	2.6± 0.36	2.75 ± 0.2

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Prevalence of non-alcoholic fatty liver disease in apparently healthy blood bank donors: metabolic, alcohol, and combined damage

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Introduction and Objectives: This study aimed to determine the prevalence of non-alcoholic fatty liver disease due to alcohol consumption and combined damage in the healthy population of the blood bank of the Hospital General de México "Dr. Eduardo Liceaga."

Material and Methods: Prolective, cross-sectional, descriptive, and analytical study. We included donors ≥18 years old. We excluded subjects with known liver disease. Transient vibration-controlled hepatic elastography was the method of estimation of hepatic steatosis and fibrosis. We used descriptive statistics.

Results: We included two hundred fifty-eight donors, 129 (50%) have fatty liver disease. 67 (25.96%) had non-alcoholic fatty liver disease, 31 (12.01%) had alcoholic fatty liver disease, and 31 (12.01%) had combined damage. In the metabolic damage group,

S1 steatosis was found in 14 subjects (20.90%), S2 in 23 (34.32%), and S3 in 30 (44.78%). Of the alcohol damage group, 12 (38.70%) had S1, 5 (19.35%) S2 and 13 (41.95%) S3. 100% of donors with combined damage present S3 steatosis. Advanced fibrosis was found in 3 (4.47%) donors with metabolic damage, 1 (3.22%) with alcohol damage, and 2 (6.45%) with combined damage.

Discussion: One out of two healthy subjects had fatty liver disease. Non-alcoholic fatty liver disease was the most common, while alcohol and combined damage were equally prevalent. These subjects are a sample of the Mexican population that could represent the behavior of the population of our country.

Conclusions: Fatty liver disease was found in all three groups but with predominance in the metabolic damage group. Undiagnosed advanced fibrosis was found in a small percentage of the apparently healthy population.

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Changes in physical activity and its impact on MAFLD during the COVID-19 pandemic

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Introduction and Objectives: Multiple factors, such as diet and physical activity, are involved in the pathogenesis of fatty liver associated with metabolic dysfunction (MAFLD). After confinement by COVID-19, interest has arisen to study its effect on the population. This study aimed to describe the impact of changes in physical activity during the COVID-19 pandemic on the progression of MAFLD.

Materials and Methods: Observational, analytical, retrospective, longitudinal and comparative study in patients with MAFLD from the Instituto de Investigations Médico Biologicals of the Universidad Veracruzana. The information was obtained from a database from which values of steatosis, fibrosis and degree of physical activity measured by IPAQ were obtained. Student's t-test for related samples was used for numerical variables.

Results: Thirty-four patients were studied, of which 15 were excluded due to incomplete records. Nineteen patients were included; the mean age was 60.42±8.1 years, female sex was predominant (57.9%). Initial somatometric data are described in Table 1. A significant increase in physical activity in minutes per week was observed (p=0.037), as well as the reduction of intrahepatic fat after the pandemic (Fig.1).

Conclusions: The results demonstrate that during the COVID-19 pandemic, our population increased physical activity, which resulted in an improvement in hepatic steatosis significantly.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1. Baseline and two-years after pandemic characteristics in MALFD patients

	2019	2021
Weight (kg)	80.3632±13	81.2921±14.8
Height (m)	1.5853±0.1	1.5853±0.1
BMI	32.093±5.1	32.337±5.7
BMI scale		
Normal	1 (5.3)	1 (5.3)
Overweight	6 (31.6)	7 (36.8)
Obesity	12 (63.1)	11 (57.9)
Body fat (%)	**43.19±6.9**	**36.2±7.2****
Lean muscle mass (%)	**56.93±7.2**	**31.1±8.7**
kPa	8.079±4.0	7.016±5.4
CAP	**314.58±32.1****	**294.79±39.1****
Physical activity (min per week)	**130±26.5****	**349.4±99.5****

** p=0.05
Min per week: Minutes per week

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Association between hypothyroidism and non-alcoholic fatty liver disease

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Introduction and Objectives: Association between hypothyroidism and non-alcoholic fatty liver disease (NAFLD) is controversial. The aim of the study was to evaluate the association between levels of thyroid stimulating hormone (TSH) and NAFLD.

Material and Methods: This is a cross-sectional study of patients who attended at check-up unit. NAFLD was evaluated by the controlled attenuation parameter (CAP). Also, patients were classified by metabolic dysfunction-associated fatty liver disease (MAFLD) criteria. TSH levels were divided into three different cut-off points (>4.5, >3.1 y >2.5). Associations between THS, NAFLD and MAFLD were evaluated by univariate and multivariate logistic regression analysis.

Results: Three thousand seven hundred forty-one patients were included, 59% (n=2211) were male, mean of age and body mass index were 48 [43-55] years and 25.9 [23.6-28.6] kg/m2.44.5% (n=1664) of patients were diagnosed with NAFLD meanwhile, 1% (n=37) presented significant liver fibrosis. In multivariate analysis, TSH levels did not show an independent association with the presence of NAFLD or MAFLD (Table). According to different cut-off points, patients with high levels of TSH presented similar risks for NAFLD to the general population (presence of metabolic syndrome and high-fat percentage).

Discussion: There is evidence of an association between hypothyroidism and NAFLD. However, liver steatosis is diagnosed by abdominal ultrasound. This is the first study that evaluates steatosis by CAP.

Conclusion: TSH levels are not associated with NAFLD or MAFLD; patients with high TSH levels have the same risk for NAFLD as the general population.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table. Association between TSH and NAFLD/MAFLD.

Characteristic	NAFLD				MAFLD			
	Univariate OR (IC 95%)	p	Multivariate OR(IC 95%)	p	Univariate OR (IC 95%)	p	Multivariate OR (IC 95%)	p
Male	2.1 (1.8-2.4)	**			1.5 (1.2-1.82)	**		
MetS	5.1 (4.2-6.1)	**	1.6 (1.2-2.1)	**	3.1 (2.5-3.8)	**	1.6 (1.2-2.1)	**
TSH >4.5	1.2 (0.9-1.5)	0.11			1.3 (0.9-1.8)	0.09		
TSH >2.5	1.1 (1.0-1.3)	**0.01**			1.2 (1.0-1.4)	**0.03**		
TSH >3.1	1.2 (1.0-1.4)	**0.002**			1.2 (1.0-1.5)	**0.01**		
% fat >29.8	2.2 (1.9-2.6)	**	2.2 (1.6-2.9)	**	1.8 (1.5-2.1)	**	2.0 (1.4-2.8)	**

** p≤0.001; NAFLD non-alcoholic fatty liver disease; MAFLD metabolic dysfunction-associated fatty liver disease; MetS metabolic syndrome; TSH thyroid stimulating hormone.

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Prevalence of high-risk non-alcoholic steatohepatitis according to the fast® index in a group of diabetic patients

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Introduction and Objectives: Diabetes is a high-risk condition for the progression of metabolic fatty liver disease (MAFLD). The FAST index combines the result of transition elastography (Fibroscan®) and AST levels and is used to predict the risk of suffering from non-alcoholic steatohepatitis (NASH) with a high risk of progression (NAS >4, F>2). This study aimed to know what proportion of diabetic patients is at risk of suffering from high-risk NASH according to the FAST® index.

Materials and Methods: Observational, transversal study to estimate prevalence. Diabetic patients who agreed to perform Fibroscan® and liver biochemical profile were included, and the FAST® index was calculated (<0.35 without risk; ≤ 0.35 to <0.67 indeterminate; ≥ 0.67 high-risk NASH). Descriptive statistics were used.

Results: One hundred fifty diabetic patients were included; 106 (70.7%) women; mean age 56.5±10.5 years. According to the steatosis degree by controlled attenuation parameter (CAP): S0=71(47.3%), S1=14(9.3%), S2=29(19.3%), S3=36(24%). According to the fibrosis degree (KPa): F0=82(54.7%), F1=4(2.7%), F2=8(5.3%), F3=9(6.0%), F4=47(31.3%). According to the FAST index: without risk= 96 (64%), indeterminate= 24 (16.0%), and with high risk= 30 (20%). There was no correlation between the HbA1c levels, diabetes evolution, obesity degree, or the presence of dyslipidemia.

Conclusions: The NASH high-risk progression's prevalence is high in diabetic patients; The factors that determine this risk in this population are still not clear, but timely detection strategies are required to efficiently identify this subgroup of patients. The FAST index is a relatively accessible tool that, due to its non-invasive nature, could be an alternative to liver biopsy for decision-making when starting specific therapy with action at histological liver changes in NASH.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Manifestations of SARS-COV-2 in patients with chronic liver disease

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Introduction and Objectives: This study aimed to analyze the degree of severity of SARS-CoV-2 infection in patients with the previous chronic liver disease through clinical, laboratory and histological variables.

Materials and Methods: From November 2021 to July 2021, at the Valentín Gómez Farías Hospital, a Gastroenterology service, 70 patients were treated with prior informed consent and endorsed by the ethics committee. For this study, 51 individuals with chronic liver disease and diagnosis of SARS-CoV-2 were included: 25 with steatohepatitis and 26 with liver cirrhosis. The following findings were observed:

Results: Histological findings:

- Micro vesicular steatosis.
- Mild mortal and lobular inflammatory activity.
- High viral load in the vascular endothelium (48 to 53%) and cytopathic effect of the SARS-CoV-2 virus.
- Ischemia due to hypoperfusion mainly due to myocardial injury.
- Immune hyperactivation.
- Drug-reactive liver injury.
- Apoptosis

Discussion: The COVID-19 pandemic is more severe in vulnerable patients, mainly older adults, male gender and comorbidities such as hypertension, diabetes, nephropathy, heart disease, lung disease, immunosuppression and patients with liver disease. Of these, 60% have severe symptoms and a mortality of 34%.

Conclusions: COVID-19 is the leading cause of death in Mexico. High-risk entities in this viremia are of great global prevalence. Steatohepatitis (NASH) and liver cirrhosis predispose high mortality and complications, possibly evidenced by these clinical evaluations and hepatic laboratory tests.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1. Demographic, biochemical and symptomatology characteristics of the two groups

Previous pathologies	Steatohepatitis	Liver cirrhosis
Age	55.64	60,84
Gender	72% women - 28% men	42% women – 58% men
BMI	30.76	27.84
Comorbidities		
Overweight/obesity	100%	100%
DM 2	31%	20%
Alcoholism	0%	27%
Autoimmune disease	0%	4%
Laboratory		
AST	42.24	56.76
ALT	50.25	69.90
DHL	308.2	315.6
Platelets	170	100.38
Ferritin	496.24	592.5
D-dimer	530.54	1,064
Lymphocytes	35.2	29.96
ESR	32.32	30.06
PCR	49	47.03
Oxygen saturation	85.24	85.69
Clinic:		
Cough	16 (64%)	14 (54%)

(*continued*)

(*Continued*)

Previous pathologies	Steatohepatitis	Liver cirrhosis
Dyspnea	13 (52%)	12 (46%)
Pneumonia	5 (20%)	8 (32%)
Asthenia	6 (24%)	6 (24%)
Fever	2 (8%)	13 (52%)
Headache	3 (12%)	8 (31%)
Anosmia	1 (4%)	1 (4%)
Shivers	1 (4%)	1 (4%)
Arthralgia	3 (12%)	2 (8%)
Diarrhea	1 (4%)	2 (8%)

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Pilot study: management with pentoxifylline in patients with chronic liver disease and COVID-19

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Introduction and Objectives: This study aimed to improve the response to adjuvant treatment with pentoxifylline in patients with SARS-CoV-2 and previous chronic liver disease.

Materials and Methods: In the ISSSTE hospital of Zapopan for eight months, 51 patients with moderate to severe SARS-CoV-2 and chronic liver disease, 26 with cirrhosis and 25 with steatohepatitis were evaluated, with prior informed consent and endorsed by the ethics committee. They were administered pentoxifylline 400 mg for 28 days, in addition to supportive measures such as paracetamol 750 mg, celecoxib 100 mg, or anticoagulants (enoxaparin) in patients with D-dimer > 600 mg/dL and supplemental oxygen in patients with saturation < 90. Clinical, laboratory and mortality variables were analyzed. The trial was approved by the research ethics committee, and informed consent was obtained.

Results: They were patients with Covid-19 plus cirrhosis and steatohepatitis. They survived 100%, after 28 days of driving, in addition to avoiding admission to intensive care.

Discussion: Pentoxifylline is a methylxanthine with antioxidant, hemorheological, anti-inflammatory and immunomodulatory properties since it inhibits NF-KB (via JAK/STAT and 1KB), pro-inflammatory cytokines, phosphodiesterase, in addition to stimulating anti-inflammatory cytokines, interferon-gamma, growth factors, TGF beta and granulocyte growth factor. Also, antiviral, as in Japanese encephalitis virus, vaccine virus, Rotavirus, HPV, respiratory syncytial virus, HIV, HCV, etc.

Conclusions: This viremia is severe in vulnerable groups, particularly liver diseases. It is inferred that Pentoxifylline may be alternative management, as manifested in this group of patients who managed to survive. So, we suggest multicenter and randomized studies to know their real benefit.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1. Demographic, biochemical and symptomatology characteristics of the two groups

Previous pathologies	Steatohepatitis	Liver cirrhosis
Age	55.64	60,84
Gender	72% women - 28% men	42% women – 58% men
BMI	30.76	27.84
Comorbidities		
Overweight / obesity	100%	100%
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Alcoholism	0%	27%
Autoimmune disease	0%	4%
Laboratory		
AST	42.24	56.76
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Platelets	170	100.38
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PCR	49	47.03
Oxygen saturation	85.24	85.69
Clinic:		
Cough	16 (64%)	14 (54%)
Dyspnea	13 (52%)	12 (46%)
Pneumonia	5 (20%)	8 (32%)
Asthenia	6 (24%)	6 (24%)
Fever	2 (8%)	13 (52%)
Headache	3 (12%)	8 (31%)
Anosmia	1 (4%)	1 (4%)
Shivers	1 (4%)	1 (4%)
Arthralgia	3 (12%)	2 (8%)
Diarrhea	1 (4%)	2 (8%)

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To present a clinical case of a 52-year-old female patient with a diagnosis of pyogenic liver abscesses

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Introduction and Objectives: a case of pyogenic abscesses is presented

Case Summary: 52 years old woman begins her condition with pain in the right hypochondrium, with an intensity 3/10, which increases with inspiration. She also refers to pain in the epigastrium, of postprandial onset, exacerbated by diet. Upon examination, she found the patient to be calm, cooperative, and well-oriented in her three neurological spheres, norm reflexes pupils, and oral mucosa well hydrated. Cylindrical neck, no lymph nodes, cardiopulmonary without compromise. Globose abdomen at the expense of panniculus adiposus, peristalsis present, pain on superficial and deep palpation in the right hypochondrium. Whole limbs.

Results: Treatment was started with metronidazole 500mg IV every 8 hours and ceftriaxone 1g IV every 12 hours for 28 days. The patient shows decreased pain in the right hypochondrium and clinical improvement, so it is decided to discharge her at the end of the month.

Discussion: Starting treatment in a timely manner in the patient reduces the number of complications such as the acute abdomen, occlusion of the hepatic veins, and occlusion of the inferior vena cava.

Conclusion: Starting early antibiotic therapy allows us to improve the prognosis of our patients with pyogenic liver abscesses, reducing morbidity and mortality.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest

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Acute liver failure and experience with therapy using the molecular absorbent recirculation system (MARS)

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Introduction and Objective: Acute liver failure (ALF) is a cause of urgent liver transplantation (LT). The molecular absorbent recirculation system (MARS) is an extracorporeal liver replacement device, considered bridging therapy for LT.

Case report: 24-year-old man with no relevant history was admitted due to asthenia, adynamic, hyporexia, jaundice, oral intolerance and transaminasemia. His laboratory studies are shown in Table 1 and include positivity for IgM hepatitis A (HAV). Other causes are excluded. Development of ALF with two minor criteria (King's College), received N-acetylcysteine, without response, management with MARS/PRISMA is started, one session (initial dialysate 1300 mL, increasing to 1800 mL, maintaining a flow of 150 mL/L, and eight bottles of 25% albumin (400 mL)). His evolution towards neurological, hepatic, and renal improvement. Discharged for improvement.

Discussion: MARS therapy is based on removing molecules, including medium-sized ones, especially those that are binding by albumin and, therefore, cannot be purified conventionally. The relative simplicity, the good tolerance and the results obtained so far make MARS the most promising alternative. There is some experience with the use of MARS in ALF due to HAV.

Conclusion: MARS therapy is useful in the management of patients with ALF due to HAV; its use has shown positive results impacting patient survival and even, in some cases, avoids liver transplantation. The number of sessions will depend on the clinical response.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1 Laboratory values before and after the use of MARS therapy.

	Before	After
Hemoglobin (g/L)	17.90	13
Leukocytes (cell/10^3)	10.4	6.10
Platelets (cell/10^3)	213	207
Glucose (mg/dL)	86	71
Creatinine (mg/dL)	3.2	1.93
Total bilirrubin (mg/dL)	16.1	10
Direct bilirrubin (mg/dL)	14	5.8
ALT (U/L)	2409	824
AST (U/L)	772	257
ALP (U/L)	110.5	77
GGT (U/L)	501	136
ALB (g/dL)	3.90	2.8
INR	3.4	1.1
PT (Sec)	36.9	21.8
aPPT (Sec)	45	31
	Hepatitis A virus IgM	

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Congenital hepatic fibrosis as a rare cause of non-cirrhotic portal hypertension

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Introduction and Objective: a case of congenital hepatic fibrosis is presented

Case report: A 19-year-old female with a medical story relevant only to epistaxis of 3 years long was referred to the liver clinic because of thrombocytopenia and transaminasemia. She denied data of decompensated advanced chronic liver disease and hepatic transition elastography was performed: S0 224, F4 (19.9 kPa). Portal Doppler ultrasound was performed: a diffuse liver disease with hepatomegaly, signs of portal hypertension, splenomegaly and ascites, and probable thrombosis of the distal splenic vein. Given the suspicion of hereditary thrombophilia, a genetic profile was requested (negative Leiden Factor V PCR, negative JAK 2 PCR, negative lupus anticoagulant, normal antithrombin III, normal protein C, normal protein S). Abdominal-pelvic angiotomography was performed: enlarged liver with no focal lesions, no dilatation of the bile duct, adequate permeability of the portal venous system, and enlarged spleen. The rest of the antibodies and tests for congenital metabolic disorders were requested (normal ANAS, normal ASMAs, normal Anti LKM1, normal AMA, normal IgG, normal ceruloplasmin, normal urine copper, low ferritin, normal transferrin). Active infection by hepatitis B, C and HIV viruses was ruled out. During follow-up, the patient developed variceal gastrointestinal bleeding, endoscopic variceal ligation was performed and management with a non-selective beta-blocker was initiated. A percutaneous liver biopsy was performed, reporting in histopathology: morphological changes consistent with malformation of the ductal plate of a congenital hepatic fibrosis type.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Sclerosing cholangitis associated with IgG4 disease. Case Report

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Introduction and Objectives: This study aimed to present the case of a patient with sclerosing cholangitis and autoimmune pancreatitis associated with IgG4 disease.

Materials and Methods: A 44-year-old male with a history of allergic rhinitis, diabetes, and dyslipidemia. His clinical picture began with diffuse abdominal pain and jaundice; on physical examination, jaundice, a painful abdomen in the right upper quadrant and hepatomegaly. Liver biochemistry with transaminasemia and cholestasis. In auxiliary studies US with bile duct dilatation of 12.4 mm, ColangioMR was performed, reporting concentric wall thickening in T2 of the intra and extrahepatic bile duct that condition focal stenoses of the right hepatic duct and intrahepatic bile duct approximately 16 mm from the ampulla, conditioning segmental dilatations of the common hepatic and extrapancreatic bile duct up to 8.9mm. According to these findings, IgG4 serum levels were requested, reporting 1200mg/dl. Steroid treatment was started, presenting a favorable response.

Discussion: IG-G4-related disease is an autoimmune relapsing chronic multiorgan fibroinflammatory syndrome. Its maximum incidence is in Japan, with 336 to 1300 patients diagnosed/year; the estimated prevalence is 62/million subjects between 50 and 70 years of age. The main and most commonly affected organs are the pancreas, bile duct, salivary and lacrimal glands, retroperitoneum and lymph nodes.

Conclusions: The relevance as Gastroenterologists recognize the disease associated with IgG4 because of the multi-organ involvement as part of the approach to a patient with jaundice syndrome; despite the low prevalence reported in our country, knowing this entity will make its timely treatment and subsequent recognition easier in other patients.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

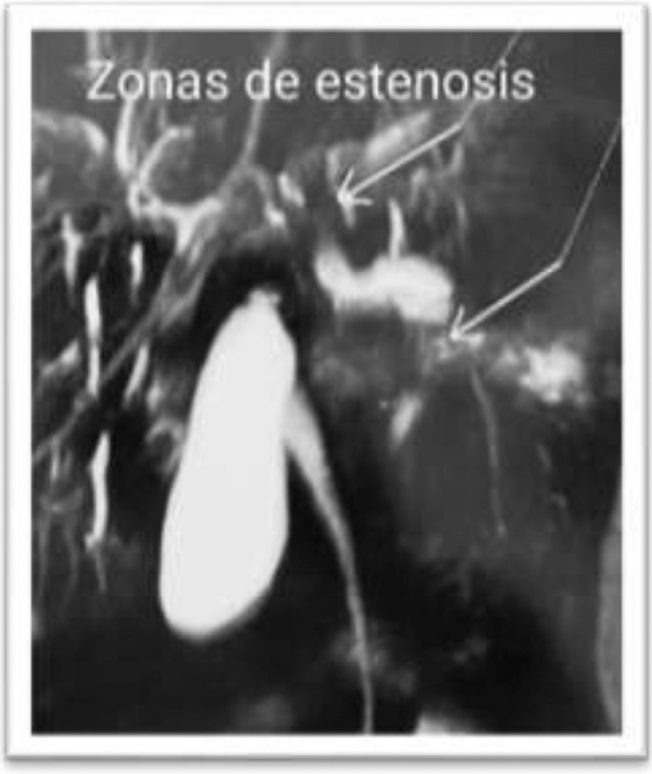

Figure 1.
https://doi.org/10.1016/j.aohep.2022.100842

Giant simple hepatic cyst, when and how to treat it

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Introduction and Objective: Hepatic cysts are rare, with a prevalence between 0.1 to 0.5%. They are divided into parasitic and non-parasitic, being more common than the last ones. They can be subdivided into simple (<5% of the population) or multiple.

Case Report: 46-year-old woman with no relevant history. She comes due to an increase in abdominal perimeter of 4 months of evolution and weight loss of 9kg in 4 months; asthenia, adynamia, early satiety, postprandial fullness and abdominal pain in the right upper quadrant, oppressive, intensity 9/10, exacerbated by mobilization. CT scan with a giant liver cyst of 219 × 166 × 239mm, a volume of 4544cc. Alkaline phosphatase and GGT >3 times their normal value. She was admitted for percutaneous drainage placement, with a total output of 7480cc and biochemical and clinical improvement, without complications.

Discussion: Simple cysts occur in people over 40 years of age, more frequently in women (4:1 ratio). The differential diagnosis includes liver abscess, tumor, hemangioma, hematoma, parasitic cyst, and polycystosis. They are easy to distinguish by image as they are well-defined; they contain serous fluid and lack septa, papillary projections, and calcifications. They are considered giants when measuring>5 cm and their treatment is only indicated in symptomatic patients, with pain being the usual. Percutaneous drainage has little morbidity and improves compression symptoms. However, recurrence is high (almost 100%), so the administration of a sclerosing agent is recommended.

Conclusions: Conservative procedures have high recurrence rates, so systematized laparoscopic surgery is a good option for definitive treatment.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

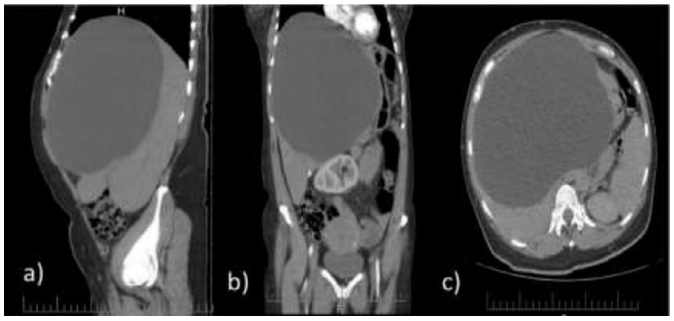

Figure 1.
https://doi.org/10.1016/j.aohep.2022.100843

Symptomatic giant cavernous hemangioma as an indication for liver transplantation

IA García Espinosa, FI García-Juárez, VM Páez-Zayas, JL Pérez-Hernández, F Higuera-de-la-Tijera

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Introduction and Objective: Hepatic hemangiomas (HH) are the most common primary benign tumors of the liver, more frequent in women, attributed to estrogens. Its size can reach up to 30 cm, being considered giant when it measures >4 cm.

Case Report: A 65-year-old woman with giant cavernous hemangiomas as an incidental finding on liver USG. The abdominal MRI established the diagnosis by spotting two intrahepatic lesions, one of the right lobe occupying all the segments, measuring 18.5 × 16.6 × 15.7 cm, with a volume of 2527.6 cc; another in the left lobe of 7.8 × 7.8 × 6.5 cm, the volume of 206.8 cc; hypointense on T1 sequence, hyperintense on T2, with enhanced contrast medium in the periphery, later it is centripetal, with focal areas without enhancement at 20 minutes.

Physical examination: painful swelling in the left hypochondrium up to the anterior axillary line and epigastrium. Increased alkaline phosphatase and GGT. Surgical management is contraindicated due to the characteristics of the lesion. We decided to send her for a liver transplant.

Discussion: Histologically, they are vascular malformations characterized by caverns covered by a single layer of endothelium. The gold standard is MRI, where we observe peripheral nodular enhancement followed by central enhancement in a well-defined homogeneous mass. Surgical management is indicated in the symptomatic giant HH, with an increase in size or suspicion of malignancy. They

require LT if the interventions such as embolization or resection fail to control the disease.

Conclusions: Giant HHs should be treated if they cause symptoms and may require HT when they are unresectable or have complications such as coagulopathy, risk of rupture, or failure of previous management.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

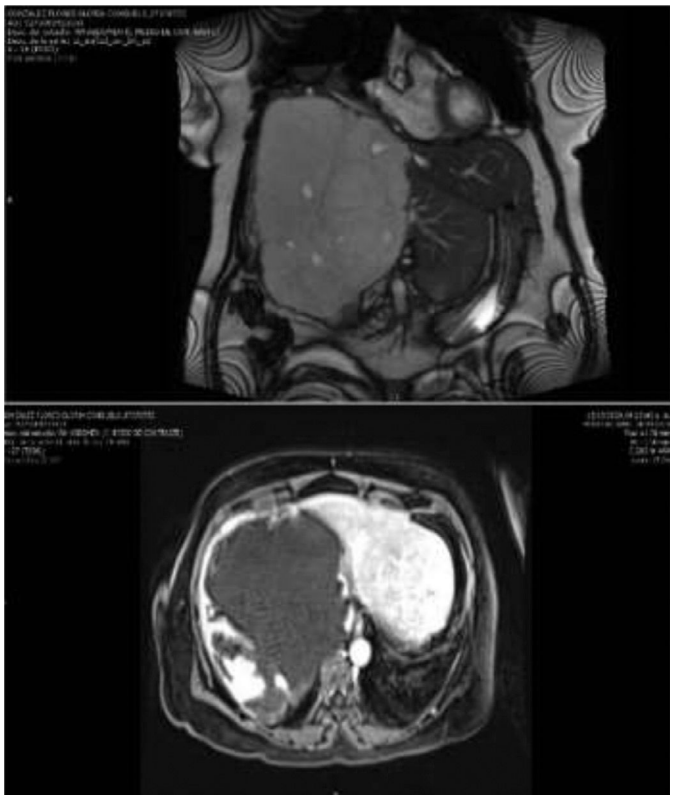

Figure 1.
https://doi.org/10.1016/j.aohep.2022.100844

Tyrosinemia in a toddler, a case report

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Introduction and Objectives: This study aimed to present the case of a toddler with acute-on chronic liver failure probably related to tyrosinemia.

Case Summary: a two-year four-month-old male infant presented with gastroenteritis, which three days later was initiated with jaundice and drowsiness. On physical examination: jaundice, hematemesis, abdominal distention and hepatomegaly ($3 \times 2 \times 2$cm). Laboratory results: pancytopenia, incalculable coagulation test, hydroelectrolytic disorders, hyperbilirubinemia, increased transaminases, hyperammonemia, lactic acidosis, and negative viral hepatitis panel. Abdominal USG: liver with irregular borders, starry sky appearance, increased echogenicity of the right kidney and free fluid compatible with cirrhosis. He died on the second day of hospitalization with a diagnosis of multiple organ failure secondary to fulminant hepatic failure. A liver wedge biopsy reports chronic liver disease, severe acute activity, and fibrosis. Histological image is compatible with tyrosinemia. Newborn metabolic screening, without result.

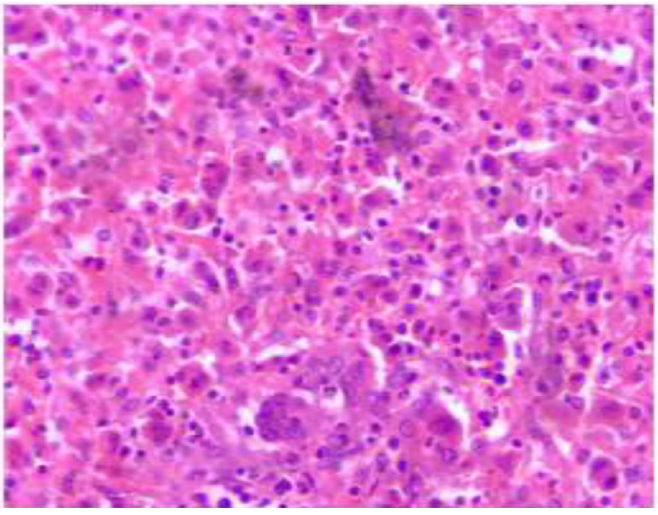
Discussion: Type I tyrosinemia (hepatorenal) is an autosomal recessive aminoacidopathy caused by a deficiency of the enzyme fumarylacetoacetate-hydrolase, generating accumulation of metabolites fumarylacetoacetate and maleylacetoacetate leading to hepatic cell damage. Its prevalence is 1:100,000, debuting with liver failure, coagulopathy, gastrointestinal bleeding, jaundice, ascites, hepatomegaly, hypoglycemia and peripheral neuropathy. In this case, the patient was admitted with hepatopathy of unknown etiology; most likely, pathologies were ruled out, and finally, with suspicion of a metabolic disorder, he died before confirming the diagnosis with a compatible biopsy and clinical picture.

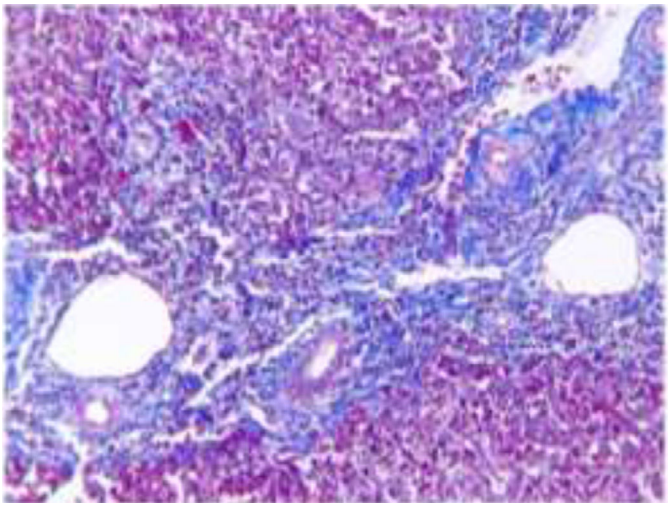
Conclusion: Tyrosinemia belongs to the group of inborn errors of metabolism; although rare, its early diagnosis can be made through newborn metabolic screening, improving its prognosis and survival, as it is unfavorable in advanced stages.

Declaration of interest: The authors declare no potential conflicts of interest.

Table 1. Evolution of biochemical data

	02.09.2021	03.09.2021	04.09.2021
Hemoglobin	13.7		10.2
Hematocrit	40.1		32.3
Leukocytes	22.26		3.08
Neutrophils	77%		30%
Band cells	21%		10%
Platelet	211,000		56,000
PT	No coagula		33
PTT	No coagula		47.4
D-dimer	791		
Total bilirubin	15.4	15.4	11.1
Direct bilirubin	8.9	8.4	6.2
Indirect bilirrubin	6.5	7	4.9
AST	2435	1145	753
ALT	2012	1103	680
HDL	655	692	1326
Ammonia	569.6	961	
Sodium	136		152
Potassium	4.2		2.2
Calcium	8.3		11.3
Glucose	9	****	
Urea	19.26	27.82	
Creatinine	0.58	0.80	
Uric acid	8		
Arterial blood gases			Ph:6.76 PCO2: 43.4 HCO3: 6.1 BE: -28.2 Lact: 28.96





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Post-infantile giant cell hepatitis, management, six-year follow-up and re-transplantation, a successful case report during the pandemic

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Introduction and Objectives: HCG is a relatively common histological finding in newborns. In children, it presents with cholestasis, hyperbilirubinemia and inflammation; in the adult population, it remains poorly defined, with only 100 cases published in the literature during the last three decades.

Materials and methods: We present the case of a 20-year-old female patient with a history of herbal medicine and valproate, debuting six years ago with pain in the right hypochondrium, jaundice and fever with progression to liver failure, hepatotropic virus infections and autoimmunity were ruled out. Start liver transplant protocol with incompatible ABO organ, with induction with rituximab, immunoglobulin and basiliximab with post-surgical complications with resolved hemoperitoneum and pulmonary hemorrhage, with subsequent discharge and histopathological report of giant cell hepatitis explant, continuing immunosuppression for six years until readmission due to pruritus with liver biopsy that reported acute cellular rejection and ERCP with choledocho-choledochoanastomosis stenosis with endoscopic rehabilitation, with subsequent biochemical deterioration, starting basiliximab, steroids, plasma exchanges and MARS without improvement, subsequent ABO compatible retransplantation without complications. Currently no rejection data.

Discussion: HCGPI is a progressive, often fatal, disease process with a 50% survival rate without liver transplantation. The high mortality rate is caused by liver failure or sepsis as a result of immunosuppressive therapy.

Conclusion: HCGPI in our patient manifested acutely with rapid evolution toward liver failure. The use of valproate and herbal medicine were factors. Thanks to the possibility of using MARS as a bridge for the transplant, the result was optimal.

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Autoimmune hemolytic anemia as a paraneoplastic syndrome in hepatocarcinoma, case report

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Introduction and Objective: Hemolytic anemia can be associated with various types of solid tumors; however, in hepatocarcinoma, it is extremely rare.

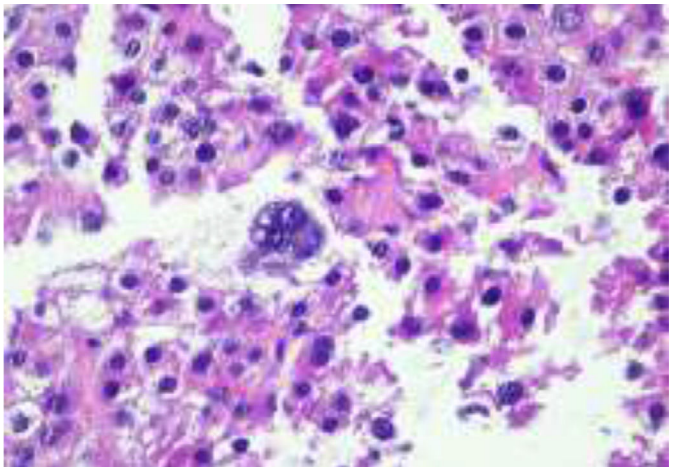
Case Summary: Man 74 years old. Symptoms of two months with dyspnea, asthenia and adynamia. On physical examination, generalized pale skin and sclera, normal heart and lung area, soft, depressible abdomen, with peristalsis present, palpation of the liver edge 5 cm below the costal margin. Laboratories with leukocytes 6.1 103/Al, neutrophils #4.1, lymphocytes #1.3, HB 6.2 g/dL, HTC 16.8%, MCV 103fL, HCM 38pg, platelets 395.00 103/Al; BD 0.5 mg/dL, BI 2.80 mg/dL, BT 3.30 mg/dL, DHL 403 IU/L. Direct Coombs is performed positive dilution 1:128. FSP with anisocytosis, red blood cell agglutination, macrocytosis and macroplatelets, reticulocytes 1.48%, alpha-fetoprotein 12.7 IU/mL. Warm antibodies (IgG) attached to the erythrocyte membrane were documented. Simple and contrast-enhanced abdominopelvic tomography, with images suggestive of multifocal cellular hepatocarcinoma. Liver biopsy, which reports findings of hepatocarcinoma. Management with oral steroid drugs was initiated jointly, reversing the hematological alterations without requiring blood products.

Discussion: There are few cases in the medical literature on hematological alterations associated with solid tumor metastases. In this case, the hematological involvement of the patient was not due to metastasis but to a paraneoplastic syndrome since the first manifestation found was anemia with jaundice secondary to hemolysis.

Conclusion: The diagnosis must be reached by exclusion, ruling out other causes such as primary hematological alterations, metastases, or vascular processes.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.



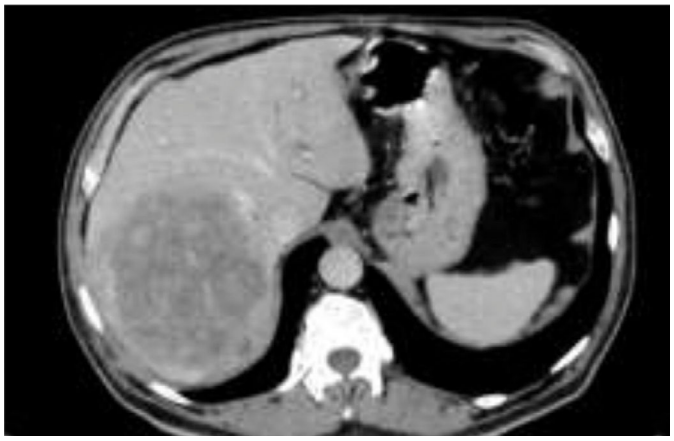


Figure 1.
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Complete genome sequence of Hepatitis C Virus isolated in Mexico

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Introduction and Objective: Death due to liver damage caused by the hepatitis C virus (HCV) represents one of the most frequent health threats in Mexico. However, the complete genome of HCV has not yet been sequenced. The aim of this study was to obtain the complete genome sequence of HCV isolated from patients in Mexico.

Materials and Methods: We evaluated patients with hepatitis C who sought medical care at the "Liver Unit" that belongs to the "Hospital Universitario Dr. José Eleuterio" in Monterrey, Mexico from May 2016 to August 2019. We extracted RNA from five samples and amplified the whole genome of HCV with tiled-PCR. Amplicons were sequenced with MinION, a third-generation sequencer technology. Obtained sequences were assembled with the Genome Detective program and posteriorly analyzed with IQtree platform.

Results: We obtained four partial and one complete VHC genome that corresponded to genotype 1b. The average coverage of the complete genome was 600X. The phylogenetic analysis of the complete genome showed that this sequence from Mexico was related to viruses isolated in the United States of America, Indonesia, and Japan. Because there is not a full HCV complete genome sequenced before in our country, we used the partial viral genomes reported before in Mexico to compare NS3 and NS5A genes with our reported sequences. The NS3 gene alignment showed that the newly sequenced viruses grouped in a clade different from the previously sequenced viruses. When NS5A gene was used, the newly obtained sequences grouped with the previously sequenced viruses in Mexico.

Conclusion: We were able to obtain the first complete and four partial HCV genomes from Mexican patients. This newly sequenced virus will improve the molecular epidemiology of HCV in Mexico.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Identification of resistance mutations to DAA's against Hepatitis C Virus in infected subjects in Mexico

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Introduction and Objectives: Death due to liver damage caused by hepatitis C virus (HCV), this agent represents one of the most frequent health threats in Mexico. Now direct-acting antiviral agents (DAA's) are available to treat HCV infections. Nevertheless, HCV has gained mutations that hinder the antiviral effect. The presence of these mutations in Mexico is unknown. The aim of this study was to identify resistance-associated substitutions (RAS) in subjects infected with HCV from Mexico.

Materials and Methods: We evaluated patients with hepatitis C who sought medical care at the "Liver Unit" that belongs to the "Hospital Universitario Dr. José Eleuterio" in Monterrey, Mexico from May 2016 to August 2019. We extracted RNA from five samples and amplified the whole genome of HCV with tiled-PCR. Amplicons were sequenced with MinION, a third-generation sequencer. Obtained sequences were assembled with the Genome Detective program and resistance-associated substitutions were identified with HCV-Glue software.

Results: We obtained four partial and one complete VHC genome. According to HCV-glue algorithm, we detected one virus with resistance to daclatasvir, and probable resistance to ledipasvir and velpatasvir. Another HCV with probable resistance to daclatasvir and ombitasvir and possible resistance to grazoprevir, peritaprevir and ledipasvir. Two HCV isolated had probable resistance to daclatasvir and possible resistance to grazoprevir and peritaprevir. Only one HCV had probable resistance to daclatasvir.

Conclusion: We detected one HCV with resistance to daclatasvir and four other viruses with probable antiviral resistance mutations. These findings are crucial to effectively managing the patient's treatment.

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Hepatitis C virus NS5A and core proteins regulate epithelial-mesenchymal transition biomarkers in hepatoma cells

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Introduction and Objectives: Hepatitis C virus (HCV) NS5A and Core proteins play a key role in carcinogenesis development. Epithelial-mesenchymal transition (EMT) induced by HCV has been related to Snail and TGFβ1 upregulation and E-cadherin downregulation. This study aimed to evaluate the effect of HCV NS5A and Core proteins in the regulation of Snail, TGFβ1 and E-cadherin by transient transfection in the hepatoma cell system.

Materials and Methodology: Huh 7 cells were transfected with an empty vector, and 0.5 - 1.0μg of pNluc-NS5A-HCV or pCore-HCV plasmids for 24 - 48h and then proteins and RNA were extracted. NS5A protein expression was measured by NanoLuc activity. Core, Snail, TGFβ1 and E-cadherin protein levels were evaluated by Western Blot. NS5A and Core transcripts were quantified by RT-qPCR. Relative expression of SNAI, TGFβ1 and CDH1 was calculated in relation to ACTB and GAPDH endogenous expression.

Results: Viral NS5A and Core proteins were expressed in transfected Huh 7 cells. Transient transfection with pNluc-NS5A-HCV upregulated snail expression (4-fold) but downregulated E-cadherin expression (0.6-fold) at 24h. In addition, upregulated TGFβ1 expression (4-fold) and downregulates E-cadherin expression (0.7-fold) at 48h compared to the control. Meanwhile, transfection of pCore-HCV for 24h upregulated snail expression (2-fold); in contrast, it downregulated E-cadherin expression (0.3-fold) compared to control at 48h.

Discussion: Snail and TGFβ1 upregulation and E-cadherin downregulation had been associated with HCV infection in other studies. Our results suggest that HCV NS5A and Core have a direct role in EMT.

Conclusion: Hepatitis C virus regulates epithelial-mesenchymal transition biomarkers by NS5A and Core proteins expression in hepatoma cells.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Diethylnitrosamine and 2-acetylaminofluorene chronic administration leads to biochemical and histologic changes related to hepatocellular carcinoma in Wistar rats

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Introduction and Objectives: This study aimed to analyze the biochemical and histological alterations produced in a model of chemical hepatocarcinogenesis by the chronic administration of diethylnitrosamine (DEN) and 2-acetylaminofluorene (2-AAF) in Wistar rats.

Materials and methods: Twelve Wistar rats weighing 180 to 200 g were divided into control and damage groups: rats were treated with DEN (50 mg/kg/wk) i.p and an intragastric dose of 2-AAF (25 mg/kg/wk) for 18 weeks. Serum clinical biochemistry was performed on VITROS Chemistry System 350® equipment. Masson's trichrome and Hematoxylin-Eosin stains were performed on the liver tissue. The trial was approved by the research ethics committee.

Results: The damage group had significant increases in total cholesterol, HDL-C, AST, ALT, ALKP, and GGT. Furthermore, histological analysis showed the loss of normal liver architecture with nuclear pleomorphism in the hepatocytes, atypical mitosis, and fibrous septa distributed between portal triads and collagen fibers through the hepatic sinusoids.

Discussion: Hepatocellular carcinoma models are a valuable tool to identify alterations during the progression of the disease. The Fischer-344 strain is frequently used in chemical hepatocarcinogenesis models since this strain shows greater susceptibility to the development of liver tumors. The damage induction model used in this work causes advanced hepatocellular carcinoma in Wistar rats, in spite of being a strain with intermediate susceptibility to hepatocarcinogenesis. The damage was evidenced by the presence of hepatomegaly, fibrosis, abundant nodules, histological changes, and biochemical alterations.

Conclusion: Chronic administration of DEN and 2-AAF induces characteristic alterations of hepatocellular carcinoma in Wistar rats.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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In vitro evaluation of the antifibrogenic effect of tamsulosin during its interaction with activated stellate cells

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Introduction and Objective: Liver cirrhosis is a chronic disease that affects one-fifth of the world; in Mexico, it is the third cause of mortality. It is caused by the uncontrolled production of the extracellular matrix. Attempts have been made to develop treatments that can reverse this disease, attention has been paid to the stimuli responsible for the activation of hepatic stellate cells (HSC), and the presence of adrenoreceptors in these cells has also been demonstrated. This study aimed to demonstrate in the present work a possible treatment with a neuroimmune activity that decreases the fibrogenic capacity of HSC.

Material and Methods: Rat's HSC in a quiescent state and activated by primary culture were used. Cells in a quiescent state contain retinol and lose it by activation. The degree of activation was assessed by immunofluorescence for α-SMA and cytochemistry with Oil Red. Cell proliferation was assessed by the MTT reduction technique. Norepinephrine was used to activate adrenergic signaling and tamsulosin was used as an antagonist of this pathway.

Results: Initially, we standardized the primary culture of HSC, identified by the α-SMA marker at seven days of culture. Subsequently, it was demonstrated that Noradrenaline treatment activated stellate cells due to the progressive increase of α-SMA and its proliferation. Moreover, tamsulosin treatment was shown to decrease retinol loss by preventing its activation and reducing proliferation.

Conclusion: Tamsulosin has a direct effect on decreasing the activity of quiescent and activated HSCs.

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Declaration of interest: The authors declare no potential conflicts of interest.

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Assessment of cellular proliferation, death and senescence in a model of steatosis in vitro

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Introduction and objectives: Hepatocyte cell culture in steatogenic medium is a useful, reproducible tool. During NAFLD, cells undergo processes in response to the steatogenic input. Here we aimed to study cellular proliferation, death, and senescence in an in vitro model of steatosis.

Materials and Methods: HepG2 hepatocytes were cultured in standard RPMI1640. Steatogenic medium was prepared by supplementing RPMI1640 with lipids in two levels: Mild steatosis (MS: 50 μM sodium oleate/sodium palmitate (OA/PA) at 2:1 ratio) and Severe steatosis (SS: 500 μM OA/PA 2:1). A control (C) group (RPMI1640) was included. 105 cells per well were allowed to attach for 24 h in RPMI1640 at 37°C and 5% CO2, then incubated in MS or SS medium for up to 96 h. Steatogenic medium was refreshed daily. Viability and mortality rates were assessed, and proliferation and senescence were analyzed by commercial kits, followed by a morphometric analysis. All assays were performed in triplicates. Data: Mean ± SD. 2-way ANOVA followed by Tukey. $P<0.05$.

Results: MS and SS showed significantly lower cell viability versus C. Mortality rates were increased in MS and SS. Proliferation was significantly decreased in MS and SS compared with C. MS showed a significantly increased senescence from 48 h versus C, whereas in SS decreased compared with C and MS.

Conclusion: MS showed an increment in senescence compared with C and might be considered a mechanism aimed at avoiding damaged-cell proliferation. In contrast, SS showed an increased mortality rate and decreased senescence, suggesting activation of death pathways as a response to lipid overexposure.

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Declaration of interest: The authors declare no potential conflicts of interest.

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The administration of pirfenidone modifies the expression of JMJD2B in a murine model of NASH

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Introduction and Objectives: This study aimed to evaluate how the administration of pirfenidone modifies the expression of JMJD2B in a murine model of NASH.

Materials and methods: 4–5-week-old male C57BL/6J mice fed a high-fat diet for 16 weeks. Follow-up was done at 4, 8, 12 and 16 weeks. Serum glucose, animal weight, caloric intake, AST, ALT, TAG, Chol and VLDL were measured. The liver was weighed, as was the epididymal adipose tissue. Masson's trichrome hematoxylin-eosin staining was performed. Dual-channel microarrays were hybridized to the 22,000-gene version of the Mus musculus genome. Analyzed with adjusted P-values of <0.05 and Z-score values of >1.5 and <1.5 considered significant. Quantitative variables were analyzed with ANOVA, Tukey for parametric data, and Kruskal-Wallis for non-parametric data. The trial was approved by the research ethics committee.

Results: The animals achieved the body and biochemical parameters that demonstrate the development of NASH. The genes involved in epigenetic processes responsible for the development of NASH (SIRT1, SIRT2, JMJD1B) and, in particular, in JMJD2B; which found to have significantly different between the HFD vs. HFP and HFD vs. ND groups.

Discussion: JMJD2B is a histone methylation modulating enzyme, implicated in the development of NASH. In our trial, pirfenidone modulates the expression of JMJD2B, helping the recovery of liver function through epigenetic regulation in a murine model of NASH.

Conclusion: Pirfenidone appears to modulate epigenetic factors, supporting recovery from the disease.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Evaluation of deubiquiyinase USP15 expression during HCV replication

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Introduction and Objectives: This study aimed to evaluate the USP15 protein expression in HCV replication in vitro.

Material and methods: Huh-7 cell line was transfected with pFKI plasmid that encodes for the non-structural HCV proteins; this expression is regulated by the T7 RNA polymerase promoter; therefore, prior to transfection, the cells were infected with Vaccinia Virus for T7 RNA polymerase expression. After 24 h of transfection, at 37°C and 5% CO2, total protein was extracted and quantified using the Bradford method. USP15 expression was evaluated by Western Blot assay using the antibodies for USP15, NS3-HCV and actin as a control.

Results: The expression of NS3 was found in the transfected cells; in addition, a decrease in the expression of USP15 was observed compared to the control without viral proteins.

Discussion: USP15 expression was shown to be downregulated in cells expressing HCV nonstructural proteins compared to control cells. A lower effect on USP15 expression was detected in the transfected cells compared to the HCV-replicon cells (positive control); this may be due to the low expression of NS3 in transfected cells. Therefore, we observed a decrease in USP15 expression dependent on NS3 expression. USP15 is known to regulate pathways including TLR signaling, RIG-I signaling, NF-kB, and IRF3/IRF7-dependent transcription to produce pro-inflammatory cytokines and type I interferons. Therefore it is important to elucidate the mechanisms involved in this regulation by HCV.

Conclusion: USP15 expression is decreased in the presence of HCV nonstructural proteins.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Pirfenidone regulates antioxidant response via NRF2 in an experimental model of hepatocellular carcinoma

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Introduction and Objectives: 1) Determinate if pirfenidone (PFD) modifies oxidative stress markers. 2) Evaluate PFD effects on transcription factor Nrf2 signaling pathway.

Materials and methods: Eighteen Fischer-344 rats divided into three groups were used: 1) untreated (NT), 2) carcinogenic damage (HCC) generated by weekly administration of diethylnitrosamine (50mg/kg/week;i.p.) and 2-Acetylaminofluorene (25mg/ kg/wk, p.o) and 3) HCC treated with PFD (300 mg/kg, p.o.) (HCC/PFD) for 18 weeks. Histopathological analyzes of the liver were performed, MDA and GSH levels were quantified and SOD, CAT, GSTP1 and Nrf2 expression was evaluated by Western-Blot. Data were analyzed using ANOVA and Tukey's test as post hoc. The trial was approved by the research ethics committee.

Results: In the HCC group, Nrf2, SOD, CAT, and GSTP1 expression was increased. PFD treatment was effective in preventing the increase in MDA levels and allowed GSH increase; in addition, PFD was effective in modulating the expression of Nrf2 and antioxidant response proteins.

Discussion: Oxidative stress is key in the genesis of HCC and the mechanisms leading to antioxidant response are modulated by Nrf2. PFD is an antioxidant evaluated in several liver fibrosis models. Additionally, in this work, we have demonstrated that the antioxidant response of PFD in an HCC experimental model is mediated by Nrf2.

Conclusion: PFD delays the HCC development by regulating Nrf2 signaling pathway. Clinical studies with PFD are being devised to evaluate the safety.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Dietary supplementation with methyl donors improves physiopathological conditions of NAFLD in a murine model

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Introduction and Objective: This study aimed to evaluate the benefits of supplementation with methyl donors of a diet rich in fat and sugars in a model of NAFLD.

Material and methods: Male mice of the C57BL/6J strain with an initial weight of 20-25g were fed with a conventional diet (ND n=8) or a diet high in fats and sugars (HF n=8) for 18 weeks; or with a diet rich in fats and sugars for 10 weeks, plus eight weeks of HF diet + supplementation with methyl group donors (HFMS n=8). At 18 weeks, ITT was performed; it was collected at sacrifice: liver, fat, and serum. Histological and biochemical analyzes were performed and global hepatic DNA methylation was quantified. The trial was approved by the research ethics committee.

Results: The supplemented animals (HFMS) showed a decrease in body weight, liver weight and epididymal and visceral fat ($p<0.001$). The area of the adipocytes in the HFMS group decreased significantly compared to the HF group. The HFMS group presented reduced serum levels of triglycerides and glucose and greater sensitivity to insulin. Histological analysis of livers from ND and HFMS animals showed no damage characteristic of NAFLD, such as lipid infiltration and inflammation. Global methylation increased in HFMS animals.

Discussion: Non-alcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver damage worldwide. The results in this work reinforce the evidence that supplementation with methyl group donor molecules could work as a therapeutic strategy to prevent the progression of the disease.

Conclusion: Supplementation with methyl donors of a diet high in fats and sugars has beneficial effects in a murine model of NALFD.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Effects of in vitro lipid overload on LX-2 hepatic stellate cells

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Introduction and Objectives: Studying lipid overload repercussions on hepatic stellate cells (HSC) is of great importance due to their role in fibrosis during NAFLD. Steatogenic cell culture of HSC is intended to elucidate pathogenic mechanisms in NAFLD.

Materials and Methods: LX-2 HSC were cultured in standard DMEM. Steatogenic medium was prepared: mild steatosis (MS:50μM sodium oleate/sodium palmitate (OA/PA) at 2:1 ratio), severe steatosis (SS:500μM 2OA:1PA). Control (C) was cultured in DMEM. Cells were pre-incubated in DMEM at standard conditions for 24h the incubated in MS or SS medium. Cells were incubated for up to 72h. Viability and mortality ratios were assessed; cellular proliferation and senescence were assessed. Data: Mean ± SD, two-way ANOVA followed by Tukey. $P<0.05$.

Results: Cell viability in MS significantly diminished by 13.6% at 72h, whereas SS showed 49.6 % lower viability from 48h compared with C. Regarding mortality rate, it was increased by 16.0% in MS from 72h and by 50.0% in SS from 48h compared with C. Proliferation was increased in both MS and SS at 24h and significantly decreased by 72h compared with C. Cellular senescence in both steatogenic conditions was diminished among 1.8-22.4% compared with C at 24 and 48h.

Conclusion: Steatogenic conditions induced an increased proliferation and lower senescence in LX-2 HSC at 24h in both MS and SS groups. These findings suggest that HSC might turn into an activated state. Our results agree with other reports showing that HSC activation and transdifferentiation increase their proliferation, avoiding

other cellular processes, including senescence while contributing to the pathogenesis of NAFLD.

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Moringa oleifera decreases biomarkers of oxidative stress in a murine NASH model

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Introduction and Objectives: This study aimed to evaluate the effect of Moringa oleifera aqueous extract on biomarkers of oxidative stress in a murine model of NASH.

Material and Methods: The characterization of the extract was performed by DPPH and ABTS spectrophotometric assays. Male C57BL/6J mice were randomly separated into two groups. 1) Standard diet (ND) (n = 5) (18% lipid) and 2) High fat (HF) diet (n = 10) (60% lipid and 42 g/L sugar in water of use), for 16 weeks. At the end of eight weeks, five HF group mice were divided into a subgroup, 3) Moringa Oleifera (HF + MO), 290 mg/kg/day p.o. for eight weeks. Malondialdehyde (MDA) levels were determined in liver homogenates and the transcriptome by microarray. Differences between groups were determined by ANOVA/Kruskal-Wallis test. The trial was approved by the research ethics committee.

Results: Moringa aqueous extract showed antioxidant capacity; DPPH values were 10081.4 0.3 and 22960.4 0.3 for ABTS. Hepatic MDA levels were increased in the HF group compared to the ND group ($p<0.05$) and decreased in the moringa-treated group ($p<0.05$). In the transcriptome, mRNAs involved in endoplasmic reticulum stress were underexpressed.

Discussion: An increase in MDA has been demonstrated in a murine model of NAFLD induced by a high-fat diet. In our study, Moringa administration reduces MDA production and gene expression of molecules involved in oxidative stress.

Conclusions: MO treatment is a therapeutic alternative for the NASH spectrum of liver disorders.

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Pirfenidone ameliorates MAFLD by improving insulin sensitivity and reducing epididymal fat

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Introduction and Objectives: Metabolic associated fatty liver disease (MAFLD) is characterized by hepatic steatosis with the following three metabolic conditions: obesity/overweight, diabetes and metabolic dysregulation, either alone or in combination. Pirfenidone (PFD) has anti-inflammatory, antioxidant, and anti-fibrotic effects. The aim of this study was to investigate the effects of PFD in mice with MAFLD induced by high-fat/high-carbohydrate (HFHC) diet.

Materials and methods: At the age of 6-7 weeks, six male C57BL/6 J mice were fed with a normal diet (ND, 18% kcal from fat food) and twelve with HFHC (60% kcal from fat food and drinking water with 42 g/L of carbohydrates: 55% fructose and 45% sucrose) diet for 20 weeks; at 10 weeks of feeding, six mice with HFHC diet were administered PFD (300 mg/kg/day) by gavage. An insulin tolerance test was performed, and data analysis were performed using SPSS. The trial was approved by the research ethics committee.

Results: All HFHC mice showed an increase in body weight and visceral fat accumulation ($P<0.01$), including elevated fasting glucose at week 20 ($P<0.001$). Liver weight and liver/body weight ratio exhibited no statistical significance. HFHC mice intervened with PFD showed reduced body weight gain ($P=0.054$) and epididymal fat pad weight ($P<0.05$). PFD also improved insulin resistance.

Discussion: Obesity, systemic insulin resistance, and diabetes are commonly associated with MAFLD, which may progress to nonalcoholic steatohepatitis (NASH). PFD has been shown to have benefits in models of lipotoxicity and NASH.

Conclusions: PFD could be a promising drug for the prevention and treatment of MAFLD induced by obesity.

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Hepatoprotective effect of caffeine against ischemia-reperfusion damage

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Introduction and Objective: This study aimed to determine the hepatoprotective effect of caffeine against Ischemia-Reperfusion (IR) damage in Wistar rats.

Material and methods: Eighteen female Wistar rats were divided into three groups (Sham, IR, Caffeine+IR, n=6). Hepatic ischemia was induced at 70% with 1 and 2 hours of reperfusion. The vehicle (saline solution) or 20 mg/kg of caffeine was administered before the induction of IR. The hepatoprotective effect was evaluated with biochemical markers, relative expression of genes associated with oxidative stress and inflammation, proinflammatory cytokines, and histology. The trial was approved by the research ethics committee.

Results: Caffeine significantly reduced levels of ALT, AST and direct bilirubin vs. IR group. Regarding the relative expression of genes, a significant decrease in the expression of the GPX, NF-$\kappa\beta$ and IL-1β genes was observed in the group treated with caffeine, while there was a decrease in the concentrations of IL-Iß, IL -6 and TNF-α;

however, only TNF- α had a significant decrease. No histological changes were observed in the study groups

Discussion: Caffeine treatment was shown to have a hepatoprotective effect against IR injury, possibly because it is a non-selective antagonist of the adenosine receptor. It has previously been shown that, in the liver, an extracellular increase in adenosine followed by its binding to its A2 receptor, serves to signal an increase in nitric oxide synthesis, which was associated with a cytoprotective effect against IR injury.

Conclusions: Caffeine was shown to have a hepatoprotective effect against IR liver injury

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

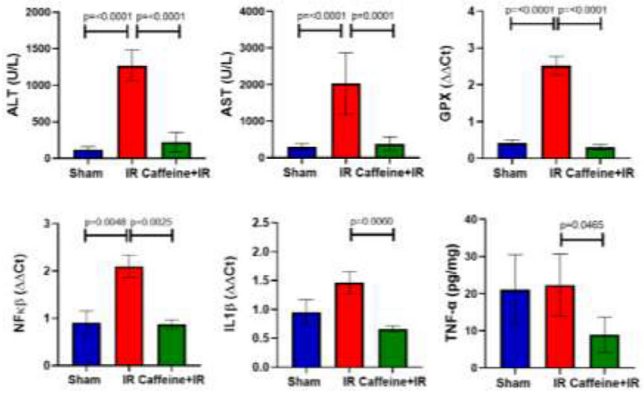

Figure 1.
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Evaluation of the hypolipidemic effect of cinnamon essential oil in a model of acute damage induced by triton WR-1339

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Introduction and Objective: To evaluate the lipid-lowering activity of cinnamon essential oil in a model of acute hyperlipidemia induced by Triton WR-1339 in Wistar rats.

Material and methods: Male and female Wistar rats 250-350g were divided randomly into five groups of six rats: Normal control group (SHAM), hyperlipidemic group (HL), non-toxicity cinnamon group (NO TOX), cinnamon essential oil + Triton WR-1339 group (AEC), atorvastatin treatment group (ATORV).

Orogastric administration was performed for seven days and subsequently, triton or vehicle was administered intraperitoneally for 24 hours before undergoing sacrifice. The non-toxicity of cinnamon essential oil at a concentration of 200mg/kg, biochemical markers, proinflammatory cytokines and expression of genes associated with oxidative stress and inflammation were evaluated. The trial was approved by the research ethics committee.

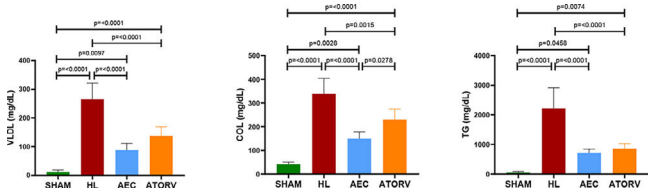
Results: No increase in liver enzymes was observed in rats from the group of non-toxicity. Cinnamon essential oil administration significantly reduced cholesterol (COL), triglycerides (TG), and VLDL levels. Regarding the measurement of proinflammatory cytokines and expression of genes related to oxidative stress and inflammation, no effect was observed on these parameters at the evaluated dose of cinnamon essential oil.

Discussion: Cinnamon essential oil treatment showed a significant reduction in COL, TG and VLDL levels, displaying a higher effectivity than atorvastatin. The non-significant results in the levels of cytokines and expression of genes related to oxidative stress and inflammation could be attributed to the acute damage model employed; had more time been given to the model, said makers might have been activated.

Conclusions: The hypolipidemic activity of cinnamon essential oil was demonstrated to be more effective than atorvastatin.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.



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The gut microbiota and key parameters associated with MAFLD are modified by MEXMIX

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Introduction and Objective: This study aimed to evaluate the effect of the supplementation of a mixture of Mexican functional foods: Optuna ficus indica, Theobroma cacao and edible crickets (MexMix) over a diet high in fat and fructose-sucrose in a mice model.

Materials and methods: Eighteen male C57BL/6J mice were divided into three groups. Control group: Normal diet (ND). HF Group: High-fat diet and 42% fructose-sucrose water ad libitum. Therapeutic group (MexTHER): HF-diet up to week eight and switch to 8 additional weeks of HF-diet supplemented with 10% nopal, 10% cocoa and 10% cricket. The trial was approved by the research ethics committee.

Results: MexTHER group reduced body weight, liver weight, visceral fat, and epididymal fat compared to HF; as well as; serum levels of triglycerides, cholesterol, LDL, insulin, glucose, GIP, leptin, PAI-1 and resistin. Through 16S rRNA gene sequencing analysis, we found that MexMix consumption increased the abundance of Lachnospira, Eubacterium coprostanoligenes group and Blautia. Besides, the genus Lachnospira showed significantly negative correlations with weight, epididymal fat, serum leptin, cholesterol and AUC-ITT, while Muribaculaceae and Akkermansia genus had a positive correlation with serum PAI-1, resistin, insulin and body weight; and Grammaproteobacteria class had a positive correlation with body weight and levels of cholesterol and LDL.

Discussion: Supplementation with MexMix improves biochemical parameters and enriches beneficial bacterial genus in MAFLD models.

Conclusion: MexMix supplementation is an attractive nutraceutical strategy for the treatment of diseases associated with excessive consumption of fat and sugar, such as MAFLD.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Serum determination of IL-1β and IL-1RA in patients with chronic liver diseases

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Introduction and Objectives: This study aimed to evaluate serum concentration of IL-1β and IL-1RA in subjects with alcoholic liver disease (ALD), chronic hepatitis C (CHC) and non-alcoholic fatty liver disease (NAFLD).

Materials and methods: A cross-sectional and multicenter study was carried out, which included alcoholic subjects (OH), alcoholic cirrhosis (CiOH) and alcoholic hepatitis (HA); patients with CHC and NAFLD were compared against subjects without criteria for alcohol drinking habits (CT). IL-1β and IL-1RA were quantified by Multiplex-MERCK©. For statistical analysis SPSS V.22 were used, Mann-Whitney U, $p<0.05$; values expressed as mean ± standard error.

Results: The groups included were: 18 (OH), 25 (CiOH), 14 (HA), 55 (CHC), 22 (NAFLD) and 81 (CT). IL-1β results (pg/mL): 13.8±9.2, OH; 4.4±1.7, CiOH; 3.05±0.05, HA; 7.1±2.3, CHC; 5±2, NAFLD and 3.2±0.1, CT. With differences in HA vs. CHC. For IL-1RA (pg/mL) 83.5±30, OH; 100.4±53.5, CiOH; 85±38.3, HA; 74.4±2, CHC; 316±203, NAFLD and 13.02±4.4, CT. With differences in CHC and NAFLD vs. CT and CiOH vs. CHC.

Discussion: IL-1β was 2.3 times increased in HA/CHC, which highlights the effect on exacerbating the inflammatory response in acute over chronic alcohol damage; IL-1RA that inhibits the activities of IL-1β are increase may have protective effects on liver injury.

Conclusion: IL-1RA is a cytokine that limits inflammation in liver disease, especially in non-alcoholic fatty liver disease, alcoholic cirrhosis and chronic hepatitis C.

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Declaration of interest: The authors declare no potential conflicts of interest.

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Evaluation of IL-12 and CXCL-10 in patients with hepatitis C, non-alcoholic fatty liver disease and liver damage for alcohol consumption

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Introduction and Objectives: To Compare serum levels of IL-12 and CXCL-10 in different etiologies of liver disease.

Materials and methods: A cross-sectional and multicenter study was carried out, including subjects with alcoholism according to criteria WHO, without (OH) and with liver injury (cirrhosis, CiOH) and (Alcoholic Hepatitis, HA); non-alcoholic fatty liver (NAFLD) and chronic Hepatitis C (CHC), diagnosed by clinical, biochemical data. They were compared with subjects control (CT). For determination of IL-12 and CXCL-10 with Multiplex®-MERCK©. Statistical analysis by SPSS V.22 using U de Mann Whitney, $p<0.05$; values expressed as mean ± standard error.

Results: Included 20 subjects with NAFLD, 78 CHC, 14 HA, 20 CiOH, 15 OH y 60 CT. IL-12 was found elevated in OH, HA, CHC vs. CT in OH vs. HCc y HGNA ($p\leq0.05$). CXCL-10 was found elevated in CiOH, HA and CHC vs. CT($p\leq0.050$).

Discussion: The IL-12 showed elevated levels in subjects with alcohol consumption and CHC vs. CT that activates other cell types involved in inflammation. CXCL-10 is induced by IFN-γ, was found elevated in CiOH, HA and CHC, exerting their biological effects through CXCR3, including activation of peripheral immune cells and apoptosis. The ratio of IL-12/CXCL-10 in OH increased 4.6 times, ratifying the participation in chronic and continual inflammatory response by alcohol consumption.

Conclusions: IL-12 and CXCL-10 have an important role in alcohol-induced liver disease, confirming their contribution to inflammation, being evident CXCL-10 in advanced stages of the disease, by stimulating and favoring the migration of immune cells to the damage sites.

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Declaration of interest: The authors declare no potential conflicts of interest.

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Role of tamsulosin in recovery from thioacetamide-induced subchronic liver damage in a Wistar rat model

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Introduction and Objectives: The liver is one of the most important organs in the organism due to its multifunctionality. For this reason, any damage affecting this organ can promote a systemic imbalance, starting from the formation of hepatic fibrosis to encephalopathy due to the increase of ammonium. This study aimed to evaluate the treatment with tamsulosin in the recovery of liver damage in a Wistar rat model.

Material and Methods: Induction of liver damage was by thioacetamide for five weeks. After induction, 5 groups (n=6) were formed: 1) cirrhotic, 2) tamsulosin 11 μg/kg, 3) tamsulosin 93 μg/kg, 4) vehicle and 5) intact. For the determination of liver damage, biochemical tests were performed. For tissue evaluation, H/E and Syrian red staining were performed, and immunohistochemistry NF-KB as an inflammatory marker. Biochemical and morphological tests were correlated with the degree of locomotor activity. The trial was approved by the research ethics committee.

Results: Rats treated with tamsulosin showed a significant improvement in weight recovery and locomotor activity due to decreased serum ammonium, about intact and vehicle. The 11 μg/kg dose of tamsulosin presented better results in the histological analyses since a greater recovery of the hepatic architecture was observed with a decrease in fibrosis and a decrease in NF-KB activation.

Conclusion: The use of tamsulosin at low doses can be considered a therapeutic option for the recovery of liver damage; however, further trials and tests are required to support its efficiency in patients.

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Hepatic MIR-122-3P, MIR-140-5P and MIR-148B-5P expressions are correlated with cytokeratin-18 serum levels in MAFLD

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Introduction and Objectives: This study aimed to investigate the expression and correlation of miR-140-5p, miR-148-5p and miR-122-3p in the liver with circulating levels of CK-18, APOB, IL-6, IL-32, TNF-α of patients with and without MAFLD who underwent laparoscopic cholecystectomy.

Material and methods: Cross-sectional study in patients scheduled for elective cholecystectomy, from whom anthropometric and biochemical variables, blood samples and liver biopsy were obtained with prior signed informed consent. A qRT-PCR assay was performed from the liver biopsies RNA, to determine the microRNAs expression levels. ELISA assay was used to measure circulating levels of CK-18, APOB, IL-6, IL-32, TNF-α. The patients were classified according to the histological report as control group and MAFLD.

Results: Circulating plasma levels of CK-18 showed a significant difference (p=0.001) between the control (46.5pg/mL) and MAFLD (230.2pg/mL) groups; the rest of the explored markers showed no difference. The results show a very strong correlation between, miR-122-3p (rho= 0.071 p= 0.001) and CK-18 levels, while with miR-140-5p (rho= 0.564, p= 0.023) and hsa-miR-148b-5p (rho = 0.689, p= 0.003) are strong.

Discussion: We show that the expression of the microRNAs studied is related to CK-18 circulating levels in patients with MAFLD, which makes these potential molecules biomarkers.

Conclusion: There is a very strong correlation between hepatic expression levels of miR-122-3p, miR-140-5P and miR-148-5P and circulating levels of CK-18 in patients with MAFLD.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

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Serum determination of MMP-2 and MMP-9 in chronic liver disease according to alcohol consumption, non-alcoholic fatty liver disease and hepatitis C

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Introduction and Objective: This study aimed to evaluate serum concentration of MMP-2 and -9 in different etiologies of liver disease also according to fibrosis stages.

Materials and methods: Cross-sectional multicentric study, including subjects with no alcoholic fatty liver disease (NAFLD), chronic Hepatitis C (CHC), alcohol cirrhosis (CiOH) and alcoholism (OH), groups with alcohol drinking habits were classified according to OMS criteria, with clinical and biochemical evidence of alcoholic liver disease (ALD). Transitional elastography (Fibroscan) was performed in NAFLD and CHC, considering mild fibrosis (FL: F0, F1, F2) and severe fibrosis (FA: F3, F4). As controls, subjects without alcohol consumption (CT) were recruited. Multiplex®-MERCK© was used for MMP-2 and -9 quantification. Statistical analysis was performed by Mann Whitney-U test, p<0.05, with SPSS V.22.

Results: The groups included were: 27 NAFLD (mild fibrosis: F0, F1, F2), 36 NAFLD (severe fibrosis: F3, F4), 48 CHC (mild fibrosis: F0, F1, F2), 54 CHC (severe fibrosis: F3, F4), 45 (CiOH), 99 (OH), and 138

CT. Both gelatinases, MMP-2 y MMP-9, were found elevated in CHC (mild and severe fibrosis) vs. CT; and decreased in OH, CiOH, HGNA (mild and severe fibrosis) vs. CT, plus there are significant differences between all etiologies, p<0.001.

Discussion: In patients with CHC, MMP-2 y -9 serum concentration increases, particularly in severe fibrosis stages, although it has no effect on ECM (extracellular matrix) degradation, as they are inactive. Nevertheless, there is a significant decrease in these gelatinases in ALD and NAFLD.

Conclusions: MMP-2 y MMP-9 module depends on the etiological agent involved, which can be useful for the differential diagnosis of liver diseases.

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MMP-7 is a non-invasive biomarker of chronic liver diseases

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Introduction and Objectives: This study aimed to evaluate serum concentrations of MMP-7 in different liver etiologies and according to fibrosis stage.

Materials and methods: A cross-sectional and multicenter study was carried out, including subjects with alcoholism (WHO criteria), without (OH) and with liver injury (cirrhosis, CiOH); diagnosed by clinical, biochemical data, non-alcoholic fatty liver (NAFLD) and chronic Hepatitis C (CHC). Transitional elastography (Fibroscan) was performed in NAFLD and CHC, considering mild fibrosis (MF: F0, F1, F2) and advanced fibrosis (AF: F3, F4). As controls, subjects without alcohol consumption (CT) were recruited. For the quantification of MMP-7, Multiplex-MERCK© was used. Statistical analysis was performed using SPSS V.22 using Mann Whitney U, p<0.05.

Results: It was included 99 subjects (OH); 45 (CiOH); 48 (CHC, FL); 54 (CHC, FA); 27 (NAFLD, FL); 36 (NAFLD, AF) and 131 CT. MMP-7 was found to be elevated in CHC (FL and FA), vs. CT; and decreased in OH, CiOH, NAFLD (FL and FA) vs. CT, plus there are significant differences between all etiologies, p<0.001.

Discussion: MMP-7 is a matrilysin that degrades extracellular matrix products (proteoglycans); it increases significantly in subjects with CHC compared to CT, while in other pathologies with stages, even in advanced fibrosis, the levels are decreased compared to CT.

Conclusion: The increased MMP-7 in serum of chronic Hepatitis C and decreased in alcoholism and non-alcoholic fatty liver patients suggests that, according to the etiology, the levels can be useful to make a differential diagnosis. It is a potential non-invasive biomarker.

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Autoimmune hepatitis with superimposition of primary sclerosing cholangitis on non-specific chronic ulcerative colitis

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Introduction and Objetives: Chronic nonspecific ulcerative colitis can be associated with autoimmune hepatitis (AH) and Primary Sclerosing Cholangitis (PSC) as an overlap (prevalence 1.7-12.6%). The evolution depends on the clinical picture, biochemical pattern, and histological determination. The response to immunosuppressive treatment of inflammatory bowel disease and autoimmune hepatitis is good, but not Primary Sclerosing Cholangitis.

Case Summary: 26-year-old female resident of Mexico City. Family history of arterial hypertension and acute myocardial infarction. Smoking suspended, alcoholism denied, other history denied. Current condition: Begins 2013 with diarrhea with scant blood, bloating, abdominal pain, general malaise, weight loss; microcytic hypochromic anemia, thrombocytosis, hypertransaminasemia. Colonoscopy: Pancolitis Mayo 2. Biopsy: chronic ulcerative colitis, intense cryptitis, cryptic abscesses. Hypertransaminasemia and cholestatic syndrome persisted; viral hepatitis was ruled out, positive ANAP 1:80, and negative anti-smooth muscle. Liver biopsy: lymphoplasmacytic infiltrate without cholangiole damage or cholestasis, suggestive of HA. He received steroid, azathioprine, ursodeoxycholic acid and mesalazine. Treated latent TB. He received infliximab with improvement. August 2020: jaundice and direct hyperbilirubinemia. Cholangioresonance 2021: Primary Sclerosing Cholangitis. Liver biopsy 2021: lymphocytic infiltrate beyond the limiting plate, plasma cells, cholangiole proliferation, peripheral sclerosis, intracytoplasmic and canalicular cholestasis, focal necrosis, bridges of fibrosis (F3) compatible with AH and PBC. Biological therapy was suspended, Azathioprine was adjusted, and sent for transplant by MELD of 20. Fig. 1 y Fig. 2.

Results:

Conclusions: The patient debuted with moderate Montreal E3S2 UC and confirmed HA. She presented biochemical and clinical remission and intermittent cholestasis; She presented jaundice six years later, confirming PSC by MRI and Biopsy. The evolution of this overlap depends on age, gender and initial phenotype, regardless of the course of UC, representing a diagnostic and therapeutic challenge

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

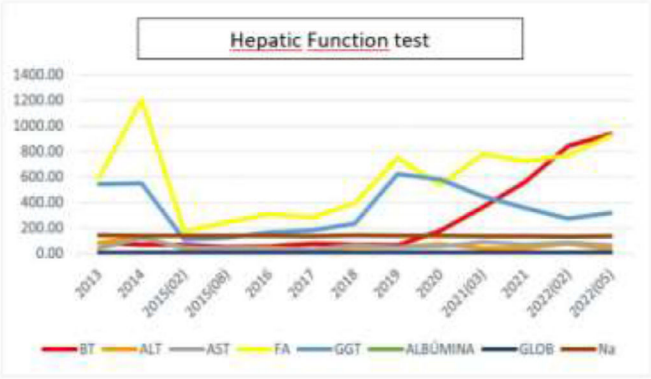

Figure 1. Enzyme evolution

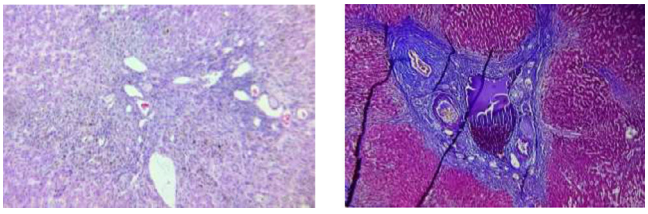

Fig. 2.

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Liver transplantation, experience at the general hospital of Mexico during the last four years

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Introduction and Objectives: Liver disease is increasingly prevalent in the world and in our country, the need for liver transplantation is increasing; In our country, there are more and more centers that perform liver transplantation. This study aimed to report the results of the liver transplant program at the Hospital General of México "Dr. Eduardo Liceaga" (HGM) during the last four years.

Materials and Methods: Retrospective, observational study. The records of all patients who received transplants in the last four years at the HGM were reviewed, documenting age, etiology, transplant indication, survival, and mortality. Descriptive statistics were performed.

Results: For four years, 36 patients were transplanted, 22 men (61.1%) and 14 women (38.9%) aged 51 ± 10.2 years, the most frequent etiology is alcohol consumption (33%), followed by autoimmune hepatitis (17%), and liver disease associated with metabolic dysfunction (14%). Three deaths have been reported. Figures 1 and 2.

Discussion: The experience in liver transplantation in the HGM has increased, although, in the pandemic, there was a global decrease; since they were restarted, the number of transplant patients is increasingly important, already competing with the rest of the centers in the country. The main cause for transplantation is alcohol consumption, which is a very frequent pathology in our country.

Conclusions: The HGM liver transplant program has grown, the main cause of transplantation is alcohol consumption, and mortality is very low.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.

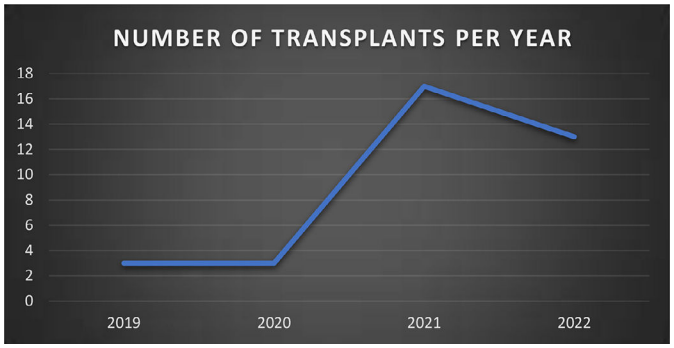

Figure 1.

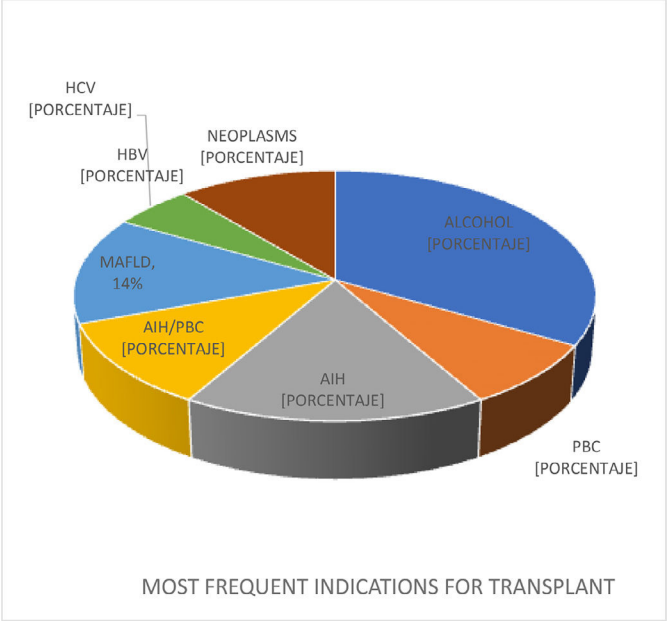

Figure 2.

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Jejunal lymphoma of large cell high grade B monomorphic in a patient with hepatic transplant

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Introduction and Objective: High-grade monomorphic B-cell jejunal lymphoma in a post-liver transplant patient**:** the post-transplant lymphoproliferative disease (PTLD) hepatic has an incidence of 3%, 85% for B cells and 15% for T cells. The incidence increases in rich organs with B cells, like the small intestine. The Epstein-Barr virus (EBV) is crucial in the pathogenesis. Up next is the case of a patient post-liver transplant (PLT) with proximal jejunal stenosis for lymphoma. This study aimed to report a case of jejunal lymphoma in a patient with PLTD.

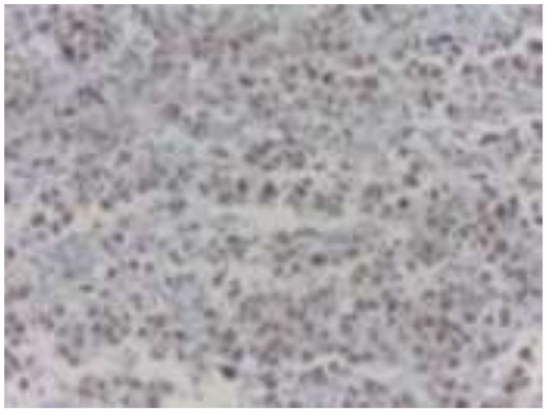
Material and Methods: Male of 71 years, in 2007 PLT for cirrhosis related to alcohol consumption, in treatment with cyclosporine and mycophenolic acid. It started in 2002 with 10 kg weight loss, nausea and vomit for three months of evolution; the abdominal tomography was performed and founded jejunal stenosis, enteroscopy found ulcerated tumor in the proximal jejunum of 60%, and the biopsy reported lymphoma diffuse of large cells CD 20+bcl-6/Ki-67 90%, PCR for EBV (-). Started treatment with R-CHOP-21.

Discussion: PTLD in adults frequently occurs late in presentation, up to 20% intestinal. What is relevant in our case is the 15 years between transplant and presentation, EBV (-) and intestinal presentation.

Conclusions: The PTLD occurs in a period between the transplant and the diagnosis of 5.5 years, our patient, it occurs after 15 years. The negative serology is related to late PTLD, it does not respond to immunosuppression and it is treated with chemotherapy like in our patient.

Funding: The resources used in this study were from the hospital without any additional financing

Declaration of interest: The authors declare no potential conflicts of interest.



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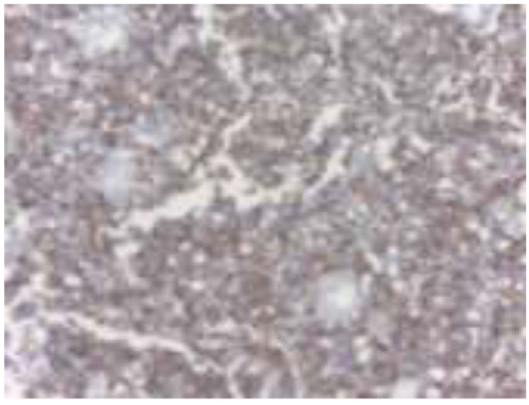
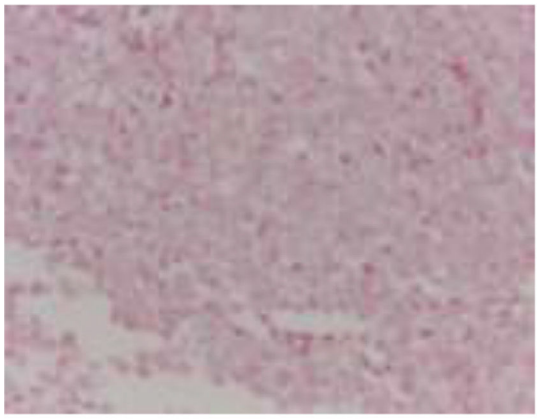


CD20 +



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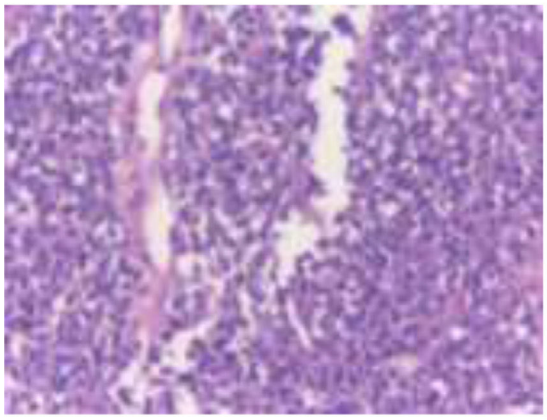

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Figure 1.

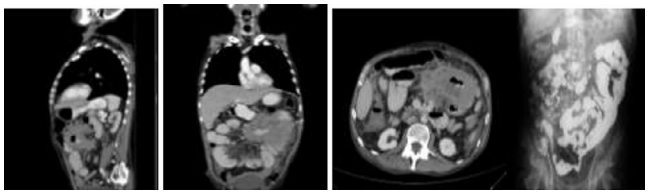

Figure 2.

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