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ABSTRACT SECTION

# XII NATIONAL MEETING OF THE MEXICAN ASSOCIATION OF HEPATOLOGY

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## I. MOLECULAR AND CELLULAR BIOLOGY

### 01
### ANTIOXIDANTS AND ANTIFIBROTICS PROPERTIES OF N-ACETYLCYSTEINE IN THE EXPERIMENTAL LIVER DAMAGE REVERTION

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**Background.** N-acetylcysteine (NAC) is an antioxidant, precursor of reduced glutathione and inhibitor of different profibrotic cytokines involved in liver damage. The aim of this work was to evaluate the effect of NAC to reverse liver cirrhosis induced with carbon tetrachloride ($CCl_4$) in rats. **Material and methods.** Four groups of rats (n = 8) were performed. Group 1, control animals received the vehicle (oil). Group 2 was administered with intraperitoneal CCl4 (0.4 g/kg). Group 3 received $CCl_4$ and then NAC (300 mg/kg, orally). Group 4 received mineral oil (0.25 mL), and then NAC. $CCl_4$ and oil were administered by 2 months, three times per week and NAC and CMC only by 1 month daily after treatment with $CCl_4$. Alanine aminotransferase (ALT) was measured in plasma. Collagen, glycogen and MDA levels and reduced glutathione were esteemed in liver samples; a histopathologycal analysis was performed. **Results.** ALT enzyme activity increased significantly after 2 months of $CCl_4$-administration. Discontinuation of $CCl_4$ for 1 month resulted in a decrease levels of ALT enzyme activity to normal values. MDA levels increased while GSH/GSSG ratio in liver decreased by the administration of $CCl_4$ for 2 months; discontinuation of CCl4 did not lead to normal values of these parameters, again NAC prevented both effects. Liver glycogen content decreased by $CCl_4$ intoxication, NAC restored normal glycogen levels. Fibrosis was quantified by measuring collagen levels, $CCl_4$-intoxication during 2 months produced an increased in liver collagen content. Discontinuation of $CCl_4$ did not lead to fibrolysis, NAC administration resulted in a partial but significant reversion of $CCl_4$-induced fibrosis. **Conclusions.** our results strongly suggest that NAC was highly effective in reversing liver damage. This effect perhaps is related to the ability of NAC as scavenger as well as its antifibrogenic capacity. We are currently studying the expression of several cytokines related to liver damage as TGF-β, among others to be able to consider that NAC can be tested in fibrotic or cirrhotic patients under control trials.

This work was supported by Beca PRODEP- apoyo a la incorporación de nuevos PTC UABC7PTC 570.

### 02
### PROTECTOR EFECT OF HGF IN INTRAHEPATIC CHOLESTASIS

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**Introduction.** Cholestasis is a common syndrome in a large number of hepatic diseases, such as drug-induced cholestasis which is produced due to a primary lesion of the bile conducts either functional or obstructive, generating oxidative stress in the liver. Hepatocyte growth (HFG) factor, and its receptor, c-Met, represents the first defense line against hepatotoxics factors because they induce the Nrf2 activation which, in turn, will activate its target genes to lead to an antioxidant and repair response. The aim of this research is to characterize the anticholestatic molecular and cellular mechanism measured with the HGF in a (urine model of inflammatory cholestasis induced by the α-naftil-isotiocianato (ANIT). **Material and methods.** CD1 Mice were used, treated with a-naftil isotiocianato (60 μg/kg) for 48 h intragastricaly. After 24 h of ANIT, HGF (10 μg/kg) were administrated intravenously. When 48 h passed the sacrifice were done whereby biochemist tests were undertaken such as AST, ALT, ALP and H-E staining. Similarly mouse hepatocytes were obtained for primary culture which were treated with ANIT (20 μM) and HGF (50 ng) in order to carry out viability and functionality tests. **Results.** Animales treated with ANIT present liver injury, (hepatomegalia) and cholecystitis, those effects were reverted when HGF was administrated in comparison with the ones that were just damaged. In the ANIT treated cellular culture we could observe a decrease in the cellular viability as well as in its functionality, however when the culture was pre-treated with HGF it was observed that the cellular viability was kept even though it was exposed to ANIT. **Conclusion.** Data shows that HGF treated animals improved significantly in comparison with the ANIT damaged, besides HGF provides cel-

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lular dead protection in hepatocytes primary culture. Based on this we can considere HGF as a therapeutic intervention point in cholestatic diseases.
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## 03
## HEPATIC EXPRESSSION OF INTERLEUKIN-6 (IL-6) IN A MURINE MODEL OF HEPATIC FIBROSIS INDUCED BY THIOACETAMIDE

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**Introduction and aim.** Interleukin (IL)-6 is a highly pleiotropic cytokine produced by a wide range of cell types. In hepatic pathologies, IL-6 has been shown to be related to processes including inflammation and regeneration. In the liver, IL-6 is synthesized by Kupffer cells, endothelial cells and hepatic stellate cells, whereas in the regenerating liver is produced in the ductular reactions by oval cells. Here we aimed to study the expression of IL-6 in the liver of mice exposed to thioacetamide (TAA) with different degrees of fibrosis. **Material and methods.** Female C57BL/6 mice weighing 22 ± 3 g and 16 weeks old were administered with increasing doses of TAA (50-400 mg/kg) thrice a week for 4, 6, or 8 weeks. A control groups that received the same number of doses of saline (vehicle) was included. Total proteins were isolated from the liver and IL-6 was quantified by ELISA. Data is shown as Mean ± SD and were analyzed by one way ANOVA followed by the Tukey post hoc test. $P < 0.05$ was considered significant. **Results.** Increasing degree of liver fibrosis was observed according to the number of TAA doses. IL-6 expressed in the liver of TAA treated mice did not show alterations after receiving 12 or 18 doses compared to controls. However after the 24 TAA doses, a significantly lower IL-6 expression in comparison to controls as well as TAA12 and TAA18 was found (C = 91.8 ± 19.9, TAA12 = 104.4 ± 27.7, TAA18 = 89.7 ± 11.2, TAA24 = 31.8 ± 19.4 pg of protein/mg of tissue, n = 4-6 per group, $p < 0.001$). **Conclusions.** Although IL-6 is cytokine mainly associated to inflammation, its synthesis is diminished in advanced fibrosis induced by TAA compared to initial fibrosis or to the healthy liver. A loss of IL-6 in the liver could be associated not only to a higher degree of liver damage, but also to a decreased regenerative capacity.
This work was funded by Conacyt (CB-221137).

## 04
## ASSESSMENT OF CONNECTIVE TISSUE GROWTH FACTO (CTGF) IN A MURINE MODEL OF LIVER FIBROSIS INDUCED BY BILE DUCT LIGATION

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**Background and aim.** Connective Tissue Growth Factor (CTGF) is a matricellular protein involved in wound healing and scarring. In the liver it has not only been associated to fibrosis, but also to oval cell differentiation and proliferation in the ductular reactions during liver regeneration. Bile Duct Ligation (BDL) is considered a murine model of biliary fibrosis in which ductular reactions are highly observed. We aimed to assess the CTGF protein in both liver tissue and serum of mice subjected to BDL. **Material and methods.** Male 16 weeks old CD-1 mice weighing 25 ± 3 g were subjected to surgical BDL; a second group receiving surgical intervention with no BDL (SHAM) was included. Mice were kept for 7 or 25 days after surgery, liver and blood samples were collected. Total protein was isolated from liver samples and protein integrity was tested. CTGF was measured in protein extracts and serum by ELISA. Data is shown as Mean ± SD, and analyzed by one-way ANOVA, followed by Tukey post-hoc test. $P < 0.05$ was considered significant. N = 4-6. **Results.** After 7 days of BDL, mice exhibited mild fibrosis, whereas after 25 days severe fibrosis was observed, no histological alterations were observed in the SHAM group. CTGF protein contents in the liver were significantly increased in the group of 7 days (BDL7d) compared to SHAM (SHAM = 93.4 ± 29.36, BDL7d = 189.6 ± 80.96, BDL25d = 142.2 ± 52.10 pg of CTGF/mg of liver, $p < 0.05$). Serum levels of CTGF were increased after 25 days post-BDL compared to SHAM and BDL7d (SHAM = 6833.2 ± 291.64, BDL7d = 8620.7 ± 711.37 y BDL25d = 17679.5 ± 2147.58 pg/mL, $p < 0.0001$). **Conclusions.** Results here shown suggest an early increase in CTGF synthesis in BDL after 7 days post-surgery, whereas in the serum that increase is observable after 25 days, which could be associated to an increased CTGF hepatic synthesis during early fibrosis with a higher secretion in the advanced damage.
This work was funded by Conacyt (CB-221137).

## II. CIRRHOSIS AND ITS COMPLICATIONS

### 01
### MALNUTRITION AS AN ADVERSE PROGNOSTIC FACTOR RELATED TO INCREASE IN THE MORTALITY RISK AT TWO-YEAR FOLLOW-UP IN PATIENTS WITH CIRRHOSIS. A PROSPECTIVE STUDY

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**Background.** Malnutrition is highly prevalent in patients with cirrhosis. Previous studies have demonstrated its relation with greater risk of complications in these patients. **Aim.** To evaluate which prognostic factors are related to mortality in patients with cirrhosis at two-year follow-up. **Material and methods.** A cohort study which included patients with cirrhosis by any etiology. The Global Subjective Assessment (GSA) was initially performed in all patients. Each visit, they received nutritional counseling; nevertheless, a group did not have adherence to the recommendations, therefore did not have nutritional improvement. The exposed cohort was integrated for patients with moderate to severe malnutrition (grades B and C) according to the GSA. The non-exposed were well-nourished patients (A of the GSA). For univariate analysis we used $\chi^2$ or exact Fisher's test, also were calculated odds ratio and 95% confidence intervals. For the multivariate analysis we introduced variables which were statistical significant on the univariate analysis, we performed Cox regression and Kaplan-Meier curves were constructed. A $P < 0.05$ was considered significant. **Results.** A total of 110 patients, 55.5% were women, mean age 54.5 ± 12.1 year-old. Etiology: Alcohol 53.6%, viral 14.6%, non-alcoholic steatohepatitis 21.8%, autoimmune 10%. Child-Pugh: 20% A, 57.3% B, and 22.7% C. Nutritional status: 49 (44.5%) grade A of the VGS, 58 (52.7%) grade B of the VGS, and 3 (2.7%) grade C of the VGS. In the univariate analysis were negatively associated with survival at two-year: decompensated cirrhosis or Child-Pugh B/C (65.5% *vs.* 92.3%; OR = 1.4; 95%CI: 1.2-1.7; P = 0.007), malnutrition (57.4% *vs.* 89.8%; OR = 1.6; 95%CI: 1.2-2.0; P < 0.0001), presence of ascites (57.4% *vs.* 89.8%; OR = 1.6; 95%CI: 1.2-2.0; P < 0.0001), and history of hospitalization because of bacterial infection in the last two years (35.3% *vs.* 78.5%; OR = 2.2; 95%CI: 1.2-4.3; P = 0.001). Did not influence: age, gender, etiology, variceal bleeding, hepatic encephalopathy. In the multivariate analysis malnutrition (HR = 3.4; IC al 95%:1.3 a 9.3; P = 0.01) and presence of ascites (HR = 3.0; 95%CI: 1.1-8.5; P = 0.04) were factors that increase the risk of death of cirrhotic patients at two-year follow-up, independently of Child-Pugh stage. **Conclusion.** Malnutrition is a risk factor that increases the probability of death in cirrhotic patients. Is important can count with a multidisciplinary team and health-care programs which takes in count the nutritional intervention in patients with cirrhosis.

### 02
### P300 POTENTIALS EVOKED BY AUDITORY STIMULATION (A Y B) FOR DIAGNOSIS OF MINIMAL HEPATIC ENCEPHALOPATHY

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**Background.** Minimal hepatic encephalopathy (MHE) diagnosis is complex. P300 potentials can be elicited by auditory or visual stimulation. A two stimuli paradigm, standard and target to obtain typical P3b and a three stimuli paradigm standard, distractor and target to obtain P3a. Both types of P3 have not been explored in this setting. P3 potential are an objective tool, capable of detecting minimal changes in cerebral function regarding processing of information. P3a/b are obtained from pairing stimuli with ongoing electroencephalogram. Aim: To evaluate P300 (A and B) for diagnosis of MHE, and to compare their latency versus another diagnostic tools. **Material and methods.** We included cirrhotic patients paired with a group of healthy-controls. We excluded patients with overt hepatic encephalopathy, taking medications as: antidepressants, anxiolytics, anti-ammonia; also infected patients, or with previous diagnosis of any neurological disease. In one session neuropsychological battery PHES, Critical Frequency Flicker (FCC), visual-P300 and auditory-P300a/b were obtained from each participant. P300b was considered as gold standard. **Results.** 26 healthy-controls were included, 17 women, age 39.69 ± 8.7; and 40 cirrhotic, 24 women, age 56.10 ± 9.23. Child-Pugh A-B-C 24-14-02, the frequency of detection of MHE was: PHES 21 (52.50%) patients, CFF 29 (72.50%), P300v 30 (75%), P300a - 33 (82.5%) P300b 27, (67.50%). Sensitivity and specificity were 51.7%, 45.5% for FCC-PHES; 60%, 70%, for visual-P300, 66.7%, and 76.9%, for P300a-B S= 72.7 E= 46.9; Positive and negative predictive values were: 72.42%, 50.75% for P300a. **Conclusions.** Nowadays there is not an ideal tool for diagnosis of MHE. Both types of P300 are new diagnostic tools available in this setting. Regardless of the modality visual or auditory, P300 showed better sensitivity and specificity than CFF, and also better predictive values visual-P300 compared to other diagnostic tools.

### 03
### RETROSPECTIVE ANALYSIS OF THE EFFICACY AND SAFETY OF TERLIPRESSIN PLUS VARICEAL LIGATION VERSUS OCTREOTIDE PLUS VARICEAL LIGATION IN PATIENTS WITH ACUTE VARICEAL BLEEDING

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**Background.** Acute variceal bleeding has high mortality (15-20%). There are just a few of trials about efficacy and safety of vasoactive drugs plus endoscopic treatment. Objective: To

**(II.03) Table 1.**

| | Total (n = 45) | TRL/VL (n = 27) | OCTR/VL (n = 18) | p |
|---|---|---|---|---|
| • Comparison of vasoactives safety. | | | | |
| Adverse effects | | | | |
| Abdominal pain | 7 (15.5) | 7 (26.9) | 0 (0) | 0.01 |
| Peripheral ischemia | 1 (2.2) | 1 (3.7) | 0 (0) | 1 |
| • Comparison of vasoactives efficacy | | | | |
| Control of bleeding, n (%) | 40 (88.8) | 24 (88.8) | 16 (88.8) | 1 |
| Impatient stay ≤ 5days | 39 (86.7) | 22 (81.5) | 17 (94.4) | 0.377 |
| Transfusion requeriment | 31 (68.9) | 19 (70) | 12 (66.7) | 0.792 |
| Use of rescue therapy | 40 (88.8) | 25 (92.6) | 15 (83.3) | 0.375 |
| Mortality at 6 weeks | 5 (11.1) | 3 (11.1) | 2 (11.1) | 1 |

analize the efficacy and safety of the terlipressin plus endoscopic variceal ligation (TRL/VL) *vs.* octreotide plus endoscopic variceal ligation (OCTR/VL). **Material and methods.** Transversal, comparative study including patients who had been diagnosed with esophageal variceal bleeding between 2012 and 2016 and whom were been treated with TRL/VL or OCTR/VL. Using $\chi^2$ and fisher exact probability test were contrasted variables of efficacy as control of bleeding (CB), mortality at 6 weeks (M-6W) and inpatient stay (IS) and variables of safety as peripheral ischemia and abdominal pain. **Results.** 45 patients were been identified: 27 (60%) TRL/VL group and 18 (40%) OCTR/VL gruop. Main age 59.9 years, 66.6% men. Control of bleeding was reached in 88.9% in both groups (p = 1.0). General M-6W was 11.1% and also for each group (p = 1.0). IS under 5 days was 81.5% in TRL/VL group and 94.4% in OCTR/VL (p = 0.38). In TRL/VL group were identified 7 cases of abdominal pain as an adversal effect and no one case in OCTR/VL group (p = 0.01). The prolongated inpatient stay (> 5 days) was observed in 7.7% of patients whom were submitted to an early endoscopy (< 24 h) *vs.* 50% of those with an endoscopy after 24 h. **Conclusions.** The efficacy of TRL/VL y OCTR/VL was similar. Were observed more cases of abdominal pain in TRL/LV group. Patients submitted to an early endoscopy had a shorter IS.

## 04
## COMPARATION OF TWO PROPHYLACTIC ANTIBIOTICS FOR SPONTANEOUS BACTERIAL PERITONITIS IN PATIENTS WITH CIRRHOSIS AND ASCITIS: RIFAXIMINE *VS.* CIPROFLOXACINO (preliminary report)

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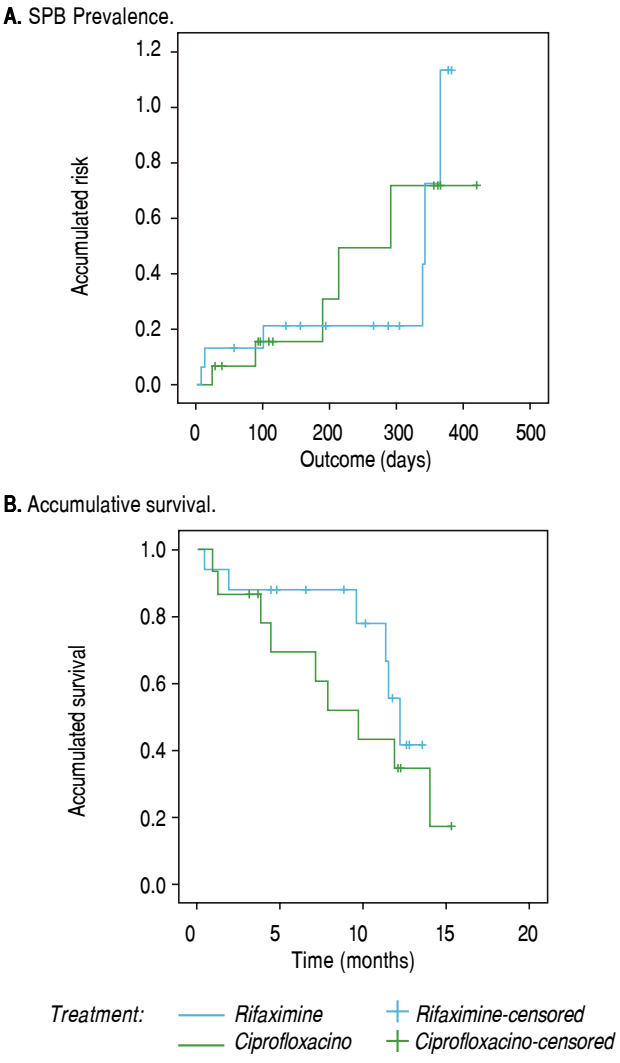
**Introduction.** Systemic antibiotics as prophylaxis have decreased risk for development spontaneous bacterial peritonitis (SBP) in cirrhotic patients (CP). It implies a risk development for antimicrobial resistance. An intraluminal antibiotic could reduce the number of SBP episodes without favoring the development of multiresistant strains. Objective: Compare rifaximin *vs.* ciprofloxacin, as prophylaxis in cirrhotic patients with risk factors, determine number and characteristics of infections, general mortality and associated to sepsis. **Material and methods.** We perform a prospective, randomized and open study, with duration of one year. Started in September 2015 and ongoing. In-




***(II.04). Figure 1. A.** SPB Prevalence. **B.** Accumulative survival.*

clusion criteria: CP with Child-Pugh Score ≥ 7 and risk factors. Two groups were formed: (RIFAXIMINE *vs.* CIPROFLOXACINO). **Results.** Currently, have been included 33 patients, two (one in each group) have left the study because: - one required RIFAXIMINE for recurrent hepatic encephalopathy and - another received NORFLOXACINO as part of a protocol in another institution. 31 patients were included in the present analysis, 25 completed follow-up and 6 are under surveillance. Eleven patients presented SBP (35.5%); six in group 1 and 9 in group 2; between 9 and 12 months after initiation of the study: Group 1:301 days, CI 95% [236-366], and Group 2:299 days 95% CI [218-380]) (Figure1A). 5/31 (48%) have died (Figure 1B), 6 in group 1 *vs.* 9 in group 2. Seven were related to SBP (six in group 1 *vs.* 9 in group 2) and 8 remaining. **Conclusions.** None of the groups eliminated the risk of SBP. The frequency seems to be similar in both groups until now. There is a greater trend of systemic infections and mortality in the ciprofloxacin group. More randomized controlled trials are needed to confirm our results.

## 05
## CLINICAL CHARACTERISTICS OF PATIENTS WITH ACUTE-ON-CHRONIC LIVER FAILURE

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**Background and aim.** Acute-on-chronic liver failure (ACLF) is observed in the most advanced phase of cirrhosis. These patients show acute deterioration secondary to overexposure of liver damage or precipitating factors such as infections resulting in multiorgan failure. Our objective is to describe the clinical characteristics of patients with ACLF that are admitted to the Gastroenterology department of the General Hospital of Mexico. **Material and methods.** A retrospective and observational study was conducted from february to march 2017. Patients with cirrhosis that were admitted to the Gastroenterology service were included. Data collected were processed with descriptive statistics. **Results.** From 90 patients admitted we found 10 cases (11%) of patients with ACLF (60% men) with a mean age of 53.6 years (ED 13.8). The distribution according to the Child-Pugh score: B-3 patients and C-7 patients. MELD-Na scale with a median of 27 (11-37). Cirrhosis etiology: alcohol 70%, NASH 20%, and cryptogenic 10%. The most common reason for admission was hepatic encephalopathy in 30% of patients and grade 3 ascites in 20% of patients. We classified 70% in ACLF grade 1 (5 with renal failure, and 2 with grade III-IV hepatic encephalopathy + creatinine 1.5-2.0), 20% with ACLF grade 2 (2 organ failures: 1 with grade III-IV hepatic encephalopathy + renal failure, and 1 with renal and circulatory failure), 10% with ACLF grade 3 (hepatic, renal and coagulation failure). We registered a CLIF-Organ Failure Score with median of 8.5 points (7-11); CLIF-C ACLFS with median of 44.5 points (27-63); CLIF-SOFA with median of 10 points (4-13). In the ACLF grade 2 and 3 we registered a CLIF-Organ Failure Score with median of 10 points (10-11); CLIF-C ACLFS with median of 51 points (47-57); CLIF-SOFA with median of 12 points (11-13). **Conclusions.** In our setting the percentage of patients with ACLF is similar to the general population (10%) and since it is an entity with high mortality in the short term, a multidisciplinary management should considered.

## 06
## EFFECTIVENESS AND SAFETY OF COMBINES TREATMENT WITH TERLIPRESIN AND ESOPHAGEAL BAND LIGATION IN PATIENTS WITH VARICEAL HEMORRHAGE

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**Background and aim.** Variceal hemorrhage is the most serious complication of portal hypertension leading to high mortality in cirrhotic patients. The optimal treatment for this requires an adequate strategy to control the acute event. The objective of this study is to assess the effectiveness and security of combined treatment of terlipressin and band ligation in patients with esophageal variceal bleeding. **Material and methods.** A retrospective and observational study was conducted from december 2016 to march 2017, where patients with digestive variceal hemorrhage admitted to the Gastroenterology service that were treated with terlipressin and esophageal variceal band ligation. **Results.** 19 patients (52.6% men) treated with terlipressin and variceal band ligation were evaluated with a mean age of 62 years (ED 13.17). The distribution according to the Child-Pugh: A-1 patient (5.2%), B-14 patients (73.6%) and C-4 patients (21%), MELD-Na scale with a median of 20 (12-27). Cirrhosis etiology: alcohol 68.4%, cryptogenic 15.7%, HCV, NASH and autoimmune hepatitis 5.2% each. There was a median hospitalization of 3 days (2-7). All patients received terlipressin from admission with a median administration of 3 days (1-6). The dose of terlipressin used was 1 mg every 4 h or 1 mg every 6 h. The endoscopic findings were bleeding by: large esophageal varices with red signs in 13 patients (68.4%), large esophageal varices without red signs 4 patients (21%), large remnants with red signs 2 patients (10.5%). All patients were discharged for improvement (100%). Just one (5.2%) of these patients was readmitted for gastrointestinal bleeding with endoscopic finding of post-ligation ulcer, being treated successfully with terlipressin for 2 days. **Conclusions.** Combined therapy with terlipressin and esophageal band ligation showed a success rate of 100%. No complications or adverse effects were observed, and just one patient developed gastrointestinal bleeding relapse which showed improvement after new therapy with terlipressin.

## 07
## HEPATIC ENCEPHALOPATHY OF MINIMUM CHANGES AND COGNITIVE ALTERATIONS IN ELDERLY ADULTS WITH HEPATIC CIRRHOSIS

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**Introduction.** The most commonly used test to detect hepatic encephalopathy of minimal changes (MHCS) is the neuropsychological battery for hepatic encephalopathy (PHES). The way this entity is distributed in older adults has not been explored and could be accompanied by other types of mental alterations that add to aging, so that identifying the differences between older and younger adults with cirrhosis and MChS may benefit them in their Clinical approach. **Objective.** In elderly and young cirrhotic patients, compare the degree of cognitive impairment with and without a diagnosis of HCMV. **Material and methods.** We included adults over 60 years of age and from 18 to 59 years old with liver cirrhosis without treatment with antidepressants or anxiolytics, without active infection, or with known neurological diseases. The neuropsychological battery was applied to detect MHCS and the neuropsychological Neuropsi test to detect cognitive impairment. A binary logistic regression was performed to determine the contribution of age and detection of MHCS in cognitive impairment. **Results.** Seventy-one patients were included, 34 young (age 49.32 ± 9.01, 19 women) and 37 adults older than 60 years (age 66.03 ± 5.12, 21 women). EHCM was detected in 54.8% of older adults compared to 45.2% in young adults. Cognitive impairment was higher in young adults 55.2% than in older adults 44.8%. The best predictor for cognitive impairment was to have a diagnosis of MHCS (OR = 2.78) than the age group. **Conclusions.** In patients with cirrhosis ECHM is more frequent in older adults, however, cognitive impairment is greater in young adults. It is more than twice as likely to have cognitive impairment coupled with MHCS in young adults than in older adults, which may be associated with the severity of liver disease.

## 08
## COMPARISON BETWEEN CORPORAL COMPOSITION EVALUATED BY CONVENTIONAL BIOIMPEDANCE AND VECTORIAL ANALYSIS, WITH HEPATIC STEATOSIS MEASURED BY ELASTOGRAPHY AMONG CIRRHOTIC PATIENTS

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**Introduction.** Nutritious evaluation is a problem among patients with hepatic cirrhosis (HC) because of changes in the corporal composition (fat mass, muscular depletion, and hidroelectrolitic). Obesity is an adverse factor associated to HC. Few evidences exist on prevalence of overweight/obesity and its relationship with the hepatic steatosis degree in cirrhotic patients. **Aims:** To evaluate adiposity excess (AE) by conventional bioimpedance (CB) and vectorial analysis (RXc), related to hepatic steatosis presence by means of elastography (FS). **Material and methods.** Transversal research defined by AE the criterion fulfilled by conventional bioimpedance or vectorial analysis, relating hepatic steatosis existence measured by FS, among cirrhotic patients. Since November 2016 to February 2017, only compensated patients, included on Child-Pugh A and B scale, were recruited. **Results.** 67 patients were evaluated, 41 women (61%) and 26 men. The AE prevalence by CB was 81% and 31% by RXc. In total, 29 patients (43%) presented hepatic steatosis by FS. From 41 evaluated women, 17 (41%) presented steatosis by FS, which 16 of them had AE by CB (94%) and only 5 by RXc (29%). From 26 men, instead, 12 (46%) had steatosis by FS, 10 of them presented AE (83%) by CB and 4 by RXc (33%) only. On the other hand, 20 women (48%) and 14 men (54%) were classified as cachectic ones by means of RXc. **Conclusions.** This difference among methods to diagnose AE, confirms the CB is based on healthy people showing customary hydrated states, overestimating AE with 81% quite high prevalence in our research. The RXc instead, evaluates the hydration changes in the state of hydration, obesity, cachexy and musculature with prevalence AE of 31%. As a conclusion, using RXc, is the best way that reflects AE in cirrhotic patients, nevertheless, there have been patients suffering by hepatic steatosis measured by FS, with or without AE. More long term studies and its continuity to know the AE impact in HC evolution.

## 09
## NONSELECTIVE β-BLOCKERS EFFECT IN DECOMPENSATED CIRRHOSIS AND ACUTE KIDNEY INJURY

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**Background and aim.** Non-selective beta-blocker (NSBB) use in patients with decompensated cirrhosis (DC) is controversial. It has been suggested that the use of NSBB in DC predisposes patients to acute kidney injury (AKI), negatively influencing the evolution and outcome. The aim was to determine the risk for acute kidney injury (AKI) related to NSBB use in decompensated cirrhosis admitted patients and mortality outcome. **Material and methods.** Transversal study. Patients with DC admitted at the Instituto Nacional de Ciencias Médicas y Nutrición "Salvador Zubirán" during the period 2015-2016 were enrolled. The presence of AKI at admission/during hospital stay was evaluated and compared between those taking NSBB (NSBB+) *vs.* not (NSBB-), mortality was also compared. Comparisons between variables were analyzed with $\chi^2$, Cramer's V and Student T. **Results.** One hundred and five cirrhotic patients were enrolled (59 ± 15.2 years, women: 64.8%, MELD: 19.0±7.3) hepatitis C (32.4%) and cryptogenic (22.9%). At admission, 67 (63.8%) patients were NSBB+ *vs.* 38 (33.2%) NSBB-. NSBB+ group had lower mean arterial pressure (p = 0.041), there was no difference in heart rate (81 ± 14 *vs.* 86 ± 19). AKI incidence was similar in both groups NSBB+ (67.16%) *vs*. the NSBB- (77.4%), most common AKI was type 1 (48.6%). There was no correlation between the NSBB+ and AKI development during hospitalization (p = 0.307). There was no significant

difference in serum creatinine levels between the groups during hospitalization and follow-up. Course of AKI was similar between the groups. 11 patients NSBB+ died (16.4%) and 4 NSBB- (10.5%), without correlation between NSBB+ and death (p = 0.407). Six months survival was not statistically different between NSBB+ *vs*. NSBB- (p = 0.141). **Conclusion.** We do not observe differences between the two groups related mortality. There were 11 deaths in NSBB+ and 4 in NSBB-, however, as we have a greater number of patients in NSBB+, no significant difference was found. The results of our study suggest that the use of beta-blocker in DC admitted is safe, does not increase the frequency of AKI or mortality. It is necessary to increase the number of patients to confirm these findings.

## 10
## EVALUATION OF ANXIETY AND DEPRESSION IN PATIENTS WITH LIVER CIRRHOSIS HOSPITALIZED IN HOSPITAL GENERAL DE MÉXICO

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**Background.** Anxiety and depression in patients with cirrhosis affects quality of life and mortality rate. The objective of this study was to evaluate the presence and degree of anxiety and depression in patients with liver cirrhosis in hospitalized patients at Hospital General de México "Dr. Eduardo Liceaga". **Material and methods.** The Hamilton anxiety and depression scale was used to identify cases among patients with no psychiatric disease, and those with more than 8 points were considered positive for depression and more than 7 points were diagnosed with anxiety in patients with hepatic cirrhosis from February to April of 2017 hospitalized in the Service of Gastroenterology, excluding those with hepatic encefalopathy manifest or another psychiatric disorder in the last 6 months. **Results.** 30 patients were included, with a middle age 56 (range 32-71), 15 women and 15 men, Child Pugh ABC 3-15-12, illiterates 4, elementary education 10, high school education 14, college education 2. Etiology: alcohol 20, NASH 3, HCV 3, HBV 1, HAI 1, Cryptogenic 2; Diagnosed with anxiety 25 patients (83%), Depression 25 patients (83%) (mild 4, moderate 9, severe 8 and very severe 4) and 5 non-depressed. **Conclusions.** Patients hospitalized with cirrhosis have a high prevalence of anxiety and depression, and even some with severe and very severe depression, is an underdiagnosed and less treated complication, this surely has an impact on the deterioration of their quality of life. Although the studied group was small, we can suggest psychiatric evaluations for all these patients.

## 11
## FREQUENCY OF UPPER GASTROINTESTINAL BLEEDING RELATED TO PORTAL HIPERTENSION DURING A SEMESTER IN A CENTER OF REFERENCE

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**Background.** Peptic ulcer has been the most common cause of upper gastrointestinal bleeding (UGB). However, cirrhosis is the fourth leading cause of morbidity and mortality in Mexico today, suggesting that in recent years there has been an increase in UGB associated with portal hypertension. The main objective of the study was to know the most frequent causes that condition UGB in a third level referral center. **Material and methods.** Retrospective review of endoscopies performed from January to July 2016 in a Gastroenterology service due to upper gastrointestinal bleeding. Descriptive statistics were used. **Results.** 2,662 endoscopies were performed in this period of which 800 (30%) were indicated due to upper gastrointestinal bleeding. The mean age was 55.8 + 15.58 years, with 401 (50.13%) women. In order of frequency of endoscopic diagnoses were gastroesophageal variceal hemorrhage 213 (26.63%), gastric ulcer 117 (14.63%), erosive gastritis 107 (13.38%), duodenal ulcer 89 (11.13%), unidentified lesion 82 (10.25%), tumors 75 (9.38%), erosive esophagitis 30 (3.75%), Angiodysplasia 16 (2%), Erosive duodenitis 14 (1.75%), Antral gastric vascular ectasia 13 (1.63%), Portal hypertensive gastropathy 12 (1.5%), Mallory-Weiss 9 (1.13%), Dieulafoy's lesion 9 (1.13%), ectopic varices 8 (1%), Cameron ulcer 5 (0.63%), post-band ligation ulcer 1 (0.13%). **Conclusions.** The main causes of UGB due to portal hypertension were esophageal, gastric and ectopic varices, as well as portal hypertensive gastropathy. However, causes not related to portal hypertension continue to predominate as the most frequent cause. UGB due to portal hypertension corresponds to 30.89% of all causes of upper gastrointestinal bleeding in a third-level referral center.

## 12
## IMPACT OF INFECTIONS ON THE MORTALITY OF PATIENTS WITH LIVER CIRRHOSIS

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**Background.** Infections are common in patients with hepatic cirrhosis (HC) and are associated with poor prognosis. At present, in our population, there are no studies that analyze the risk of mortality of the different infections related to the severity scales in cirrhotic patients. **Objectives.** To evaluate the impact of different infections on the mortality of patients with HC. **Materials and methods.** A case-control study was performed in patients with HC between 18 and 70 years of age, hospitalized from March 1st, 2014 to March 1st, 2016. Patients with a history of neoplasms (except hepatocellular carcinoma), immunosuppressive therapy, extra-hepatic autoimmune diseases, and HIV infection were excluded. We recorded general demographic

variables, prognostic scales (Child-Pugh and MELD) and infections occurred, according to the clinical guidelines of the Infectious Diseases Society of America besides to the primary outcome that was death. For the demographic analysis, numbers and percentages were determined for the qualitative, median and inter-quartile variables for the quantitative variables with abnormal distribution and for the comparison of populations $\chi^2$ and Kruskal-Wallis tests were used correspondingly. For the mortality analysis, odds ratios and risk rates were calculated with 95% confidence intervals by binary logistic regression and Cox regression in uni and multi-variant models correspondingly and for the contrast of hypothesis $\chi^2$ test was used. **Results.** A total of 100 patients with a mean age of 57 years with the predominance of women (59%) were analyzed and the predominant etiology was hepatitis C virus infection (38%). Seventy-seven patients had an infection. A correlation was observed between the prognostic scales and infection rates. Of the 77 infected patients, 23 (28.8%) died and of the 23 non-infected 3 (13%) died at the end of follow-up. In multivariate analysis, an increase in mortality was observed in patients with soft tissue infections (OR 5.22, CI 95% 1.19-22.87) and neuro-infections (OR 14.48 CI 95%, 1.19-175.59). **Conclusions.** There was an increase in the risk of mortality in patients hospitalized with CH who presented soft tissue infections and neuro-infections.

## 13
## ASOCIATION BETWEEN DYSGEUSIAS, QUALITY OF LIFE AND NUTRIENT CONSUMPTION IN PATIENTS WITH CIRRHOSIS

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**Background and aim.** Nutrient consumption and quality of life were affected in patients with cirrhosis. Is unknown their association with presence of disgeusias. The aim of this study was to determine the association between nutrient consumption and quality of life with presence of disgeusias in patients with cirrhosis. **Material and methods.** We evaluated the presence of dysgeusias for 5 basic tastes in 62 patients with cirrhosis. Dietary nutrient consumption was assessed with a validated consumption frequency in Mexican population; quality of life was evaluated by Spanish version of Liver Disease Quality of Life Questionnaire. Statistical analysis was performed with Mann-Whitney U. **Results.** 48.4% (n = 30) of sample were females, median age was 57 ± 10 years. Prevalence of global disgeusias was 83.9%(52), prevalence of each taste were: salty 50% (31); sweet 40.3% (25); bitter 29% (18); tart 11.3% (7) and umami 71% (44). In the association of dysgeusia with nutrient consumption and quality of life; bitter, tart and umami tastes did not show statistically significant differences. Presence of salty taste dysgeusia was associated with lower nutrient intakes (Table 1). For the quality of life, presence of salty taste dysgeusia was associated with a lower score in the domain of concern (4.4 [IQR 3.6-5.8] *vs.* 3.0 [2.2-4.8], p = 0.02) While sweet taste dysgeusia was associated with lower scores in domains of activity (6.0 [IQR 5.0-6.6] *vs.* 5.0 [3.8-6.0], p = 0.008) and emotional (4.2 [IQR 3.5-5.] *vs.* 4.8 [IQR 3.6-5.6], p = 0.04). **Conclusions.** The prevalence of dysgeusia in patients with cirrhosis is high and is associated with the decrease in nutrient consumption and quality of life.

## 14
## HOSPITALIZATION SECONDARY TO INFECTION AS A PRINCIPAL CAUSE OF MORTALITY IN PATIENTS WITH LIVER CIRRHOSIS

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**Background and aim.** Bacterial infections are common in liver cirrhosis patients, they confer worse short and long term prognosis. The infection has shown greater mortality than hepatic encephalopathy and variceal bleeding. The objective of this study was to describe the hospital admission causes and its mortality in liver cirrhosis patients. **Material and methods.** Patients with liver cirrhosis admitted to the INCMNSZ between the period of November 2014 to October 2016 were included. Descriptive analysis and mortality comparison between admission causes were performed. **Results.** One hundred and five patients were included, 64.8% females, with a mean age of 59.99 ± 15.26 years. The most common etiology of cirrhosis was hepatitis c virus (32.4%). Infection was the main admission cause in 42 patients (40%), mainly in Child-Pugh B 18 (42.9%) and C 18 (42.8%) patients. Fifteen patients (14%) died, of which 10 (67%) were secondary to infection, mainly in Child Pugh B and C: 2 and 7 patients (90%). The most common causes of infec-

**(II.13) Table1.** Differences in nutrient consumption in patients with cirrhosis and salty taste dysgeusia.

| Nutrient | Without salty taste dysgeusia (n = 31) M [IQR] | With salty taste dysgeusia (n = 31) M [IQR] | p |
|---|---|---|---|
| Proteins (g) | 65.7 [43.1-96.2] | 44.1 [23.7-78] | 0.04 |
| Sucrose (g) | 36.8 [23.2-44.1] | 22.1 [14.9-37.5] | 0.01 |
| Fiber (g) | 26 [18.6-38.9] | 17.8 [12.2-25.6] | 0.04 |
| Calcium (mg) | 636 [399.3-1250.2] | 425.7 [231-714.4] | 0.04 |
| Iron (mg) | 11.4 [7.9-14.6] | 8.0 [6.2-11.9] | 0.04 |
| Sodium (mg) | 1540.9 [1036.7-2017.9] | 1170.1 [607.3-1779.4] | 0.04 |
| Vitamin C (mg) | 174.6 [120.6-245.4] | 133.4 [50.6-181.2 | 0.04 |
| Vitamin B2 (mg) | 1.5 [0.98-2.1] | 0.90 [0.68-1.6] | 0.04 |
| Zinc (mg) | 18.9 [10.1-25.3] | 11.05 [6.03-17.8] | 0.04 |

tion were spontaneous bacterial peritonitis (n = 4) and pneumonia (n = 3), p = 0.559. Ninety nine patients with a 6 months follow-up were included in the survival analysis, those with hospital admission for infection died in the first 30 days following admission, with greater mortality among patients with septic shock at admission, p = 0.020. There was no 6 months mortality difference (p = 0.089), indicating that mortality is equal between infected and non-infected patients after the first month of hospitalization. **Conclusions.** Infection is the main reason of hospital admission in liver cirrhosis patients, they show high mortality in the first 30 days after admission. It's important to identify and treat infection in a timely and aggressive manner in these patients. There is a necessity of more studies to stablish measures that can help to improve the prognosis.

## 15
## FREQUENCY OF ZINC DEFICIENCY IN A PATIENT WITH CIRROSIS AND HEPATIC ENCEPHALOPATHY MANIFESTA IN EVALUATION FOR ORTHOPEDIC HEPATIC TRANSPLANTATION OF THE NATIONAL INSTITUTE OF MEDICAL SCIENCE AND NUTRITION

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**Introduction.** Several studies have suggested the relationship between the pathophysiology of hepatic encephalopathy (EH), hepatic cirrhosis (HC) and decreased serum levels of zinc, as well as zinc supplementation as a therapeutic option. It is, therefore, important to know the frequency of zinc deficiency in patients with HC and manifest EH. **Objectives.** To determine the frequency of zinc deficiency in patients with HC and EH who are being evaluated for orthotopic liver transplantation (THO) at the Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán (INCMNSZ). **Material and methods.** We included 45 randomly selected patients treated as an outpatient basis at the INCMNSZ THO clinic over a period of one year (January to December, 2016), with the diagnosis of EH manifest according to the West Haven criteria. An observational, descriptive, transversal and comparative study was performed. Demographic, biochemical and clinical variables were obtained. For statistical analysis, SPSS v21 was used, taking as $p < 0.05$. **Results.** The mean age was 58 (47-63) males (53%). The predominant etiology was HCV (30%), autoimmune etiology (20%), cryptogenic etiology and NASH (15%). The most frequent clinical stage of HD was II (69%), the most frequent Child Pugh-Turcotte stage was C (53%), MELD media 14 (12-18), ammonium 59 mg/dL (33-83). The frequency of zinc deficiency in the studied population of 80% and mean values was 44 mg/dL (35.5-56.5), in patients with portosystemic short-circuit zinc deficiency was 100%, Child Pugh-Turcotte C 95.5% (p 0.001), in EH III 93% (p 0.14). **Conclusion.** Patients with cirrhosis and grade II or III hepatic encephalopathy have high frequency of zinc deficiency. It is higher in patients with portosystemic shunting, decompensated patients and grade III enfephalopathy. Diagnose and treat zinc deficiency could contribute to the clinical management of these patients.

## 16
## CAUSAL MICROORGANISMS OF BACTERIAL PERITONITIS IN PATIENTS WITH CHRONIC HEPATIC INSUFFICIENCY COMPLICATED WITH BACTERIAL PERITONITIS

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**Background.** Spontaneous bacterial peritonitis (SBP) is the most frequent infection in cirrhotic patients; in Mexico, there are no statistics regarding the bacterial etiological agents that cause this infection. **Objectives.** To describe the most frequent microorganisms reported in cultures of peritoneal fluid of patients with cirrhosis and SBP. **Material and methods.** A descriptive, observational, study that included patients with diagnostic of cirrhosis and SBP defined by the American Association for the Study of liver diseases, as the presence of ascitic fluid polymorphonuclear leukocyte counts greater than or equal to ≥ 250 cells/mm$^3$, without a source of intra-abdominal infection, treated at Hospital from January to December 2016. **Results.** In the hospital records database of 2016, 16 patients with cirrhosis and SBP, 11 male (69%), 5 female (31%), Mean age 50 years with standard deviation of ± 18 years of which 5 patients (31%) corresponded to their first episode of SBP and 11 patients (69%) with previous history of SBP. 8 ascitic cultures were negative (50%) and 8 were positive (50%). The microorganisms identified were 50% *Escherichia coli, Staphylococcus aureus* 37%, *Staphylococcus epidermidis* 13%, hepatorenal syndrome was present in 6%. **Conclusions.** The proportion of patients with recurrent SPB events is very high; studies that evaluate antimicrobial resistance in Mexican populations are required.

## 17
## SECONDARY VARICEAL BLEEDING (VB) PROPHYLAXIS WITH PROPRANOLOL ADJUSTED TO PONDERAL DOSE IN MEXICAN POPULATION

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**Background and aim.** VB continues to be the complication that is most associated with mortality in 6 weeks in patients with cirrhosis (10-20%), so the impact of early therapy, coupled with etiological treatment, with emphasis on prevention of recurrent VB is the main action to prolong survival and improve the quality of life of these patients. Less than 25% of HJM patients tolerate the recommended dose of VB secondary prophylaxis with variceal ligation plus non-selective beta-blockers NSBB (propranolol) according to current Baveno VI guidelines. **Objective.** To adjust the dose of NSBB (propranolol) at weight dose to patients with intolerability. As secondary objective the presence of rebleeding was evaluated in the following 3 months. **Material and methods.** Ambispective case-control study in which the outpatient from January 1, 2016 to March 31, 2017 > 18 years, with a history of variceal hemorrhage, who were treated with variceal ligation, were reviewed (0.3-1 mg/kg/d), assessing the tolerability of the treatment as well as the desired beta blockade. In-

tolerability is defined as refractory headache, hypotension (TAM < 60 mmHg) or FC < 50 lpm and vasomotor syncope. HCV was excluded. Descriptive IBM-SPSSv2.1 statistical analysis and relative risks. **Results.** A total of 378 files with cirrhosis diagnosis were reviewed: 174 were discarded by endoscopic report of small varices or absence of varicose oesophageal veins. 204 patients reported large varices and 99 (48%) had documented variceal hemorrhage, all of which were treated with variceal ligation. 45 Child-Pugh C decompensated for which NSBB was not offered, with a total of 19 patients with adjusted dose: 42% (8) female. Average age 53 years. Median FC61x' (50-90) TAM70mmHg (60-80). Average dose 0.54 mgkgd (0.3-1). It has been documented resorting to 14% of patients with full doses of NSBB. OR1.1 **Conclusions.** The adjustment to the dose of BBNS to the Mexican population, which presumably has a lower weight, could be safe without increasing the risk of rebleeding, according to the population studied in the HJM. Although studies involving a larger population with heterogeneous characteristics are required.

**(II.17) Table 1.**

| Aethiology | | Rebleed |
|---|---|---|
| Alcohol | 9 (47%) | 1 |
| NASH | 4 (21%) | 1 |
| PBC | 1 (5%) | - |
| AIH | 1 (5%) | - |
| SBC | 2 (10%) | - |
| Drugs | 2 (10%) | 1 |

## 18
## HEMORRHAGIC PANCREATITIS AND INTESTINAL ISCHEMIA SECONDARY TO THROMBOSIS PORTO-MESENTERIC VEIN IN PATIENT WITH CIRRHOSIS

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**Background.** Portal thrombosis associated with hepatic cirrhosis appears silently, presenting manifestations such as hemorrhage, abdominal pain, ascites or deterioration in liver function. **Objective.** Report the case of hemorrhagic thrombus complications in a patient with liver cirrhosis. **Case report.** Female 37 years old with liver cirrhosis of unknown etiology diagnosed in 2014, history of ascites decompensation and presence of esophageal varices with variceal ligation. We entered our unit for generalized abdominal pain of 72 h of evolution, with no evidence of digestive hemorrhage and hemoglobin of 2.9 g/dL. Endoscopy with remaining large varices without red signs, post-ligation changes and severe portal hypertensive gastropathy. During her hospital stay persisted with abdominal pain, bacterioascitis secondary to streptococcus of the Viridans group was identified and empirical coverage with ertapenem was obtained with morbid evolution. She presented neurological deterioration and refractory shock to vasopressors, resulting in the death of the patient. An autopsy was performed which revealed coagulative necrosis of the liver, portal vein vascular occlusion, superior mesenteric, multiple subacute splenic infarctions, acute ischemic enteritis and acute hemorrhagic pancreatitis. **Discussion.** The case corresponds to a patient with decompensated chronic liver disease, persistent abdominal pain who developed multiorgan failure with thrombosis of venous portal splenic vein, superior mesenteric and pancreatic hemorrhage with a fatal outcome. Coagulation abnormalities in patients with cirrhosis are generally manifested with hemorrhage, despite the presence of thrombotic-hemorrhage complications at different levels in a well-recognized phenomenon. The most common site of thrombosis is the portal vein and mesenteric veins, ranging from 8-16%. Therefore, thrombotic complications should always be considered in patients with hepatopathy with acute abdominal pain. This work has not been fully or partially sponsored by any governmental or commercial system.

## 19
## ACUTE ON CHRONIC LIVER FAILURE (ACLF), ONE YEAR EXPERIENCE IN THE DEPARTMENT OF GASTROENTEROLOGY OF HOSPITAL JUÁREZ DE MÉXICO

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**Introduction and objectives.** Acute on chronic liver failure (ACLF) is a common patology in our setting. There are currently no studies in Mexico on the epidemiological panorama of this disease. The objective of this work is to present the frequency and behavior of the ACLF. **Material and methods.** Type of study: Descriptive, transversal, observational. Patients with hepatic cirrhosis admitted to hospital for acute decompensation or ACLF, in the Department of Gastroenterology from March 1, 2016 to February 28, 2017. Variables: Age, sex, precipitating factors, patients with acute decompensation, ACLF, ACLF grade and mortality. **Results.** A total of 211 patients, aged between 27 to 88 years (80 women and 131 men) with diagnosis of hepatic cirrhosis with acute decompensation or ACLF, 164 presented acute decompensation (77.73%) and 47 ACLF (22.27%). Of the patients with ACLF it was observed that 46.81% presented ACLF grade I, 42.55% ACLF grade II, and 10.64% ACLF grade III. The main precipitating factor in patients with acute decompensation was gastrointestinal bleeding in 67.68% while in patients with ACLF were infections in 63.83%. The most frequent organic failure was the renal failure, with 65.96% of patients with ACLF, the general mortality rate was 18.01%, of the deceased patients 39.47% corresponded to acute decompensation and 60.53% to ACLF. **Conclusions.** The Acute on Chronic Liver failure is a frequent in patients with hepatic cirrosis, approximately 2 out of 10 hospitalized cirrhotic patients will present ACLF (22.27%), approaching the frequency of 32.4% that was observed in the CANONIC study. The main precipitating factor in patients with ACLF were infections, observing that the most common organic failure in ACLF was the renal, and this is of great relevance for the treatment approach in patients with hepatic cirrhosis, 6 out of 10 patients who died had ACLF, So it is of importance to identify patients with ACLF from their admission to treat the precipitating factor and manage the organic failures that will impact on the prognosis of the patient.

## 20
## LONG TERM CLINICAL AND REAL-WORLD EXPERIENCE WITH A SLOW RELEASE FORMULATION OF PIRFENIDONE IN PATIENTS WITH ADVANCED HEPATIC FIBROSIS. PROMETEO STUDY

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**Introduction.** Pirfenidone (PF), a drug with potent anti-inflammatory, anti-oxidant and antifibrotic effects has granted marketing authorization by EMA, FDA and Mexican COFEPRIS, for the treatment of idiopathic pulmonary fibrosis. However, few studies have focused on its clinical utilization in patients with hepatic fibrosis of diverse etiology. **Aim.** To describe the clinical and real-world experience with a slow release PF formulation (KitosCell LP®) in patients with liver fibrosis in Mexico. **Material and methods.** A total of 139 patients using KitosCell LP® (600 mg bid) were identified from 5 centers; 94 subjects received the formulation for less than one year and 45 for at least 1 year or more; mean results are reported at M0 and M12. Efficacy was assessed using METAVIR scoring charts, by non-invasive tests (APRI, Fibrotest) or by elastography (Fibroscan or ARFI); variations greater than or equal to 0.5 units in APRI, 0.10 units or 5 kPa or 1 point in METAVIR, were considered as significant. Baseline fibrosis, according to Fibrotest was F4 in 77.8%, F3-F4 in 4.4%, and F3 in 17.8%. **Results.** 44.4% were women, 60 ± 9 years old; 31.1% with metabolic damage, 26.6% viral, 24.4% alcohol, 15.5% autoimmune and 2.2% others. Mean biochemical values were: Hb (g/dL): 14.0 ± 2.1, 13.6 ± 1.5; Platelets (x 103): 97 ± 6, 97 ± 8; TB (mg/dL): 2.0 ± 0.8, 1.3 ± 0.6; Albumin (g/dL): 3.5 ± 0.6, 3.5 ± 0.5; PT (INR): 1.3 ± 0.4, 1.2 ± 0.3; ALT (IU/L): 53 ± 4.48 ± 3; AST (IU/L): 69 ± 7, 53 ± 3. In relation to fibrosis we detected: In terms of safety, 8 patients (11%) reported transient burning or nausea, 7% photosensitivity. In 4/45 patient's progression to mortality (8.8%) was observed due to variceal hemorrhage (2), ascites (1) or sepsis (1). **Conclusion.** Administration of Kitoscell LP at 12 months in patients with hepatic fibrosis was well tolerated and associated with encouraging efficacy results.

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**(II.20) Table 1.**

| Scenarios of hepatic fibrosis evolution | APRI (n = 45) | FibroTest and/or FibroScan (n = 45) |
|---|---|---|
| Stable liver fibrosis score | 25 (55.5%) | 20 (44.4%) |
| Hepatic fibrosis improvement | 15 (33.3%) | 20 (44.4%) |
| Hepatic fibrosis worsening | 5 (11.1%) | 5 (11.1%) |

## 21
## 20 YEARS OF TREATMENT WITH PENTOXIFYLLINE IN PATIENTS WITH HEPATIC CIRRHOSIS CAUSED BY VIRUS HEPATITIS C

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**Introduction.** Cirrhosis results from chronic liver disease, and it is characterized by advanced fibrosis, scarring, and formation of regenerative nodules leading to architectural distortion. In Mexico, it is the fourth leading cause of death; alcohol consumption remains the main etiology, followed by viral hepatitis, in which hepatitis C virus (HCV) infection is the most common. Approximately 180 million people worldwide have chronic HCV infection, with a prevalence of 1.4% in Mexico; and it has an average age of presentation at 42 years. Although the natural history is highly variable, it is estimated that between 20-30% of HCV infected Mexicans will progressed to cirrhosis in the next 3 decades. The median survival of patients with compensated cirrhosis is much longer than in patients with decompensation and is about 9 years; however, they will eventually developed decompensated cirrhosis and death, unless a liver transplant is performed. **Objective.** To evaluate the response of 159 cirrhotic patients by virus hepatitis C with Pentoxifline after 20 years of treatment. **Material and methods.** A retrospective, analytical study with a sample of 159 patients diagnosed with hepatitis C virus cirrhosis treated with pentoxifylline during 7 and 20 years. **Results.** It was observed that 26 (16%) of the 159 patients with virus C cirrhosis treated with pentoxifylline had a 20-year survival without progress of Child A or B stage; 34 of them died during the course of treatment due to their comorbidities and in 99 of the patients the follow-up was lost, having a record of survival up to 7 years after treatment began. It was obtained a OR of 2.5. **Conclusion.** Pentoxifylline has shown to have a beneficial effect in these patients, which motivates the use of this drug in patients with cirrhosis to improve survival up to 20 years.

## 22
## CHANGES IN MAGNETIC RESONANCE SPECTROSCOPY IN PATIENTS WITH CIRROSIS AND INFECTION

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**Background.** Hepatic encephalopathy (HE) is a cirrhosis complication, with infections being one of the major triggers. Proton magnetic resonance spectroscopy ($^1$H-MRS) is a technique that allows *in vivo* quantification of different metabolites concentrations in specific tissues. Using $^1$H-MRS in patients with HE, changes in normal concentration of metabolites have been demonstrated, such as an increase in glutamine and a decrease in myo-inositol, secondary to increased cerebral ammonia and osmotic stress derived from it. **Objective:** To assess changes in cerebral metabolites of infected

cirrhotic patients by $^{1}$H-MRS evaluation. **Materials and methods.** Case-control study. Participants were divided into three groups: non-infected compensated cirrhotics (group 1, n = 10), infected cirrhotics (with or without encephalopathy, group 2, n = 10) and healthy individuals (group 3, n = 10). Participantes were evaluated by using $^{1}$H-MRS (Simmens® equipment, Tarquin® software) with metabolites measurement in territory of basal ganglia and white matter of temporal region. *U* Mann Whitney test was used to evaluate differences between two groups, Student's T for related independent samples, $\chi^2$ for qualitative variables, Pearson's correlation coefficient to establish a relationship between two variables, and linear regression analysis was performed to evaluate the relationship between variables. A value of $p < 0.05$ was considered as statiscally significant. **Results.** The main infections in group 2 were spontaneous bacterial peritonitis in 40% and urinary tract infection in 30% of the patients. In the analysis of metabolites by $^{1}$H-MRS, a significant decrease of myo-inositol was observed in patients in group 1 compared to group 3 and in group 2 *vs*. group 3 ($p < 0.001$), this mainly in the temporal region. Additionally, a significant difference of N-Acetylaspartate was observed between healthy and cirrhotic patients infected ($p < 0.05$). The decrease in the myo-inositol peak correlates with the Child-Pugh classification. **Conclusion.** Acute infection in patients with cirrhosis changes the concentration of brain metabolites (mainly N-Acetylaspartate and myo-inositol) and may be a factor related to the development of hepatic encephalopathy.

## 23
## ESTIMATION OF HEPATIC FIBROSIS BY SHEAR WAVE ELASTOGRAPHY IN MEXICAN PATIENTS WITH CHRONIC LIVER DISEASE. PANDORA STUDY

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**Introduction.** Elastography has emerged as the noninvasive method of reference for estimating liver fibrosis by using elastic shear waves emitted manually or automatically by the vibrator attached to the ultrasound transducer probe. Methods include transient elastography (Fibroscan) and the most recent ARFI-based ultrasound devices, allowing evaluation of patients with obesity and ascites. Additionally, Shear Wave Elastography (SWE) has the advantages of providing anatomic B-mode US images and elastographic color maps according to the degree of stiffness in specific regions of interest. However, there are few Mexican studies describing its experience. **Objective.** To describe the prevalence, type and grade of hepatic fibrosis in a group of patients from two Mexican centers using a SWE equipment. **Material and methods.** A total of 184 patients (site 1 = 104, site 2 = 80) were studied, with a mean age of 56 ± 13 years; 57% were women, with suspected chronic liver disease (in 42%) or cirrhosis (in 58%). Causes of liver damage included NASH in 35.8%, HCV 32.8%, autoimmune 21.2%, alcoholic 9.5% and other 1%. Patients were evaluated with an Aixplorer ultrafast US system (Supersonic Imagine) equipped with an SXC 6-1 convex transducer. Measurements (at least 5) were performed in fasting conditions, in apnea, at the level of segments 6 and 7, with results expressed in kilo Pascals and m/sec. Optimal reliability criteria was met with values lower 0.3, calculated by the interquartile range/median value (IQR/M). Hepatic rigidity was estimated according to the semi-quantitative METAVIR scoring chart. Those patients with F4 scores were further sub classified by using the 7 grades-METAVIR extended system to evaluate risk of esophageal varices, variceal bleeding, sepsis, cancer or increase mortality. **Results.** The study was reliable in 179 subjects (97%), including 6 patients with ascites and various degrees of obesity, with BMI ranging between 16.2 and 40. The findings demonstrated a wide range of fibrosis from F0 in 10.1%, F1 in 19.6%, F2 in 17.9%, F3 in 11.2, F4 in 41.3%. Among subjects with F4 (n = 73) scores, 30 were classified as F4.1 (41%), 35 in F4.2 (48%) and 9 in F4.3 (12%). **Conclusion.** Liver stiffness evaluation with an Aixplorer equipment (SW-Elastography) proved to be a simple, high applicability and reliable method for the estimation of liver fibrosis in patients with chronic liver disease.

## 24
## RELATION BETWEEN DETACHMENT TO MEDICAL CHECKUP AND COMPLICATIONS IN PATIENTS WITH CIRRHOSIS OF THE CENTER FOR RESEARCH ON LIVER DISEASES AND GASTROENTEROLOGY OF PACHUCA, HIDALGO

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**Background.** Patients with decompensated liver cirrhosis present as main complications, hepatic insufficiency, jaundice, ascites, variceal hemorrhage, or hepatic encephalopathy. In Mexico, there aren't evidence of the relationship between medical checkup, and complications that can exist in patients with cirrhosis, in the private practice. **Aim.** Determine the relationship between detachment from the medical checkup and complications of patients with cirrhosis in the Center for Research on Liver Diseases and Gastroenterology (CIEHG) Pachuca, Hidalgo. **Material and methods.** Observational, retrospective, descriptive and transversal study in which reviewed and collected data from patients with cirrhosis, attended by the CIEHG, period 2014-2016, getting 65 records of patients with this pathology, who maintained a control in this center in this period. **Results.** Of the 65 patients with cirrhosis, 60% (n = 39) women, and 40% (n = 26) men, with a mean of 61.6 years, a median of 61, and a mode of 60. We were found, as etiologies: NASH 49.23% = 32), Alcohol 20% (n = 13), chronic infection of HCV 13.85% (n = 9), primary biliary cholangitis 9.23% (n = 6), autoimmune hepatitis 6.15% (n = 4) and primary sclerosing cholangitis 1.54% (n = 1). Of these patients, 21.54% (n = 14) presented Child Pugh A, 64.61% (n = 42) Child Pugh B, and 13.85% (n = 9) Child Pugh C. Within the attachment to follow up, 36.92% (n=24) maintain it adequately, while 63.08% (n = 41) present detachment; of which 7.32% (n = 3) stopped following of the first medical checkup, 46.34% (n = 19), 46.34% (n = 19), after a lapse between consultation of one month, and 46.34% (n = 19) after a lapse of more than three months and reentry to this center with decompensated cirrhosis presenting 42.1% (n = 8) Hepatic Encephalopathy, 21.06% (n = 4) Variceal hemorrhage, 10.53% (n = 2) Sponta-

neous Bacterial Peritonitis, and other causes of decompensation 26.31% (n = 5). **Conclusions.** This study show that, of the patients with cirrhosis, 36.92% maintained a good follow-up, and 46.34% of the patients with detachment with a period of more than three months, come back with decompensation data, the main cause of which was hepatic encephalopathy, followed Of Variceal Hemorrhage, and other causes such as Ascites and Dehydration. Given the above, more studies are required to validate outcome and to propose attachment strategies.

## 25
## FREQUENCY OF HEPATOPULMONARY SYNDROME IN MEXICAN PATIENTS WITH HEPATIC CIRRHOSIS

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**Background.** The reported prevalence of hepatopulmonary syndrome (SHP) in patients with hepatic cirrhosis (CH) is heterogeneous. **Objective.** Determine frequency, severity and frequent clinical characteristics of SHP in Mexican patients with HC, and utility of pulse-oximetry for SHP diagnosis. **Material and methods.** We carried out an analytical cross-sectional study at the Gastroenterology Service of Hospital Civil "Fray Antonio Alcalde", May 2015 to June 2016. Including patients ≥ 18 years of age, with CH of any etiology, hospitalized for any cause. Excluded patients with respiratory disease due to other causes, those with hemoglobin < 7 g/dL, patients with chest X-ray with pulmonary parenchyma or pleural involvement at inclusion. Oxygen saturation (SatO2) measured with digital pulse oximetry in sedestation and supine decubitus; Arterial blood gas analysis performed if had SatO2 ≤ 94%, and patients with a high arterial alveolus gradient (PA-at O2 ≥ 15 mmHg or ≥ 20 mmHg if age > 64 years) were submitted to contrast-enhanced transthoracic echocardiography (ECCT). Patients with left atrial opacification in ≥ 4 heart beats after the initial appearance of right atrial contrast, in absence of intra-cardiac communications were considered with SHP, which was classified as mild with PaO2 ≥ 80 mmHg, moderate PaO2 ≥ 60 and < 80 mmHg, severe PaO2 ≥ 50 and < 60 mmHg and very severe with PaO2 < 50 or < 300 mmHg breathing 100% oxygen. **Results.** 63 patients were included, men 88%, mean age 51.1 ± 11.7 years. CH was alcoholic 69.5%, hepatitis C virus (HCV) 11%, alcohol /HCV 6.8%, non-alcoholic fatty liver disease 8% and idiopathic 4% other 2%. Child Pugh (CP) 9.4 ± 1.6 points: 2 (3%) A, 29 (45%) B, 33 (52%) in C. Mean MELD 18.2 ± 7.6. I9 (30%) patients SatO2 ≤ 94% was identified, of which 16 patients had elevated PA-to O2, 13 (20.3%) patients had positive ECCT for SHP. SHP patients, 50% reported dyspnoea, 19% were platypnea, 19% digital clubbing, and 12% showed ordeoxy. The sensitivity of SatO2 to diagnose SHP was 100% and specificity was 88.2%, positive predictive value was 68.4% negative predictive value was 100%. A Pearson correlation was performed to determine if SHP severity associated with CH severity by CP, Rho of 0.23 (p = 0.43) MELD of 0.15 (p = 0.62). **Conclusions.** Frequency of SHP in Mexican patients with CH was 20.3%, similar to that reported in the literature, 55% was moderate SHP. The most common symptom was dyspnea. SatO2 is very sensitive but less specific to detect SHP in CH and because of its high PPV, it is possible to safely rule out severe SHP by restricting the use of more expensive and invasive tests for patients with significant hypoxemia. There was no association between CH severity and SHP severity.

## 26
## VALIDATION OF THE CLIF-C-ACLF SCORE TO PREDICT 28-DAY MORTALITY IN HOSPITALIZED MEXICAN CIRRHOTIC PATIENTS

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**Background.** Fifteen percent of the patients with cirrhosis develop complications each year. The severity of the complications is strongly related to the hepatic reservoir function and the liver's structural lesion. Decompensated cirrhosis can lead to reduction of the patient's life expectancy, organ failure and short-term mortality. The CLIF-C-ACLF Acute Decompensation score (CLIF-C ACLF) is a score that predicts the 30 and 90-day mortality. There is not enough national data on the accuracy of this prognostic score. **Objective.** To validate the accuracy of CLIF-C-ACLF to predict 28-day mortality in Mexican patients with cirrhosis and acute-on-chronic liver failure (ACLF). **Material and methods.** Observational analytic prospective study that evaluated 75 consecutive patients with liver disease between October 2016 and March 2017. At admission, the CLIF-C ACLF score was assessed. **Results.** The mean age was 54.6 ± 12.51 year-old, 57.3% females. The cause of cirrhosis was alcoholic liver disease in 49.3% and nonalcoholic fatty liver disease in 12% of the patients. The major complications where hepatic encephalopathy (42%) and ascites (24%). Six patients (8%) did not met the criteria for ACLF, 27 (36%) had ACLF grade I, 28 (37.3%) had ACLF grade II and 14 (18.7%) ACLF grade III. The 28-days mortality was 46.4% for the ACLF patients in comparison to 16.7% who did not meet ACLF criteria. The area under the curve to predict 28-day mortality was 0.663 ± 0.062. **Conclusion.** The CLIF-C-ACLF score demonstrated validity to predict 28-day mortality in our population.

## 27
## PREDICTIVE FACTORS OF BLEEDING RELATED TO POST-BANDING ULCER FOLLOWING ENDOSCOPIC VARICEAL LIGATION IN CIRRHOTIC PATIENTS: A CASE-CONTROL STUDY

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**Introduction.** Variceal bleeding accounts for 10-30% of cases of upper gastrointestinal bleeding and is the most frequent complication of portal hypertension. The treatment of choice is endoscopic ligation. Although rare, post-banding ulcer (PBU) is a complication. **Objective.** To determine the predictive factors of PBU bleeding in cirrhotic patients. **Material and methods.** Case studies (cirrhotic with esophageal varices

that developed PBU) and controls (without PBU). **Results.** From January 2012 to January 2017, 5475 endoscopic procedures were recorded; 117 patients with esophageal varices were diagnosed for cirrhosis and portal hypertension; 61 were men (52.1%); mean age 58.4 ±11.5 year-old; cause of cirrhosis: 56 (47.9%) alcohol, 18 (15.4%) viral, 43 (36.8%) others. According to Child-Pugh: 33 (28.2%) A, 46 (39.3%) B, 38 (32.5%) C. Indication of endoscopy: 21 (17.9%) primary prophylaxis, 68 (58.1%) secondary prophylaxis, 28 (23.9%) active bleeding. We found 39 cases (33.3%) of PBU. In the univariate analysis, the following were associated with an increased risk of PBU: The decompensated cirrhosis (Child B/C) (38/84 (45.2%) *vs.* 1/33 (3.0%), OR = 17.9, CI 95% 3.3-97.4, p < 0.0001), the presence of endoscopic signs with poor prognosis (35/44 (77.3%) *vs.* 4/73 (5.5%), OR = 14.5, 95% CI 5.5-38.1; p < 0.0001). Prophylaxis with beta-blockers behaved as a protective factor (27/101 (26.7%) *vs.* 12/16 (75%), OR = 0.1, 95% CI 0.04-0.4, p < 0.0001). Other factors did not influence. **Conclusions.** The use of beta-blockers is a protective factor to prevent the development of PBU; on the other hand, the decompensation of cirrhosis is associated with an increased risk of PBU, but in our patients the presence of endoscopic signs with poor prognosis was the worst factor associated with PBU development.

## 28
## FREQUENCY OF DREAM DISORDERS IN PATIENTS WITH CIRROSIS ACCORDING TO THE DEGREE OF HEPATIC INSUFFICIENCY

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**Introduction.** In patients with hepatic cirrhosis exists alteration in the regulation and synthesis of melatonin, which participates in the regulation of the circadian sleep rhythm. There are three groups of sleep diseases: dysomnias, parasomnias and sleep disorders associated with medical or psychiatric processes.One way to evaluate sleep disorders is to apply questionnaires such as the one in Monterrey, which contains 30 questions that measure insomnia, excessive daytime sleepiness, symptoms of obstructive sleep apnea, somnambulism, restless legs syndrome and sleep paralysis. **Objective.** To determine the frequency of sleep disorders in patients with cirrhosis and according to the hepatic impairment degree. **Material and methods.** An analytical cross-sectional study was carried out. Subjects with advanced, non-advanced liver cirrhosis and without liver disease were included. All patients with manifest and minimal hepatic encephalopathy were excluded. The Monterrey questionnaire was used to identify sleep disorders. **Results.** 105 subjects were studied; 35 had no liver disease, 35 had non-advanced liver failure (Child Pugh A) and 35 had advanced liver disease, of which 19 had Child Pugh B and 16 Child Pugh C. In all analyzed subjects it was found that 51.4% (n = 54) had at least one sleep disorder. In the advanced stages of liver disease (Child Pugh B and C) a higher frequency of sleep disorders was observed (p = 0.03 and p = 0.01, respectively). Insomnia and excessive daytime sleepiness were the most prevalent disorders. Association with insomnia in patients with Child Pugh C (OR 3.29 CI 95% 1.11-9.79 p = 0.03), and excessive daytime sleepiness (OR 4.25 CI 95% 1.29-14.02 p = 0.02), was found. **Conclusions.** Sleep disorders are more frequent in patients with an advanced degree of hepatic impairment compared to patients without advanced grade and without hepatic insufficiency. Insomnia is the major sleep disorder in most individuals, with a higher prevalence in those with more advanced hepatic impairment.

# III. DRUG-INDUCED LIVER INJURY

## 01
## MAIN RISK FACTORS RELATED TO THE DEVELOPMENT OF ACUTE LIVER FAILURE IN PATIENTS DIAGNOSED WITH DRUG INDUCED LIVER INJURY (DILI), IN A TERTIARY CARE CENTER

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**Background.** Idiosyncratic drug induced liver injury (DILI) can lead to liver failure or death. DILI is a diagnosis of exclusion. On the basis of R-value it can be classified into hepatocellular, cholestasis, or mixed types. The hallmark of treatment is withdrawal of the causal agent. No definitive therapy is available. **Aim.** To describe the main characteristics of patients diagnosed with DILI, and to identify risk factors for develop acute liver failure (ALF) and death. **Material and methods.** We collected data retrospectively from medical records of 75 patients diagnosed with DILI, treated between January 2006 and January 2017 at a Tertiary care Center. Univariate and multivariate regression models were performed to identify risk factors associated with ALF and death. **Results.** The following drugs were identified as causal agents of DILI: Herbal 31 cases (39.7%); quinolones 9 (11.5%); ceftriaxone, amoxicillin/clavulanate, ketoconazole 6 (7.7%) each one; statins 4 (5.1%); antituberculosis drugs, carbamazepine 3 (3.8%) each one; diclofenac, oral contraceptives 2 (2.6%) each one; isotretinoin, piracetam, valproic acid, dapsone, tamoxifen, nimesulide 1 (1.3%) each one. The mean age was 38.9 ± 10.9 year-old; 59 (75.6%) were female; according to R-value 37 (47.4%) had hepatocellular injury, 26(33.3%) mixed, 15 (19.2%) cholestasis; 33 (42.3%) were obese; ALF occurred in 35 (44.9%) cases, and 11 (14.1%) died. Risk factors for develop ALF were obesity (60.6% *vs.* 33.3%, P = 0.02; OR 3.1, 95%CI = 1.2-7.8); hepatocellular injury (64.9% *vs.* 26.8%, P = 0.001; OR 5.0, 95%CI = 1.9-13.2); and herbal (67.7% *vs.* 29.8%, P = 0.001; OR 5.0, 95%CI = 1.9-13.2). Gender was not associated in this cohort with higher ALF development rate. Because of a small sample size we did not obtain statistical significance in the multivariate analysis. Risk factors for death were development of ALF (31.4% *vs.* 0%, P < 0.0004; OR = 40.8, 95%CI = 2.3-723.4); obesity (30.3% *vs.* 2.2%, P < 0.0006; OR 13.3, 95%CI = 2.2-78.8); hepatocellular injury (29.7% *vs.* 0%; P = 0.0001; OR 36.0, 95%CI = 2.0-637.2); herbal (32.3% *vs.* 2.1%, P = 0.0001; OR 21.9, 95%CI = 2.6-182.4). Gender was

not associated in this cohort with higher mortality rate. Because of a small sample size we did not obtain statistical significance in the multivariate analysis. **Conclusions.** Obesity, herbal intake and hepatocellular injury seem risk factors for develop ALF. The development of ALF besides obesity, herbal intake and hepatocellular injury seem the main risk factors related to death. Although the female gender has been related to worse prognosis in patients with DILI, this fact was not observed in our cohort. A larger sample size is needed to be able to perform a multivariate analysis and obtain better conclusions.

## IV. LIVER DISEASE, CHOLESTATIC, AUTOIMNUME AND CHRONIC

### 01
### HAEMOCHROMATOSIS, CASE REPORT

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**Introduction.** Haemochromatosis is known to be an iron-storage disease with genetic heterogeneity resulting in inappropriately low production of hepcidin leading to an increase in intestinal absorption and deposition of excessive amounts of iron in parenchymal hepatic cells which in turn results in eventual hepatic damage. This is an uncommon condition in the Mexican population, it occurs in 1 in 200-300. It is related to multiple genetic mutations, the more frequent the HFE gene with p.Cys282Tyr substitution. The prevalence is higher in men. **Case report.** 31-year-old men with generalized jaundice and splenomegaly, with liver function tests: Total bilirubin 3.9 mg/dL, Direct bilirubin 0.2 mg/dL, Platelets 198.000x10e3/uL, ALT 43 U/L AST 28 U/L, Fa 99 U/L, GGT 13 U/L, Hepatic ultrasound with alteration in echogenicity, portal diameter 12 mm, splenomegaly, infectious causes were excluded, Bone marrow biopsy with hypercellular marrow, grade I hemosiderosis, grade I myelofibrosis, iron kinetics with: Ferritin 911 ng/mL, iron saturation 532% Serum Fe 213 ng/mL. Liver biopsy with prominence of sinusoidal spaces with local macrophages that before Pearls staining were evident. Fibrotest (F4), Fibroscan 17 kPa (F3-F4), Genetic study found HFE mutations C282Y and H36D, by PCR and RFLP being normal homozygous for both mutations. Followed by Hematology with treatment at the moment with phlebotomies. **Conclusions.** It is clear that the phenotypic expression for hemochromatosis occurs in 70% of homozygotes C282Y, and less than 10% will develop hepatic iron overload conditioning organic damage and clinical manifestations of hemochromatosis. After diagnosing cirrhosis one of the guidelines to follow is the surveillance in search of Hepatocarcinoma for the risk that this disease brings, presenting with an annual incidence of 3%-4%.

### 02
### SCREENING OF CELIAC DISEASE IN PATIENTS WITH AUTOIMMUNE LIVER DISEASE AT CENTRO MEDICO ISSEMYM METEPEC (PRELIMINARY REPORT)

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**Background.** Celiac disease (CD) is a chronic, immune-mediated inflammatory disease of small intestine characterized by malabsorption that is induced by dietary gluten in genetically predisposed individuals. The diagnosis is based on a suggestive clinical features, specific antibodies and characteristic histology. Screening is performed in high risk population with anti-tissue transglutaminase antibodies (A-tTG). Several studies have been reported association between CD and autoimmune liver disease, its prevalence for specific pathology include Primary biliary cholangitis (PBC) 3-7%, Autoimmune hepatitis (AIH) 3-6% and primary sclerosing cholangitis (PSC) 2-3%. **Aims.** To determine the prevalence of CD in patients with autoimmune liver disease and correlate with with endoscopical and histological findings in duodenum. **Material and methods.** This is a cross-sectional and descriptive study on going, in which A-tTG (IgA and IgG) by ELISA and anti-endomysial antibody (EmA) will be performed in patients of Gastroenterology at CMI with PBC, AIH or overlap syndrome. Results considered positive if the level was > 1 U/mL. Those with positive results will send to endoscopy with duodenal biopsy and histopathological analysis of the sample to assess the presence of Marsh criteria. **Results.** Forty two patients haven been studied, average age of 54 years, predominance of female (39/42). The results are shown in table 1. Neither had positive both antibodies, all results are at low titers. At the moment, 2 endoscopies have been performed without macroscopic alterations. The pathology result is in process. **Conclusion.** According to literature, the prevalence of CD is higher in autoimmune diseases compared to general population (0.5-2.6%) and with greater affection in CBP, same results we found in this preliminary report. It is important bear in mind that performance of commercial ELISA may vary depending on the quality of antigen and may yield false-positive or negative results. It remains to classify clinical subtype of CD according to correlation with hitopathological findings. Monitor the evolution of these patients to determine the impact of this findings on the underlying disease.

This work was supported by CMI Metepec.

**(IV.02) Table 1.**

| | PBC N = 24 | AIH N = 17 | Overlap N = 1 | Total N = 42 |
|---|---|---|---|---|
| A-tTG | 2/23 | | 1/1 | 3/39 |
| % = prevalence | 8.6% | 0/15 | 100% | 7.6% |
| EmA | 2/24 | 1/13 | | 3/38 |
| % = prevalence | 8.3% | 7.6% | 0/1 | 7.8% |

## 03
## MOLECULAR DIAGNOSIS OF INDIRECT HYPERBILIRUBINEMIA (CRIGLER NAJJAR SYNDROME) A CASE REPORT

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**Introduction.** Mutations of the UGT1A1 gene, which encodes the enzyme UDP glucoroniltransferasa originates disorders of bilirubin conjugation; Gilbert's syndrome clinically insignificant and with BT ≥ 4 mg/dL. Crigler-Najjar syndrome type I, which is usually fatal in childhood and type II most survive to age adult treatment with phenobarbital (enzyme inducer that favors the conjugation of bilirrubinas) the definitive diagnosis is with genetic analysis. **Objective.** Presentation of a case and review of the literature. **Material and methods.** Reported the case of a male 35 years that income to the Hospital in May of 2014 with fever, asthenia, in physical examination with jaundice of sclera or mucous +++, abdomen with hepatomegaly of 5 cm below the costal edge, no peritoneal irritation, no ascites, no hepatic encephalopathy, following laboratory studies: BT = 54 01 mg/dL, BD = 30 mg/dL AST = 74 u/l, ALT = 155 u/l, FA = 152 u/l, INR = 1 26, leukocytes = 10.34 platelets = 157, 000 hb = 13. 7 g/dL ultrasound of liver: with hepatosplenomegaly without bile duct dilatation. By indirect hyperbilirubinemia is on board to exclude hemolysis with: DHL = 312 u/direct coombs = negative, EGO = without hemoglobunuria, without esferositosis peripheral blood smear. Ham's test, osmotic fragility, negative hemoglobin electrophoresis. Infectious causes were discarded: AgsVHB and AG not reactive, negative TORCH profile, with Microarrays for herpes and Cytomegalovirus undetected. ANAS, antimitochondrial MIT3, antiLKM1, antiLKM and anti smooth muscle negative IgG 80.9, IgG 80.9, Alpha-1antitripsina: quantification and mutation undetected. Percutaneous liver biopsy with spaces preserved trabecular architecture portal with mild chronic inflammatory infiltrate, mild and focal intracanicular Cholestasis, without necrosis, without fibrosis, negative perls staining. CT of liver triple phase: hepatosplenomegaly. **Results.** Is shipping the gene UGT1A1 AT repetition: homozygous for polymorphism TA7. Began treatment with phenobarbital with good biochemical response: BT = 9 3 mg/dL, AST = 27 u/l, ALT = 39 u/l FA = 90 u/l INR = 1 11 leukocytes = 8, 21 platelets = 217, 000. **Conclusion.** Crigler-Najjar must suspect it in adults with unconjugated hyperbilirubinemia and the rest of normal liver tests, the absence of hemolysis is a key part for the diagnosis and confirmed with the detection of mutations of the gene UGT1A1.

## 04
## INTESTINAL DYSBIOSIS AND INCREASED EXPRESSION OF MUC-2 IS ASSOCIATED TO BACTERIAL TRANSLOCATION IN EXPERIMENTAL CHOLESTASIS

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**Introduction and aim.** Bacterial infections in cirrhotic patients are an important cause of death. Bacterial translocation (BT) plays a crucial role in this process. Recently, our group demonstrated that BT was present at 8 days after bile duct ligation (BDL) in rats. However, in the model of BDL there is limited information concerning the mechanisms related to improve BT; for instance, intestinal and mesenteric lymph nodes (MLN) microbiota diversity and Mucin-2 expression, which is a major structural protein of intestinal mucus layer. The aim of this study was to evaluate parameters associated to the development of BT in BDL model. **Material and methods.** Male Wistar rats were sacrificed at 8 and 30 days after BDL. BT was detected by microbiological cultures of mesenteric lymph nodes (MLN). Bacterial load was assessed through estimating faecal *Escherichia/Shigella* by qPCR. Diversity of microbiota in faeces and MLN was determined by 16S rDNA pyrosequencing GS-Junior 454. The colonic mucus layer was analyzed by alcian blue staining and mucin-2 by immunohistochemistry. **Results.** BT was detected as early as 8 days after BDL. Intestinal bacterial overload of *Escherichia/Shigella* was significantly increased 2 and 4 logarithms at 8 and 30 days post-BDL respectively, in comparison to control group. BDL induced changes in intestinal microbiota composition. Firmicutes percentage was importantly decreased, whereas *Bacteroidetes* and *Proteobacteria* were increased concomitantly with liver damage. These Gram-negative bacteria have the ability to adhere and degrade intestinal mucus oligosaccharides and have been related to chronic inflammatory processes. In addition, we observed a dramatic decrease of beneficial bacteria, such as *Lactobacillus*, *Enterococcus*, and *Ruminococcus*. Bacterial composition in mesenteric lymph nodes at 8 days after BDL was dominated by *Proteobacteria* (77%), followed by *Firmicutes* (22%). This correlation was reversed in control rats. Mucus layer was surprisingly increased during liver damage. **Conclusions.** BT in BDL model is associated to intestinal and MLN dysbiosis, bacterial overgrowth and overexpression of Mucin-2.

### 05
### EXPRESSION OF IL-22 AND IL-22BP IN AN EXPERIMENTAL MODEL OF CHOLESTASIS

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**Introduction and aim.** The immune response under liver damage in the bile duct ligation (BDL) model has been associated to the activation of Kupffer cells and hepatic stellate cells, as well as to over-production of pro-inflammatory cytokines, such as IL-1β and TNF-α. Nonetheless, IL-22, which is considered an important cytokine in the control of inflammatory and regenerative processes, has not been explored yet in the BDL model, and even less is known about the expression of its receptors. Recently, to increase in the systemic IL-22 levels have been related as a prognostic factor in patients with advanced liver cirrhosis. The aim of this study was to evaluate the expression patters of IL-22 and its receptors IL-22BP (soluble receptor) and IL-22R1 (membrane subunit receptor) during the progression of cholestasis fibrosis. **Material and methods.** Hepatic fibrosis was induced by BDL at 8 and 30 days of evolution. IL-22 and STAT-3p levels in liver homogenates were analyzed by Western blotting and gene expression of IL-22BP and IL-22R1 by qRT-PCR. IL-22 in serum was assessed by Western blotting. **Results.** IL-22 in liver homogenates was significantly increased at 8 days post-BDL compared to control group ($p < 0.01$). Hepatic expression of STAT-3p tends to increase in parallel to liver damage, with significant differences only at 30 days post-BDL ($p < 0.05$) in comparison to control group. Systemic levels of IL-22 showed a dramatic increase at 8 ($p < 0.05$) and 30 ($p < 0.01$) days after BDL. In liver, lL-22BP and IL-22R1 gene expression was increased throughout the damage process. **Conclusions.** The increase of hepatic IL-22 in early state of fibrosis may indicate a protector effect against hepatocellular necrosis and inflammation. However, increased IL-22BP gene expression suggests the possibility of neutralization of the IL-22 effector functions, favoring liver damage. Interestingly, systemic levels of IL-22 were increased in parallel to liver damage, therefore may be considered a progression marker of cholestasic fibrosis.

## V. VIRAL HEPATITIS

### 01
### POLYMORPHISMS IN IFNL4 (TT/ΔG) AND IL10 (-1082 A/G) GENES INCREASE LEVELS OF TOTAL CHOLESTEROL AND LDL-C IN PATIENTS WITH HEPATITIS C VIRUS INFECTION

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**Background.** Hepatitis C virus (HCV) alters liver lipid metabolism. High levels of total cholesterol (TC) and low-density lipoprotein cholesterol (LDL-c) have been associated with sustained virological response (SVR). IFNL4 and IL10 cytokines are expressed during HCV infection. Some genetic variants of immune mediators may modulate cholesterol levels. Variants in IFNL4 (TT/ΔG) and IL10 (-1082 A/G) genes have been associated with spontaneous clearance (SC). However, it is unclear if they are related to lipid alterations that may favor SC. **Aim.** To analyze if IFNL4 (TT/ΔG) and IL10 (-1082 A/G) gene variants are associated with serum lipid levels in treatment-naïve HCV patients. **Material and methods.** In a cross-sectional study, 299 treatment-naïve patients were included. Of these, 206 patients had chronic infection (positive viral load (VL), and 93 patients were SC (undetectable VL for at least one year). Biochemical tests were accessed by an dry chemistry assay. VL was determined by COBAS® TaqMan 48 HCV test and genotypes were identified by TaqMan Real-Time PCR. Comparative statistics, Odds Ratio Test and linear regression analysis were calculated by SPSS software, v21. **Results.** Among the chronically-infected patients, the IFNL4-TT/TT genotype was associated with higher levels of TC and LDL-c than the ΔG/TT+ΔG/ΔG genotypes (176.6 ± 48.7 mg/dL *vs.* 160.3 ± 45.6 mg/dL, $p = 0.042$; and 107.7 ± 43.7 mg/dL *vs.* 84.3 ± 39.5 mg/dL, $p = 0.01$, respectively). A 6.4% ($\beta = 23.39$, $p = 0.02$) variation in LDL-c levels was attributable to the IFNL4-TT/TT genotype whereas the IL10-1082-AA genotype was associated with higher levels of TC and LDL-c among SC patients than the AG+GG genotypes (193.6 ± 44.6 mg/dL *vs.* 173.2 ± 36.0 mg/dL, $p = 0.041$; and 118.3 ± 36.8 *vs.* 101.7 ± 25.2 mg/dL, $p = 0.045$, respectively). Also, the AA genotype was responsible for a 6.6% ($\beta = 0.004$, $p = 0.045$) increase in LDL-c and 6.1% ($\beta = 0.003$, $p = 0.041$) increase in TC. **Conclusions.** IFNL4-TT/TT and IL10-AA genotypes differentially modulate TC and LDL-c in chronic HCV-infected and SC patients. This study suggests an interaction between the immune response and cholesterol levels that could be involved in SVR. Therefore, modulation of cholesterol levels by diet and genetic factors appears to influence the outcome of HCV infection.

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### 02
### HIV/HCV CO-INFECTION, ASSOCIATED RISK FACTORS AND HCV GENOTYPES IN PATIENTS FROM WEST MEXICO

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**Background.** Patients with immunodeficiency virus (HIV) have a good response to antiretroviral therapy (ART). However, liver disease constitutes the main co-morbidity that leads to fatal outcomes among HIV patients. In HIV/HCV co-infected patients, HIV accelerates hepatitis C virus (HCV) replication decreasing the occurrence of spontaneous clearance and sustained antiviral response. In Mexico, there are scarce studies about HIV/HCV co-infection and it is unclear which risk factors pre-

dispose for co-infection as well as the circulating HCV genotypes among HIV-infected patients. **Aim.** To determine the frequency of HIV/HCV co-infection, associated risk factors and HCV genotype distribution among HIV patients from West Mexico. **Material and methods.** A cross-sectional study was conducted in 611 patients. Of these, 287 were positive to anti-HIV and 324 were positive to anti-HCV. Serological antibodies were detected by third-generation ELISA and HCV genotypes by LIPA assay. Anova, t-Student, $\chi^2$, and logistic regression analysis were performed with SPSS, v. 21. **Results.** The frequency of HIV/HCV co-infection was 37%. HIV-monoinfected patients were mainly men (89%), and the highest number of cases were between the ages of 19-29 years. Conversely, HCV-infected patients were older women (50-59 years), whereas the majority of HIV/HCV co-infections were found in the 30-40 year age group. Surgeries (78%) and transfusions (58%) were the main risk factors for HCV mono-infection. However, promiscuity (78%), surgeries (71%), transfusions (43%), tattoos (64%) and intravenous (IV) drug use (34%) were the main risk factors among HIV/HCV co-infected patients. By logistic regression test, the independent predictors associated with risk to co-infection were transfusions (OR= 2.4, 95% CI 1.3-4.4, p = 0.004), tattoos (OR = 2.0, 95% CI 1.1-3.7, p = 0.015) and IV drugs use (OR = 6.1, 95% CI 2.5-14.9, p = 6 x 10-5). The distribution of HCV genotypes in co-infected patients was 1a (70%), followed by 3a (14%), 1b (11%), 2, 2b and 4a with 1.5%. Finally, the frequency of HCV genotypes among HCV-monoinfected patients were mainly 1a (52%), 1b (13%) and 3a (12%). **Conclusions.** The frequency of HIV/HCV co-infected patients was 37%. The independent predictors associated with HIV/HCV coinfection were transfusions, IV drug use and tattoos. The main HCV genotypes in HIV patients were 1a, 1b and 3a.
This work was subsidized by Promep-University of adalajara (UDG-CA-478) to Arturo Panduro and PRO-SNI to Sonia Roman.

## 03
## DESCRIPTION OF SOCIO-DEMOGRAPHIC CHARACTERISTICS AND SEXUAL BEHAVIOR OF HEPATITIS C AND HIV CO-INFECTED PATIENTS IN MEXICO

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**Background.** HCV/HIV co-infected patients is a heterogenous group, with significant regional variations. Numerous studies have shown elevated risk of HCV in intravenous drug users (IVDU), and has been recognized as the main risk factor associated with HCV transmission. However in central regions of Mexico the prevalence of IV drug use is less than 1%. The role of different forms of transmission in Latin America is still scarce. **Objectives.** To describe socio-demographic characteristics as well as sexual behavior of patients diagnosed with HCV/HIV co-infection. **Material and methods.** Participants were recruited between May 2016 and March 2017, every participants was assessed with a 119 item questionnaire, covering, socio-demographic, risk of parenteral exposition, sexual behavior with focus on history of sexually transmitted diseases, condom use and high-risk sexual behavior. ASSIST Questionnaire Version 3 was used as a screening of substance abuse. Data was analyzed with STATA 13 using descriptive statistics. **Results.** 71 participants were recruited, 63 male (88.8%), with a mean of age of 37.5 years (ICR 33-44), 76% were born in Mexico City. The most frequent genotype was 1a, 62.8%. From the group of evaluated men 83% (59/63) were men who have sex with men. From the total of patients 2.9% (2/71) recognized the past consumption of injected drugs, cocaine consumption was reported in 19.8% (14/71). History of transfusion before 1992 was found in 23.9% (17/71), 32.3% (23/71) have a previos tattoo, 43.4% of them recognized that tattoo was crafted in unhealthy situations. The 76% (54/71) of participants had participated in high risk sexual practices wth out condom. Limitations: Associations could not be established until further studies. The development of this project will continue for a further pair matched case control study with HCV uninfected participants. **Conclusions.** High risk sexual behavior might have a important role in HCV transmission in this population, we found a low rate of IVDU. The 40.8% of the participants have high risk of HCV infections by parenteral routes.

## 04
## DEGREE OF OBESITY IN PATIENTS WITH CHRONIC INFECTION BY HEPATITIS C VIRUS AND ITS RELATION WITH STEATOSIS BY STEATOTEST

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**Introduction.** Hepatic steatosis is reported by biopsy in 40-80% of patients with chronic hepatitis C virus infection (HCV), acting as a co-factor to fibrosis.The biopsy represents a diagnostic obstacle due to the cost and associated complications, this is why that non-invasive studies like steatotest have taken relevance, showing significant sensitivity compared with classic markers. **Aim of the research.** Determining the number of patients with HCV, with overweight and obesity who present hepatic steatosis by Steatotest. **Material and methods.** This is an observational study, we studied 78 patients with Steatotest, of which 47 had HCV, and established its relation with body mass index(BMI). Inclusion criteria: patients with chronic infection of HCV subscribed to the hepatitis clinic. Statistical analysis used was square chi, using SPSS 20. **Results.** Of the 47 patients with chronic HCV infection, 37 presented steatosis by Steatotest (4 normal weight, 19 overweight, 11 obesity grade 1 and 3 obesity grade 2). Discussion: the most frequent causes of hepatic steatosis in people infected with genotypes other than 3 are the increase of BMI and visceral obesity, factors associated to resistance to insulin. This study establishes the relation of steatosis between the report of steatotest and the degree of obesity in patients with HCV chronic infection. The most of patients with severe steatosis presented overweigth than obesity. The importance resides in establishing non-invasive measures in patients with metabolic risk factors that correlate to the degree of steatosis, it is possible that BMI can not be the best way to value it,

and we must consider other parameters related to insulin resistance, like the abdominal perimeter. **Conclusions.** Patients with HCV infection have comorbilities that cause steatosis, perpetuating the damage, despite the virus eradication. There is no relation between the degree of obesity and the degree of steatosis by Steatotest in patients with chronic infection by HCV. Conflict of interests: this work has been subsidized partially by medifarma group (fibromax tests).

**(V.04) Table 1.**

| BMI | Steatotest mild | Steatotest moderade | Steatotest severe | Total |
|---|---|---|---|---|
| Obesity grade II | 2 | 1 | 0 | 3 |
| Obesity grade I | 4 | 1 | 6 | 11 |
| Overweight | 6 | 6 | 7 | 19 |
| Normal weight | 4 | 0 | 0 | 4 |

## 05
## SEROPREVALENCE OF HEPATITIS C VIRUS IN BLOOD DONORS FROM THE GENERAL HOSPITAL OF MEXICO "DR. EDUARDO LICEAGA"

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**Background.** Chronic Hepatitis C virus (HCV) is a global health problem. It is known that the disease is widespread all over the world; However, in Mexico there are few studies showing the prevalence of this disease. In our country is estimated a prevalence around 0.4 - 1.4%. **Objectives.** To determine the seroprevalence of HCV in blood donors of the General Hospital of Mexico "Dr. Eduardo Liceaga" in a period of 3 years, from 2014 to 2016. **Material and methods.** Retrospective, observational study, carried out in donor files, that came to the Blood Bank of the General Hospital of Mexico, from January 1, 2014 to December 31, 2016, and which met the criteria of NOM-003- SSA2-1993 "For the disposal of human blood and its components for therapeutic purposes". We included accepted donors who presented anti-HCV positive with ELISA technique and with positive confirmatory test by PCR. **Results.** 69,999 blood donors, 50,040 (71.4%) men and 19,959 (28.6%) women were evaluated; Of these 103 (0.14%) donors had anti-HCV positive PCR confirmed, yielding a prevalence of 0.0014. All risk factors for HCV were denied by donors. **Conclusions.** HCV seroprevalence in blood donors at the General Hospital of Mexico "Dr. Eduardo Liceaga" is inferior to the one reported at national and international level; Probably these low indices reflect the positive impact of the preventive measures, improvement in the detection strategies of risky donors which are classified as unfit donors.
This work was not sponsored.

## 06
## SEROPREVALENCE OF HEPATITIS B VIRUS IN BLOOD DONORS FROM THE GENERAL HOSPITAL OF MEXICO "DR. EDUARDO LICEAGA"

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**Background.** National epidemiological research on transmitted diseases by blood transfusion is important, because through blood banks it is possible to know the distribution and seroprevalence of these diseases. In Mexico, the seroprevalence of hepatitis B virus (HBV) has fluctuated between 0.16 and 0.4%. **Objectives.** To determine the seroprevalence of HBV in blood donors of the General Hospital of Mexico "Dr. Eduardo Liceaga" for three years, in the period from 2014 to 2016. **Material and methods.** Retrospective, observational study of donors who attended the Blood Bank of the General Hospital of Mexico, from January 1, 2014 to December 31, 2016, and who met the criteria of NOM-003-SSA2-1993 "For the disposal of human blood and its components for therapeutic purposes." Accepted donors who were positive for HBsAg were included. **Results.** A total of 69,999 blood donors, 50,040 (71.4%) men, and 19,959 (28.6%) women, were evaluated; of these 12 (0.01%) donors had positive HBsAg that yields a prevalence of 0.00017. All denied risk factors, only one donor reported on 5 sexual partners. **Conclusions.** HBV seroprevalence in blood donors at the General Hospital of Mexico "Dr. Eduardo Liceaga" is lower than that reported at national and international level. Studies in blood donors involve the selection of patients, excluding those with risk factors; the actual prevalence may be higher. It is necessary to carry out a greater number of epidemiological studies, especially in the open population and with risk factors.
This work was not sponsored.

## 07
## PROTECTIVE EFFECT OF MORINGA OLEIFERA ON HBV GENOTYPE C AND H TRANSIENTLY TRANSFECTED Huh7 CELLS

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**Background.** Chronic hepatitis B infection treatment implicates a long lasting treatment with antiviral drugs. *M. oleifera* extracts contain compounds with antiviral, antioxidant and antifibrotic properties. **Objective.** To evaluate the effect of *M. oleifera* in Huh7 cells expressing either HBV genotypes C or H for the antiviral, antifibrotic and antioxidative responses. **Material and methods.** The *M. oleifera* leaves were obtained from the south coast of Jalisco, Mexico and were validated by the Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP). Huh7 cells were treated with a water-soluble extract of *M. oleifera* (leaves) at doses of 0, 30, 45 or 60 $\mu$g/mL. TGF-$\beta$1, CTGF, CAT, IFN-$\beta$1 and pgRNA expression was measured by real time. Secretion of HBsAg and levels of nuclear activated Nrf2

were determined by ELISA and Western blot respectively. **Results.** Concentrations of 30, 45, 60 and 120 μg/mL of *M. oleifera* decreased the number of viable cells in an average of 2.8%. Thus, for further experiments the three lowest concentrations of *M. oleifera* (30, 45 and 60 μg/mL) were used to test our proof of concept. CTGF, TGF-β1 and pgRNA expression decreased with *M. oleifera* treatment independently of the HBV genotype. *M. oleifera* treatment reduced IFN-β1expression for both genotypes. HBsAg secretion in the supernatant of transfected Huh7 cells with both HBV genotypes was decreased independently of the dose of *M. oleifera*. Transfection with both HBV genotypes strongly decreased CAT and Nrf2 expression, which are retrieved with *M. oleifera* treatment. **Conclusions.** *M. oleifera* treatment reduced pgRNA expression, fibrosis markers and HBsAg secretion in HBV genotypes C and H. Furthermore, an important antioxidant response was detected with the recovery of CAT expression and the nuclear activated Nrf2 protein.

## 08
## HEPATITIS E INFECTION: ACUTE PANCREATITIS AS INITIAL EXTRAHEPATIC MANIFESTATION AND PROGRESSION TO CHRONICITY WITH HEPATIC MANIFESTATION SIMILAR TO AUTOIMMUNE HEPATITIS

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**Introduction.** In Mexico, hepatitis E virus (HEV) is endemic, the most frequent genotypes are 2 and 3, and the prevalence of IgG-HEV antibodies has been reported up to 26.5% in cirrhotic patients. Several extrahepatic manifestations related to HEV have been described; like 50 cases of acute pancreatitis, only related to genotype 1. The relationship between HEV and autoimmune hepatitis is controversial. **Aim.** To describe a rare case of HEV infection with acute pancreatitis as extrahepatic manifestation and clinical data similar to autoimmune hepatitis. **Case presentation.** A 45-year-old female with no relevant history, presented with pain located in epigastrium and irradiated to left hipocondrium, transfective, intense 10/10, constant, accompanied by vomiting of partially digested food, gradually adding jaundice, coluria, without acolia, without pruritus . On examination normal vital signs, generalized jaundice, hyperalgesia in the left hipocondrium, Orlowski and Preioni points were positive. No clinical stigmas of hepatic decompensation. Labs: Platelets 106,000 x 10e 3/uL Urea 16.3 mg/dL, Creatinine 0.7 mg/dL Total Bilirubin 7.57 mg/dL Total protein 7.9 g/dL ALT 587 U/L AST 1026 U/L FA 224 U/L GGT U/L 120 DHL 310 U/L Amylase 263 U/L Lipase 206 U/L INR 1.5 TORCH negative, ANA Negative IgG 4090 mg/dL Ig M 366 mg/dL IgG1 2920 mg/dL IgG2 233 mg/20.50 mg/dL IgG 4: 56.6 mg/dL, Anti-LKM-1, Anti mitochondrial and Anti Muscle Negative HsAg, Anti HAV IgM, and Anti HCV IgM. Hepatitis E IgG 0.2 IU IgM 2.18 IU (Positive). Liver biopsy with inflammatory infiltrate in portal triads and hepatic lobules, necrosis of the limiting plaque, interface hepatitis, mild cholestasis. Activity III/IV and grade II/III fibrosis. **Discussion.** The evolution of HEV infection is generally acute with extrahepatic viral replication and the formation of immune complexes that detonate autoimmunity, associating this as a trigger for autoimmune hepatitis. Chronic evolution and acute pancreatitis as an extrahepatic manifestation are uncommon. **Conclusion.** Chronic HEV infection is uncommon, it induces systemic manifestations by immune complexes and should be suspected in endemic areas.

## 09
## STEVIOSIDE, STEVIA AND PIRFERIDONE REDUCES HEPATITIS C VIRAL REPLICATION AND IMPROVES THE ANTIFIBROTIC AND ANTIOXIDANT RESPONSE IN JFH1 CELLS

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**Background.** HCV treatment, have been improved considerably with the introduction of directly acting antiviral agents (DAA), achieving a sustained virological response in over 90% of treated patients, but the treatment is costly. Stevioside (STV) a dipertene glycoside from stevia (ST) has an antioxidant, anti-inflammatory and antiviral responses and Pirferidone (PFD) is an antifrotic agent. **Objective.** To evaluate the effect of STV, ST or PFD alone and combined with IFN-β1a in JFH1 cells for the antiviral, antifibrotic, and antioxidant responses. **Material and methods**. JFH1 cells were treated with: a) ST a 50 μg/mL, 72 h, b) STV 200 μg/mL, 48 h; c) PFD 100 μM, 12 h; d) IFN-β1a 100 IU/mL, 48 h and IFN-β1a combined with ST, STV or PFD. Viral replication and gene TGFβ-1, CTGF, SOD, CAT, NOS2 e IFN-β1a expression were determined by rtPCR. **Results.** Viral replication decreased with ST or PFD treatment also, with combined IFN-β1a plus ST, STV or PFD ($p < 0.05$). TGFβ1 expression decrease with PFD, STV or ST treatment ($p < 0.05$). CAT expression increase with ST or IFN-β1a treatment ($p < 0.05$). SOD expression was increased with PFD ($p < 0.05$) and NOS2 expression was increased with IFN-β1a, alone or in combination with PFD, STV or ST ($p < 0.05$). STV plus IFN-β1a decrease NOS2 expression compared with IFN-β1a alone ($p < 0.05$). IFN-β1a expression increases with STV treatment ($p < 0.05$). **Conclusions.** Hepatitis C viral replication was diminished with PFD or ST treatment and fibrosis markers were reduced with ST, STV or PFD treatments. ST and PFD favor the antioxidant response (CAT and SOD respectively) and IFN-β1a expression increased with STV treatment.

## 10
## SECRETION OF CXCL-9 AND CXCL-10 IN CHRONIC HEPATITIS C

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**Introduction.** Hepatic fibrosis contributes to the global burden of mortality and disease. The etiologic factors that induce fibro-

sis are chronic hepatitis C (CHC) among others. It has been found an association of chemokines CXCL-9 and CXCL-10 to viral immune response and the progression to liver fibrosis, so their study is necessary to identify a biomarker during the viral infection or to fibrosis progression. **Objective.** Evaluate CXCL-9 and CXCL-10 concentrations in blood serum of CHC patients. **Material and methods.** A transversal and observational study was performed, including 21 patients with CHC without another hepathopathy and 40 control subjects. CXCL-9 concentrations in both groups were quantified using ELISA and CXCL-10 quantification was done by Luminex (Biorad). Statistical analysis was done with SPSS version 15 using U Mann Whitney probe. **Results.** CXCL-9 concentrations (pg/mL) for patients were 1025 ± 962, while for control group resulted 747 ± 745 ($p = 0.162$). CXCL-10 concentrations (pg/mL) for patients were higher than for control group, 88.9 ± 13 and 22.6 ± 13 respectively ($p < 0.001$). **Conclusion.** CXCL-9 did not show differences between patients and control subjects. On the other hand, CXCL-10 in our study, an increase of this chemokine is demonstrated in patients with HCC, reason why we consider that it can be a potential biomarker in chronic Hepatitis C.

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## 11
## HEPATITIS E: A MISSED OUT DISEASE IN AN ENDEMIC COUNTRY. CASE REPORT

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**Introduction.** Since the discovery of a new species of non A, non B hepatitis in 1978 in India, Hepatitis E Virus (HEV) has spread in endemic and hyperendemic regions, especially in developing countries, where consumption of infected animals, contaminated water and person to person spreading exist. This represents a challenge for health systems. Our country is classified as a hyperendemic region, and due to the heterogeneity of the virus and its variable clinical picture, it should raise a systematic approach into searching for a missed out disease in our population. **Objective.** We present a case of HEV infection. **Case report.** A 63 year old man, ironmongery clerk, with unremarkable history of diseases, no alcohol nor drug abuse, no tattoos, no transfusions and no herb consumption. Chief complaint was a 2 week history of malaise and nausea and a 1 week history of jaundice and dark urine without pruritus. Physical exam confirms jaundice in skin, mucous membranes and sclerae; no visible telangiectasia or rubi nevi on thorax; pulmonary exam was unremarkable; abdomen with moderate fatty tissue, no visible collateral circulation, symmetric, adequate peristaltic sounds, no tension, with no palpable organs. Liver measure by percussion 10 cm in right mid-clavicular line, no tenderness to palpation. Liver chemistry reports AST 522 IU/L, ALT 605 IU/L, GGT 548 IU/L, FA 264 IU/L, TB 46.8 mg/dL, DB 18.8 mg/dL, Albumin 3.8 mg/dL, LDH 181 IU/L. Normal CBC. Prothrombin time 22.1 seconds, INR 1.83. Abdominal ultrasound denotes normal structures, including biliary ducts. Hepatitis A (HAV), hepatitis B (HBV), and hepatitis C (HCV) serology was negative; autoimmune tests (ANA, ASMA) were negative, IgG 940 mg/dL. In this context, with an hepatocellular damage pattern with transaminases more than 10 times the upper normal limit, we considered an acute event that might be secondary to an uninvestigated viral process, therefore running serology for HEV with positive IgM and negative IgG.

## 12
## NON-INVASIVE ASSESSMENT OF LIVER FIBROSIS IN HIV/HCV AND HIV/HBV COINFECTED PATIENTS BY TRANSIENT ELASTOGRAPHY (FIBROSCAN) AND SERUM FIBROSIS MARKERS (FIBROTEST, APRI AND FIB4)

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**Background.** Approximately 10 to 50% of human immunodeficiency virus (HIV) patients are coinfected with hepatitis B (HBV) or hepatitis C virus (HCV). Coinfected subjects have higher risk to develop significant fibrosis. In our country, information related to these populations is lacking. **Aim.** To assess liver fibrosis by transient elastography and serological biomarkers in coinfected patients, and the correlation in liver fibrosis stag-

**(V.12). Table 1.** Concordance between non-invasive fibrosis methods in 56 HIV/HBV and HIV/HCV coinfected patients.

| | Fibrosis | % Agreement | κ | p |
|---|---|---|---|---|
| Mild fibrosis (F0, F1) | Ftest and Fscan | 58.93% | 0.2088 | 0.027 |
| | Ftest and APRI ≤ 0.5 | 67.86% | 0.3571 | 0.0037 |
| | Ftest and FIB4 ≤ 1.5 | 62.50% | 0.2668 | 0.0153 |
| | Fscan and APRI ≤ 0.5 | 55.36% | 0.1071 | 0.1712 |
| | Fscan and FIB4 ≤ 1.5 | 75% | 0.396 | 0.0011 |
| Significant fibrosis (F ≥ 2) | Ftest and Fscan | 57.14% | 0.1765 | 0.0466 |
| | Ftest and APRI ≥ 1.5/FIB4 ≥ 3.25 | 51.79% | 0.0935 | 0.0487 |
| | Fscan and APRI ≥ 1.5/FIB4 ≥ 3.25 | 80.36% | 0.1979 | 0.0248 |
| Advanced fibrosis (F ≥ 3) | Ftest and Fscan | 83.93% | 0.3793 | 0.0019 |

ing obtained with each non-invasive test. **Material and methods.** Patients from Viral Hepatitis and Infectology clinics were invited to participate. After informed consent, liver fibrosis was measured by fibroscan and fibrometer. The calculation of APRI and FIB-4 was according to the established algorithms. Descriptive statistics were performed with demographic and biochemical variables as well as a concordance analysis between non-invasive fibrosis tests with STATA version 11.0 statistical package. **Results.** At present 56 patients have been studied, 89.3% male, with an average age of 44 (25-72) and a mean BMI of 24.2 kg/m$^2$ (20-32.86). The average years since the HIV diagnosis was 12.9 (2-34), 13.5 (8-28) for HBV and 6.4 (0-34) for HCV. The mean AST, ALT, and platelet count values were: 52.1 (14-255), 68.7 (13-240) IU/mL, and 221.5 (112-414) platelets/mm$^3$, respectively. Fibroscan results indicated that 43 patients (76.79%) had no fibrosis or early-stage fibrosis (F0-F1) and the remaining 23.21% had significant fibrosis (F ≥ 2), 7.14% of whom had cirrhosis (F4). Using Fibrotest 26 patients (46.42%) had no fibrosis or early-stage fibrosis and 30 patients (53.58%) had significant fibrosis, 8.93% of whom presented cirrhosis. The concordance between Fibroscan and Fibrotest evaluated by the Kappa index obtained an agreement of 48.21% (κ 0.1283, p = 0.0442). Concordance between the different non-invasive fibrosis evaluated methods are shown in table 1. **Conclusions.** In the analyzed cohort the majority of coinfected patients were in early stages of fibrosis. Concordance between noninvasive tests was better at advanced stages of fibrosis compared to early stages. These results must be confirmed in a larger group of subjects.

## 13
## TREATMENT OF HEPATITIS C CHRONIC IN MEXICAN PATIENTS WITH GENOTYPE 2

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**Introduction.** It has been recently described as an election regime in patients with genotype 2 the combination of sofosbuvir/velpatasvir and sofosbuvir + daclatasvir. In recent studies, it has been proposed that the response with sofosbuvir + ribavirine is similar to the regimes previously described. **Objective.** To evaluate the sustained virological response (SVR) in mexican patients with genotype 2 treated with the regimes: sofosbuvir + ribavirine and sofosbuvir + daclatasvir. **Materials and method.** 15 patients were included with genotype 2 that received treatment based on direct acting antivirals from 2014 to 2016. All were evaluated with Fibroscan before treatment. The patients received sofosbuvir + ribavirine for 12 weeks in case os F0-2 and sofosbuvir + ribavirine for 16 weeks if F3-F4. 1 transplanted patient received sofosbuvir + daclatasvir for history of ribavirine intolerance. 3 patients that had failed received retreatment base don sofosbuvir + daclatasvir. **Results.** The average age was 59 years. 7 (46%) were men and 8 women (54%). Six (40%) had advanced fibrosis (F3-4) and 9 mild fibrosis (F1-2). Of the 15 that received sofosbuvir + ribavirine, 5 presented treatment failure. 4 of this failed at the end and 1 presented viral resurgence at 6 weeks from start. The SVR with sofosbuvir + ribavirine was of 73%. The regime sofosbuvir + daclatasvir was given to four patients, one treatment naive and three as a retreatment. The SVR with sofosbuvir + daclatasvir was of 100%. Two patients with treatment failure have not received other treatment. There wasn't statistical difference between in the prevalence of advanced fibrosis, viral load, nor history of previous treatments between the patients that did respond and those that did not to the regime sofosbuvir + ribavirina. **Conclusion.** The SVR with the sofosbuvir + ribavirine regime in Mexican patients with chronic genotype 2 Hepatitis C infection is suboptimal, with treatment failure of 27%. The SVR with sofosbuvir + daclatasvir was of 100%, including patients with previous failure to sofosbuvir + ribavirine. This results support the use of sofosbuvir + a NS5A inhibitor as initial treatment in patients with genotype 2, independently of the fibrosis severity and history of previous treatments.

## 14
## REGRESSION OF CIRRHOSIS AND HEPATIC FIBROSIS IN PATIENTS WITH HEPATITIS C CHRONIC INFECTION IN SUSTAINED VIRAL RESPONSE EVALUATED WITH TRANSIENT ELASTOGRAPHY

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**Introduction.** Chronic Hepatitis C infection is a public health problema. The advanced fibrosis has been associated with long term complications such as the presence of cirrhosis and hepatocarcinoma. The transient elastography is a method that not only identifies the presence of advanced fibrosis; but also its evolution through time. **Materials and methods.** We did a retrospective studie of the cohort of patients in the Hepatic and Digestive Health Institute in Guadalajara, Jalisco from 2014 to 2016, with chronic hepatitis C infection, in sustained viral response and had a transient elastography before and after treatment. Patients with hepatic transplant were excluded. **Results.** 29 patients were included. 16 (56%) were women and 13 (44%) men. Genotype 1A (41.7%) and genotype 1B with 33.3% were the more frequent. 10 patients had cirrhosis (F4) of which 4 patients (40%) achieved a regression of the severity of fibrosis from F4 to F2. All the patients with this regression had measurements of < 22 kPa; whereas patients that did not achieve a regression had measurements of > 22 kPa, but one. Independently of the severity of fibrosis at the start of treatment, all the patients had a regression in the severity of hepatic rigidity. **Conclusions.** In mexican patients with chronic hepatitis c infection trated with direct acting antivirals and sustained viral response, a regression from F4 was demonstrated in 40%. All of which had < 22kPa measured in the initial elastography. All the patients had a regression in the severity of rigidity.

## 15
## POSTCHOLECYSTECTOMY SYNDROME (PCS) THE PANORAMA IN GASTROENTEROLOGY

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**Background.** Between 15% and 20% of patients with cholecystectomy have a variety of gastrointestinal symptoms such as fatty food intolerance, nausea and vomiting, heartburn, flatulence, indigestion, diarrhea, mild occasional abdominal pain, and severe pain. The (PCS), has accumulated a large volume of medical information; The variation of the individual and the sensitivity to the pain, as well as the psychosocial disorders, influence its development. **Objective.** Determine the percentage of cholecystectomy patients referred to the Gastroenterology service for gastric symptoms at the Hospital Juárez de México. **Material and methods.** A retrospective, longitudinal and descriptive study was carried out, in which the patients who attended the External Gastroenterology Consultation post cholecystectomized service were included during the period from January 2014 to December 2016; Which persistently refer to symptoms after surgery, regardless of gender, age, ethnicity, or social status. **Results.** 211 records were reviewed, the average age was 50 years with predominance of the female gender. The presentation time of onset of the symptoms was variable: 34.59% presented at one week postoperative, and at 5 years at 14.69%. The predominant manifestations were residual choledocholithiasis (65.40%), choledochal and sphincteric stenosis (3.31%), irritable bowel syndrome (4.26%), diarrhea (5.21%), dyspepsia (5.21%), right upper quadrant pain (9.47%), reactive gastritis (7.10%). The total number of prophylactic surgeries was 185; 12 patients presented technical difficulties and required T-tube placement at discharge. **Conclusions.** In the Hospital Juárez the main manifestation of PCS was residual choledocholithiasis, followed by pain in the right hypochondrium. Of these patients, 143 were women, and 73 patients presented symptoms at the first week post surgery. Patients with this condition are still present as a diagnosis and therapeutic challenge for physicians, so it is considered necessary to carry out extension studies as determined by the literature.

## 16
## EVALUATION OF GROWTH FACTOR BINDING PROTEIN (IGFBP) INSULIN IN SERUM OF PATIENTS WITH CHRONIC HEPATITIS C

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**Introduction.** In Mexico one of the main causes of liver cirrhosis is Chronic Hepatitis C (cHC). Fibrosis and cirrhosis are characterized by an excess of extracellular matrix that is attributable to the hepatic stellate cells (HSC). IGF-1 is produced by the HSC and is modulated by the INSULIN growth factor binding proteins (IGFBPs) The liver is the main source of IGF and IGFBPs which are in circulation. **Objective.** To evaluate the concentration of IGFBPs (1-7) in patients with HCc and non-infected subjects. **Material and methods.** Blood samples were obtained from 108 patients with Chronic Hepatitis C (cHC) and 165 participants without CHC were included as a control group, and informed consent was obtained from all participants. Levels of IGFBPs (1-7) were quantified by arrangement in multiple suspension (Luminex, Biorad) technology. For statistical analysis we used Man Whitney U. **Results.** We included 108 patients with HCc, which compared with 165 CT. The average age was 51 ± 10 for HCc and 37 ± 9 CT. **Conclusion.** Our study shows that the IGFBP-3 is the most abundant circulating protein followed by IGFBP-5. There was a significant increase of IGFBP-2 and IGFBP-4 and IGFBP-7 in patients with HCc. This indicates that these proteins are related to liver disease and possibly by modulating the production of liver fibrosis.

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**(V.16) Table 1.** Results and demographic data of IGFBPs quantification in study subjects.

| | HCc (108) | CT (165) | p |
|---|---|---|---|
| Genus n (%) | | | |
| Man | 22 (29) | 138 (89) | < 0.001 |
| Woman | 86 (71) | 27 (11) | |
| IGFBP-1 (ng/mL) | 0.58 ± 0.08 | 0.73 ± 0.14 | 0.439 |
| IGFBP-2 (ng/mL) | 17.29 ± 4.52 | 3.96 ± 0.35 | 0.001 |
| IGFBP-3 (ng/mL) | 765 ± 43 | 875 ± 39 | 0.067 |
| IGFBP-4 (ng/mL) | 63 ± 16 | 21 ± 1.9 | 0.006 |
| IGFBP-5 (ng/mL) | 289 ± 29 | 239 ± 21 | 0.160 |
| IGFBP-6 (ng/mL) | 122 ± 56 | 122 ± 42 | 0.943 |
| IGFBP-7 (ng/mL) | 58 ± 5 | 33 ± 3 | < 0.001 |

Results in mean ± SD.

## 17
## MULTICENTRIC STUDY TO EVALUATE THE PREVALENCE OF Q80K POLYMORPHISM ASSOCIATED TO THE SECOND GENERATION DAA, SIMEPREVIR, IN MEXICAN PATIENTS WITH CHRONIC HEPATITIS C GENOTYPE 1A

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**Background.** Therapy of Hepatitis C infection has been one of the major fields of investigation in recent years, achieving sustained virological response in most of those patients infected by genotype 1 (GT1). One of the emergent issues related with the usage of the new direct antiviral agents (DAA) has been the identification of resistant associated variants (RAVs). The preva-

lence of the Q80K variant conferring resistance to simeprevir has been observed in 9-48% of untreated HCV GT1a infected patients. Information regarding the prevalence of the different RAVs in Mexico is lacking. **Aim.** To determine the prevalence of the NS3/NS4 Q80K variant associated to resistance to simeprevir in chronic hepatitis C, GT1a infected Mexican patients. **Material and methods.** We included consecutive adult HCV, GT1a infected patients, naïve to DAA agents and quantifiable serum HCV-RNA > 3 log IU/mL, evaluated in three Mexican Reference Centers: INCMNSZ, México City; Liver Unit, Hospital Universitario, UANL, Monterrey, Nuevo León and Centro de Investigación Farmacologica Especializada (CIFE) at Guadalajara, Jalisco. In all cases informed consent was obtained. Plasma samples were analyzed by reverse transcription and one step amplification RT-PCR of NS3 catalytic region by Heminested- PCR (amplification of a 543 pb fragment). Sequentiaton by Sanger' method with capilar lecture and analysis to determine the aa for the Q80K polymorphism at Labco Nous Barcelona, Spain. Demographics variables and the prevalence of Q80K polymorphism were analyzed, with SPSS v20 program. **Results.** We evaluated 504 patients and 184 HCV GT1a were included (65.5% female), age: 52.58 ± 12.97 years. Serum HCV-RNA: 1,085,713 ± 1,619,083 IU/mL. HCV-RNA did not amplify in 31 samples. Q80K polymorphism was positive in 97/153 patients (63.39%). Geographical prevalence was: 31.32% (10/32) in Northwestern, 55.81% (24/43) in center-occident and 79.48% (62/78) in the center of Mexico. Other NS3 mutations detected included: N174S in 22 (14.37%); S122S/G in 10 (6.53%) and F43C in 4 (2.6%) patients. **Conclusions.** In this multicentric study the prevalence of Q80K polymorphism in Mexican patients with chronic hepatitis C, genotype 1a was unexpectedly high (63.39%). In Mexico, when a simeprevir containing treatment is considered, testing Q80K RAVs should be performed.

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## 18
## ASSOCIATION OF LDLR/APOB HAPLOGROUPS WITH UNDETECTABLE VIRAL LOAD AND HIGH CHOLESTEROL AMONG HCV-INFECTED PATIENTS FROM WEST MEXICO

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**Background.** The entry of HCV into hepatocyte is mediated by endocytosis, where key molecules such as APOB and LDLR play a significant role. Chronic HCV infection is characterized by low cholesterol levels. The SNPs -516C/T of APOB and C*52T of *LDLR* have been associated with hypercholesterolemia. Therefore, the presence of these polymorphisms in patients with HCV could modify the natural course of disease. **Aim.** To analyze the association of *LDLR* (C*52T) and *APOB (-516C/T)* haplogroups with the viral load and cholesterol levels in HCV-infected patients. **Material and methods.** In this cross-sectional study, 311 anti-HCV positive subjects were included. Patients were classified in Detectable Viral Load (VL) (n = 214) who had two positive VL, and Undetectable VL (n = 97) after two negative VL in the last 12 months. Biochemical tests were determined by dry chemistry assay. VL was accessed by COBAS® TaqMan 48 HCV test. *APOB* and *LDLR* genotypes were identified by TaqMan Real-Time PCR. ANOVA, t-Student, $\chi^2$ and Odds Ratio tests were used. Statistical analyzes were performed in SPSS (20.v). A p-value < 0.05 was considered significant. **Results.** Total cholesterol (T-Chol), LDL-c and hypercholesterolemia were higher in Undetectable VL than Detectable VL patients (182.6 ± 39.7 *vs*. 150.1 ± 44.6, p = $2X10^{-7}$; 109.7 ± 33.2 *vs*. 86.3 ± 38.6, p = $5X10^{-5}$; and 30% *vs*. 9.1%, p = $2X10^{-5}$ respectively). The *LDLR* CT genotype frequency was higher in patients with Undetectable VL, and was associated as protective factor in these patients (51.8% *vs*. 38.7%, OR = 0.10, 95%CI 0.013-0.788, p = 0.029). In patients with Undetectable VL and carriers of *APOB* TT genotype, T-Chol and hypercholesterolemia were higher compared to carriers of CC genotype (212.9 ± 32.0 *vs*. 174.8 ± 39.2, p = 0.012, and 60.0% *vs*. 26.1%, p = 0.010, respectively). The protective C/T haplogroup of *LDLR/APOB* genes was associated with Undetectable VL (OR = 0.474, 95%CI 0.244-0.921, p = 0.028), and with high T-Chol and hypercholesterolemia compared with the other haplogroups (207.6 ± 40.3 *vs*. 175.0 ± 40.8 & 177.7 ± 35.9, and 52.2% *vs*. 25% and 25% respectively). **Conclusions.** Lipid profile was different in both groups. The C/T haplogroup was associated as independent factor for Undetectable VL and high cholesterol levels. The presence of these SNPs could interfere with the entry of HCV and thus protect the host.

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# VI. PEDIATRIC HEPATOLOGY

## 01
## COPPER LIVER DISEASE: EXPERIENCE IN CHILDREN

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**Background.** Wilson's disease (WD) and idiopathic copper toxicosis (ICT) are entities characterized by intrahepatic copper accumulation. Both conditions can condition chronic terminal liver disease and their lethality in the medium term can be reversed with appropriate treatment. **Objective.** Describe the presentation of WD and ICT. **Case serie. Case 1.** 15-year-old female, secondary amenorrhea 8 months of evolution, acute hepatic failure, serum copper 56 mg/100 mL, ceruloplasmin 1.1 mg/dL, urinary copper 104 mg/L. Dies and at autopsy hepatic tissue with copper levels 250.57 mg/g. **Case 2.** 6 –year-old female, antecedent of bacterial meningitis and secondary epilepsy, treated with DFH and valproic acid. Two years later with transaminasemia, study protocol ceruloplasmin 1.6 mg/dL, urinary copper 200 mg/L, liver biopsy showed cirrhosis. **Case 3.** 9-year-old female, depressive disorder, plus transaminasemia, ceruloplasmin 1.2 mg/dL and urinary copper 152 mg/dL, liver

biopsy with diffuse steatosis. **Case 4.** 2-year-old female, brother died due to unknown liver disease, jaundice evolving to hepatic insufficiency in 2 months and dying, ceruloplasmin 31 mg/dL, urinary copper 218 mcg/L and serum 100 mcg/L, hepatic biopsy diagnosis of ICT. **Discussion.** Copper accumulation in hepatic tissue characterizes both entities, EW is associated with neuropsychiatric symptoms and low levels of ceruloplasmin, TIC can occur in children younger than 2 years, has no extrahepatic damage and ceruloplasmin is normal. The combination of clinical findings, specific tests and genetic study are the basis of the diagnosis. The treatment chelates copper as well as prevent its absorption at the intestinal level. **Conclusion.** The EW and ICT are rare entities in our country. Various clinical manifestations with established differences that may differentiate one from the other. A high degree of suspicion is required for diagnosis. The treatment will prevent progression of liver damage by installing it in a timely manner

## 02
## FREQUENCY OF HEPATIC FIBROSIS AND LIVER STEATOSIS IN OBESE AND OVERWEIGHT CHILDREN BY NON-INVASIVE METHODS

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**Background.** Non-alcoholic fatty liver disease (NAFLD) is a complication of obesity, with a histopathological spectrum ranging from simple steatosis, steatohepatitis, advanced fibrosis to cirrosis. To determine the presence of cirrhosis, noninvasive markers of fibrosis have now proved to be useful in adults however there are few studies in children. **Aim.** To know the frequency of hepatic fibrosis and steatosis by transient elastography (fibroscan) and fibromax score in obese and overweight children. **Material and methods.** A descriptive, prospective study including overweight and obese children was done. Data collected in all cases were: demographic data and liver function tests results. Fibrosis was determined by Fibroscan > 7 kPa and the presence of steatosis with a value > 233 dB/m; the severity of fibrosis was determined by Fibromax: mild > 0.28 to 0.48, moderate 0.49-0.58 and severe > 0.59. Analysis was done by Spearman test and simple frequencies. **Results.** We included 30 children, 18 males, with an average age of 12 years. They had obesity 86%; elevation of transaminases 40%, dyslipidemia 63% and hyperglycemia 10%. Fibromax detected mild fibrosis in 13.2%, none patient had significant fibrosis. FibroScan detected steatosis in 86.6%, this method no fibrosis was detected. By the Spearman test, no relationship was observed between the presence of fibrosis obtained by Fibroscan and Fibromax; however, with both methods there was a significant correlation to detected the presence of steatosis. **Conclusions.** Fibroscan detected fatty liver in 86% of the cases. Fibrosis was detected by fibromax in few children and in none with fibroscan. The absence of fibrosis in 87% of the cases by both methods in this group reflects mild hepatic disease, not meritorious of liver biopsy.
This work was sponsored by Scienty Med and Cellpharma.

## 03
## NEW PEDIATRIC METABOLIC INDEX CORRELATES WITH VISCERAL FAT ADIPOSITY, PREPERITONEAL FAT THICKNESS, TRANSAMINASES, FATTY LIVER AND INSULIN RESISTANCE

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**Introduction.** We recently created the Pediatric Metabolic Index (PMI) to obtain a score for metabolic risk. This new index has not been evaluated against variables of hepatic and cardiometabolic damage to assess its usefulness. **Objectives.** To assess the correlation of PMI with hepatic enzymes, fatty liver, preperitoneal fat thickness and insulin resistance in children. **Material and methods.** We evaluated 85 children (5-12 years) for serum AST, ALT and GGT; intima media thickness (IMT), flow mediated dilatation (FMD), fatty liver (FL) and preperitoneal fat thickness (PP) by ultrasound; visceral fat adiposity (VFA) and body fat by bio-impedance. Also, HOMA-IR, Matsuda-ISI and QUICKI indexes were calculated. Pearson and Spearman correlations were used and cut points were calculated by ROC curve. $p < 0.05$. **Results.** Children analyzed were distributed in normal (35), overweight (23) and obesity (32) groups. Obesity had higher diastolic AT, glucose at 120 min, basal insulin, TG, uric acid, AST, ALT and LDL, respect to other groups. Strong correlation was found between PMI and Body Fat ($r = 0.735$, $p = 0.001$), VFA ($r = 0.616$, $p = 0.001$) and PP ($r = 0.571$, $p = 0.001$). Moderate correlation was found between PMI and ALT ($r = 0.475$, $p = 0.001$) HOMA-IR ($r = 0.404$, $p = 0.001$), Matsuda ($r = -0.470$, $p = 0.001$), QUICKI ($r = –0.406$, $p = 0.001$), IMT ($r = 0.571$, $p = 0.001$) and FMD ($r = –0.381$, $p = 0.001$), and low correlation with AST ($r = 0.278$, $p = 0.001$) and FL ($r = 0.273$, $p = 0.011$). A cut of point of 2 was considered at risk. **Conclusions.** PMI has correlation with adiposity, cardiovascular and metabolic distress, and hepatic damage. It could be a helpful tool for identifying children at risk for cardiometabolic diseases and assessment during treatment.

# VII. ALCOHOLIC LIVER DISEASE AND FATTY LIVER

## 01
## RELATIONSHIP BETWEEN SONOGRAPHIC HEPATORRENAL INDEX ESTIMATED BY DIGITAL IMAGE PROCESSING AND FATTY INFILTRATION IN THE LIVER

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**Background and aim.** Non-alcoholic fatty liver disease (NAFLD) affects up to 30% of the adults in Western countries. Ultrasound is a noninvasive diagnostic imaging method, which has widely been applied to steatosis detection. However, ultrasound lead to a qualitative estimation of hepatic steatosis and it is not reliable with steatosis degrees lower than 30%. The ultrasound images digital processing could improve the sensitivity of this technique when diagnosing steatosis. In line with this, the sonographic hepatorrenal index (HRIs) calculated by image analysis in a software quantifies steatosis accurately. However, there still are controversial results about it. The aim of this study was to evaluate the relationship between HRIs and the degree of fatty infiltration in patients with steatosis. **Material and methods.** We analyzed 25 patients with previous liver biopsy or clinical indication for liver biopsy. Ultrasound images of hepatic and renal parenchyma were acquired, and then were analyzed in Image *J* software to obtain a numerical value of echo intensity. The HRIs was obtained by dividing the value obtained for hepatic parenchyma between the value determined for renal parenchyma. The percentage of fatty infiltration in the biopsies was determined by a single experienced pathologist. **Results.** The mean age was 41 ± 10 years; twenty-one women (84%) and four men (16%) were included; and the mean body mass index was 30 ± 5.81. Liver biopsy confirmed the presence of steatosis (more than 5% fatty infiltration) in 14 of 25 patients evaluated. Spearman correlation coefficient between the HRIs and the percentage of fatty infiltration determined in histopathology was $r = 0.9824$, $p < 0.0001$; and when it were analyzed only subjects with a mild grade of hepatic steatosis (less than 30% according to histopathology), the Spearman correlation was $r = 0.9419$, $p < 0.001$. These correlation coefficients were higher than those obtained when analyzing the relationship between the degree of steatosis determined by histopathology and conventional ultrasound. **Conclusions.** The IHRs could be very useful for the quantitative diagnosis of hepatic steatosis through a noninvasive method.

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## 02
## HIGH FREQUENCY OF LIVER DAMAGE IN SUBJECTS WITH RISK FACTORS FOR NASH DIAGNOSED BY TRANSIENT ELASTOGRAPHY AND LIVER BIOPSY

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**Background.** Obesity is a risk factor for nonalcoholic steatohepatitis (NASH). In Mexico, > 70% of the population have overweight or obesity. However, diagnosis of NASH is missing due to the lack of biochemical and metabolic markers (BMM) and liver biopsy. **Aim.** To select patients with risk factors for NASH using BMM and assess liver damage using transient elastography (TE) and liver biopsy. **Material and methods.** A cross-sectional study was performed in 505 subjects ≥ 18 years old and with body mass index (BMI) ≥ 18.5 kg/m$^2$. Other potential etiological causes of liver damage than NASH were discarded. Risk for NASH was defined as the presence of ≥ 1 of the following BMM (AST ≥ 54 IU/L, ALT ≥ 42 IU/L, fasting glucose ≥ 100 mg/dL, TG ≥ 150 mg/dL, and HOMA-IR ≥ 2.5). Biochemical profile was evaluated by dry chemistry and anthropometry by bioelectrical impedance (In Body 3.0). Subjects at risk for NASH were evaluated by TE or liver biopsy. ANOVA, t-Student and $\chi^2$ tests were applied using SPSS software. **Results.** The use of BMM identified 57% (290/505) of subjects at risk for NASH. Of these, 106 subjects were evaluated by TE and 65 by liver biopsy. By TE, liver damage was found in 54% (57/106) of the cases. The frequency of liver stiffness was 19% (20/106) for F1, 14% (15/106) F2, 12% (13/106) F3, and 9% (9/106) F4 according to the stiffness value. Histopathological evaluation confirmed the diagnosis of NASH in 91% (59/65) of the cases. Among theses, 43% (28/65) were in stage F1, 43% (28/65) were F2, whereas 5% (3/65) were F3. The presence of liver damage was detected in normal weight subjects and the number of cases increased up to 90% according to BMI in subjects with extreme obesity. **Conclusions.** Risk for NASH was found in 57% of the study group using BMM markers. Liver damage was 54% and 91% by TE and liver biopsy, respectively. Liver damage based on both methods represented 23% (116/505) of the total population. In normal weight subjects, liver damage was present in those with metabolic abnormalities and increased up to 90% in patients with extreme obesity.

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## 03
## LILLE-4 *VS.* LILLE-7 AS 30-DAY SURVIVAL PROGNOSTIC MODELS IN A COHORT OF MEXICAN PATIENTS WITH SEVERE ALCOHOLIC HEPATITIS

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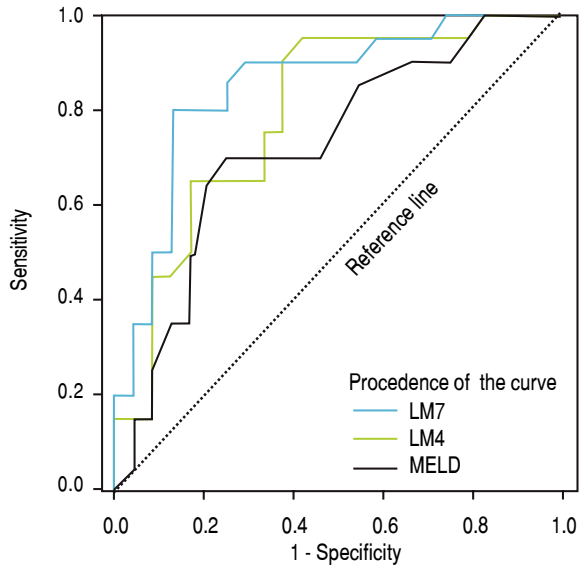
**Background.** Therapy with steroids increases the risk of sepsis in patients with severe alcoholic hepatitis (SAH). A recent study

**(VII.03) Table 1.** Area under the curve for MELD, LM4 and LM7 to predict 30-day mortality in the sub-cohort of patients with severe alcoholic hepatitis treated with prednisone.

| Model | Area under the curve | 95% CI | P |
|---|---|---|---|
| MELD | 0.726 | 0.574-0.878 | 0.01 |
| LM7 | 0.853 | 0.737-0.970 | < 0.0001 |
| LM4 | 0.793 | 0.658-0.928 | 0.001 |




***(VII.03) Figure 1.*** *Area under the curve that shown sensitivity and specificity for LM4, LM7 and MELD to predict 30-day mortality in patients treated with prednisone.*

suggests that response to therapy could be evaluated earlier applying Lille model at day-4 (LM4) with equal exactitude as the classical evaluation at day-7 (LM7). **Aim.** To evaluate if LM4 is useful to predict 30-day mortality in patients with SAH, compared with LM7 and MELD. **Material and methods.** An observational, analytic, transversal study. It included patients with SAH, defined by a Maddrey´s discriminant function (MDF > 32), evaluated in the last 6 years. MELD, LM4 and LM7 were calculated. Survival at 30-day was verified. Sensitivity and specificity were determined by ROC curves for each prognostic model. **Results:** A total of 81 patients; 75 men (92.6%); mean of age was 43.1 ± 9.0 year-old; median pf MDF 72.9 (range 34.4 – 450.6); 44 (54.3%) were treated with steroids and 37 (45.7%) with pentoxyfilline (PTX); mean of alcohol intake was 336 ± 173 g/day; 59 (72.8%) also had evidence of cirrhosis in the ultrasonography; the overall 30-day mortality was 56.8%. The mean time to request medical attention since the beginning of jaundice was 1.6 ± 1.0 months. Areas under the curve for MELD, LM4 and LM7 considering the sub-cohort that received steroid therapy are shown in table 1 and figure 1. **Conclusion.** LM7 seems the most accurate to predict the outcome of patients with SAH at 30 days in patients treated with steroids, LM4 seems extremely promising to predict earlier the failure to steroid therapy.

## 04
## INSULIN-LIKE GROWTH FATOR BINDING PROTEINS (IGFBP) 2 AND 5 ASSESSMENT IN AN EXPERIMENTAL MODEL OF NON-ALCOHOLIC FATTY LIVER DISEASE

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**Background and aim.** Insulin-like Growth Factor Binding Proteins (IGFBP) are mainly produced by the liver and secreted to the bloodstream. IGFBP-2 serum levels have been reported to be increased in patients with metabolic syndrome, whereas IGFBP-5 is increased in NASH; however it is not clear whether their amount in the serum is related to the disease. We aimed to assess IGFBP-2 and -5 in both serum and liver of mice with NAFLD. **Material and methods.** To induce NAFLD, 16 week-old C57BL/6 male mice weighing 25 ± 5 g were fed either a Methionine-Choline Deficient (MCD) or a control (MCC) diet during 2, 8 or 12dx weeks. Liver and serum samples were collected. Total protein was extracted from the liver and IGFBP-2 and -5 were assessed by multiple suspension array. Histological evaluation was performed in hematoxylin-eosin stained sections based on the Kleiner score. Data was presented as Mean ± SD and analyzed by one way ANOVA followed by Tukey test. $P < 0.05$ was considered significant. **Results.** Increased liver damage was observed with exposure to MCD diet. IGFBP-2 was increased in the liver tissue of MCD2, MCD8 and MCD12 compared with MCC (MCC = 10.7 ± 6.40, MCD2 = 155.7 ± 45.74, MCD8 = 100.4 ± 32.81 y MCD12 = 76.22 ± 44.44 pg of protein/mg of tissue; $p < 0.05$). In serum IGFBP-2 was also increased in MCD2, MCD8 and MCD12 compared with MCC, (MCC = 58.3 ± 15.02, MCD2 = 109.5 ± 45.17, MCD8 = 140.8 ± 22.45, MCD12 = 186.6 ± 37.39 ng/mL; $p < 0.05$), interestingly the highest increase was observed in MCD12. In contrast, IGFBP-5 was decreased in the liver tissue in MCD2 and MCD8 compared with MCC (MCC = 811.1 ± 184.28, MCD2 = 356.9 ± 142.65, MCD8 = 418.0 ± 371.27, MCD12 = 749.8 ± 377.50 pg of protein/mg of tissue; $p < 0.05$); whereas no differences were observed in the serum. **Conclusions.** IGFBP-2 increases its synthesis in the fatty liver compared with the healthy liver, this finding is observed in both tissue and serum but in this latter it is proportional to the time of exposure to the MCD diet. In contrast, IGFBP-5 is lower only in the liver but not in the serum.

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## 05
## SEVERE MALNUTRITION IS A PROGNOSTIC FACTOR RELATED TO EARLY MORTALITY IN MEXICAN PATIENTS WITH SEVERE ALCOHOLIC HEPATITIS

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**Background.** Severe alcoholic hepatitis (SAH) has a very high mortality rate in Mexican population, becoming as high as 50 to 81% in those classified as ABIC B or C. **Aim.** To know which clinical factors are related to early mortality (30 days) in Mexican patients with SAH. **Material and methods.** A historic cohort study which included patients with SAH defined by a Maddrey's discriminant function > 32, evaluated in a five-year period (2010-2015). Quantitative variables were expressed in mean and standard deviation and were compared using *t* Student's test; univariate analysis for qualitative variables was performed using $\chi^2$ or exact Fisher's test, odds ratio and 95% confidence intervals were also calculated; the multivariate analysis was performed through Cox regression. **Results.** 76 patients were included; 72 (94.7%) were men; mean age was 43 ± 9.1 year-old, 58 (76.3%) had changes of cirrhosis in the ultrasonography. According with the subjective global assessment (SGA) 38 (50%) had severe malnutrition, 22 (28.9%) were at risk of malnutrition, 16 (21.1%) were well-nourished. Overall 30-day mortality in this cohort was 46 patients (60.5%). In the univariate analysis, the following were associated with 30.day mortality: Concomitant cirrhosis (OR = 2.3; 95%CI: 1.5-3.4; P < 0.0001), development of encephalopathy (OR = 5.6; 95%CI: 2.5-12.5; P < 0.0001), development of renal failure (OR = 6.2; 95%CI:2.5-15.6; P < 0.0001), variceal bleeding (OR = 4.4; 95%CI:1.7-11.3; P < 0.0001), infection (OR = 2.7; 95%CI:1.3-5.8; P = 0.004), according with the SGA: at risk of malnutrition (OR = 2.0; 95%CI:1.2-3.3; P = 0.01), and severe malnutrition (OR = 5.8; 95%CI: 2.0-16.4; P < 0.0001); therapy with prednisone or pentoxyfilline did not influence on survival, and was not difference between therapy groups. When these variables were adjusted in a multivariate model, only severe malnutrition was related to 30-day mortality: OR = 6.4; 95%CI: 1.9-22.1; P = 0.003. **Conclusions.** Nutritional status is a key factor associated with early mortality (30 days) in Mexican patients with SAH.

## 06
## HISTOPATHOLOGIC DIFFERENCES IN AFLD-NAFLD IN A MURINE MODEL OF CHRONIC INTAKE OF HIGH-FAT DIET, ETHANOL AND THEIR INTERACTION

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**Background and aim.** Excessive alcohol intake is a risk factor for the development of alcoholic fatty liver disease (AFLD). In the last decade, prevalence of obesity has increased diseases including non-alcoholic fatty liver disease (NAFLD). Both pathologies are extended in our population and are risk factors to developing liver fibrosis. These diseases have been independently studied, but evidence of the coincidence of them in the same subject is lacking. Previously, we have shown the mid-term interaction of both etiologies. We aimed to identify the morphological alterations in the liver due to High-Fat diet and ethanol intake in mice at long-term. **Material and methods.** 6 groups of ♂ C57BL/6 mice, aged 10 weeks were assigned to the following treatments: (1) Chow Diet/Water (DC/A), (2) Chow Diet/Ethanol (DC/OH), (3) High-Fat Diet/Water (DHF/A), (4) High-Fat Diet/Ethanol (DHF/OH), (5) 1stHigh-Fat Diet/Water-2nd Chow Diet/Ethanol (DHF/A-DC/OH) and (6) 1st Chow Diet/Ethanol-2nd High-Fat Diet/Water (DC/OH-DHF/A). Mice in groups 1-4 received their treatments for 6 months. Groups 5 and 6 received the 1st treatment for 4 months followed by the 2nd for 6 months. Histological assessment was performed by using H&E and Masson's tricrhome staining. **Results.** Histological changes were observed in the liver according to the experimental group. DC/OH showed slight architectural changes due to sinusoidal distension and no steatosis compared with DC/A. DHF/A showed microvesicular diffused steatosis mainly in zones 2 and 3 in the hepatic acinus with inflammatory infiltrate. DHF/OH group exhibited diffused micro-macrovesicular steatosis in zones 2 and 3. DHF/A-DC/OH showed microvesicular focal steatosis in zone 2 whereas DC/OH-DHF/A showed micro and macrovesicular diffused steatosis in the whole acinus. **Conclusion.** Steatosis and other architectural changes in the liver depend on the interaction of the diet and the drinking. Structural changes in specific locations of the acinus were observed according to the group. Our data suggest that, at least in mice, a chronic alcohol intake period followed by an obesogenic diet induces a severer steatosis when compared to independent etiologies.
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## 07
## PREVALENCE OF NON-ALCOHOLIC FATTY LIVER DISEASE DIAGNOSED BY BIOPSY IN A PERIODO OF 5 YEARS

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**Background.** Non alcoholic fatty liver disease (NAFDL), is the number one cause of impaired liver function test. México 70% of adults are overweight and obese, but few studies have evaluated the prevalence (NAFDL). **Aim.** Establish the prevalence NAFDL in a period of 5 years of patients who underwent hepatic biopsy, describe the histological findings and characteristic biochemistry compare between simple steatosis and steatohepatitis/fibrosis. **Material and methods.** Analytical observational study. The Hospital General de México biopsy record was review, in the period from January 2012 to march 2016 the diagnosis was intentionally sough NAFDL and steatohepatitis. Registering the histopathological characteristic, the demographic, clinical and biochemical data were collected clinical files. Comparing the characteristics between group 1 (simple steatosis = group of low risk of disease progression and group inflammation/fibrosis group at high risk of disease progression. **Result.** In the studied period 292 hepatic biopsies were peformed, of which 49 reported NAFDL. La prevalence was 16.7%, mean age 42.4 ± 14.8 years, woman the occupied 77.6% (n = 38), IMC 23.4 ± 5.2 kg/m$^2$, the diabetic 9.7% and pre-diabetic 32.3%.The repoted characteristic of the biopsies were 61.2% (n = 30); presented some degree of steatosis: 43.3% (n = 13) mixed steatosis, 36.6% (n = 11) macrovesicular steatosis, steatosis only 13.3%, microvesicular steatosis 6.6% (n = 2). We identified nineteen patients (38.7%) whit steatohepatitis, inflammatory infiltrate n = 8 (42%), fibrosis n = 5 (26.3%) and hepatitis 31.5%. When comparing between groups 1 and 2 there was only significant difference in fasting serum glucose (87.3 ± 11.8 *vs*. 109.2 ± 31.4 mg/dL respectively, (p = 0.03). **Conclusion.** Is a pathology affecting women of productive age, the alteration of serum glucose was in greater patients with factors considered to be at risk of progression of disease (inflammation/fibrosis).

This work did not receive any sponsorship.

## 08
## PREVALENCE OF FIBROSIS AND STEATOSIS DIAGNOSED WITH TRANSIENT ELASTOGRAPHY (FIBROSCAN) IN PATIENTS OF HOSPITAL GENERAL DE MEXICO O.D. "EDUARDO LICEAGA"

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**Background.** Transiet elastography (TE) measures liver stiffness in patients suffering from different chronic liver diseases. This novel parameter "controlled atenuation parameter" (CAP) is efficient in detecting low grade steatosis. **Aim.** To determine the prevalence of hepatic fibrosis and steatosis in the group of patients who submitted the study of TE in the period from January to March 2017. **Material and methods.** Observational analytic study, the result of TE performed of Hospital General de México in the 3-month period. The following date were collected; age, sex, weight, heigth, body mass index (BMI), with diabetes mellitus (DM), dyslipidemia and sending reason. The ET with the fibroscan interpretation guide was determined in kilopascals kPa. The level of hepatic fibrosis F1-F4 and steatosis by CAP dB/m with cohort point 233 dB/m. **Results.** There were 80 TE, only studies 57 that were complete. Predominating 61.4% (n = 35) women, average age 48 ± 24, BMI 25.6, DM 40% (n = 14) and dyslipidemia 54% (n = 19). The main indications for the realization of this study were; obese patients, steatosis by usg and VHC. Getting 19 patients without fibrosis, n = 16 with some degree of fibrosis F1-F4. F1: (n = 3), F2 (n = 4), F3 (n = 5), the characteristic that predominated; obesity, overweight and dyslipidemia, F4 (n = 4), the 4 patients presented some degree of dyslipidemia but only 2 with overweight. The degree of steatosis: n = 19 mild steatosis (S1), n = 3 moderate (S2), severe (S3) n = 4, predominating obese, DM y dyslipidemia and 6 normal weight. The men 38% (n = 22), average age 50 ± 25, BMI 25, the 40% with DM (n = 9), 50% dyslipidemia (n = 11). Fourteen patients with fibrosis (F1-F4): F1 (n = 1), F2(n = 2), F3 (n = 1). F4 (n = 10) three obesity patients, six BMI < 25 kg/m, seven of them with DM, the degree of steatosis S1-S3, prevail BMI < 25 kg/m y no diabetic. In patients submitted to this study were found 52% have a degree of fibrosis and 64% degree of steatosis. **Conclusions.** Patients with metabolic syndrome have fibrosis whithout being liverworts.

**(VII.10) Table 1.** Alcohol consumption, cell populations, and cytokine concentrations in the different groups.

| | Control n = 294 | Alcoholism n = 27 | Cirrhosis n = 37 |
|---|---|---|---|
| Alcohol intake (g/day) | 2 ± 1[a] | 185 ±45[b] | 322 ±297[c,d] |
| Years of consumption | NA | 22 ±14 | 26 ±9 |
| Neutrophil(%) | 34 ± 15[a] | 54 ±14[b] | 61 ±12[c] |
| Lymphocyte (%) | 57 ± 19[a] | 34 ±13[b] | 27 ±10[c] |
| Monocyte (%) | 6 ± 4[a] | 9 ±2[b] | 9 ±4[c] |
| IL-6 (pg/mL) | 0.3 (0-16)[a] | 0.7 (0.2-3)[b] | 4.3 (0.4-3181)[c,d] |
| IL-8/CXCL-8 (pg/mL) | 1 (0.07-21)[a] | 8 (0.7-106)[b] | 18 (1-455)[c] |
| IL-10 (pg/mL) | 0.4 (0-349)[a] | 0.1 (0-118) | 1.2 (0-177)[c] |
| TNF-α (pg/mL) | 0.1 (0-5)[a] | 0.4 (0-1) | 1 (0-30)[c,d] |

Data expressed in mean ± SD; median (min-max). Significant differences between: [a]: all groups. [b]: control and alcoholism. [C]: control and cirrhosis. [d]: alcoholism and cirrhosis. NA: not apply.

## 09
## FIBROSIS AND STEATOSIS IN PATIENTS WITH MORBID OBESITY EVALUATED BY TRANSIENT ELASTOGRAPHY

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**Introduction.** Obesity are closely related to the development of liver steatosis and fibrosis; transient elastography (TE) is a useful non-invasive method to evaluate these conditions, and it is val-

id if the interquartile range (IQR) is < 30 and with a success rate > 60% (valid measures between all taken measures). In more than 25% of the morbid obese patients, the TE cannot be performed because is not easy to find a suitable window. **Aim.** To describe the findings on TE in patients with morbid obesity. **Material and methods.** A case-series study that included patients with body mass index (BMI) > 40 who had a successful TE. **Results.** A total of 20 patients, 15(75%) females, age 42.5 ± 10.6 year-old, weight 133.2 ± 31.4 kg, height 162 ± 8.88cm, BMI 50.52 ± 8.56 kg/m$^2$, Kpa 17.90 ± 7.2, IQR 5.2 ± 5.2, grade of fibrosis 2.2 ± 1.4, CAP 371 ± 37.8 IQR 21.05 12.2, percent of success 75%, range 60 a 100%. The grade of steatosis was III in a100% of patients, 5(25%) patients had not fibrosis, 15(75%) had advanced fibrosis. Conclusions: All patients had an IQR less than 20 and a percent of success greater than 60%, which validate the study. In Patients with morbid obesity the frequency of severe steatosis and advanced fibrosis is high.

## 10
## CHRONIC AND ACTIVE ALCOHOL CONSUMPTION MODIFIED THE IMMUNOLOGICAL RESPONSE

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**Background.** It is known that chronic alcohol intake alters innate and adaptive immune response in humans; however, these effects have not been evaluated in regard to active consumption. **Aim.** To evaluate the immune response in subjects with chronic and active alcohol consumption. **Material and methods.** Transversal study which includes: group 1: control subjects; group 2: alcoholics without clinical or biochemical data of hepatic lesion; group 3: subjects with alcoholic liver cirrhosis. Neutrophil, lymphocyte and monocyte percentage was obtained through Complete Blood Count; and serum cytokine concentrations with Luminex technology. Data were analyzed using ANOVA, orthogonal analysis and U-Mann Whitney, statistically significant differences were considered from $p < 0.05$. **Results.** We included 358 subjects; the mean age by group was: 35 ± 10, 40 ± 13, 43 ± 7 years, respectively ($p < 0.001$). **Conclusions.** In subjects, who presented active alcoholism without hepatic damage, innate immune cells were increased as well as pro-inflammatory cytokine concentrations and the adaptive response decreased; when the subjects presented alcoholic cirrhosis and chronic alcohol consumption is active, other cytokines were increased as TNF-α, IL-6 (considered in this study as hepatoprotector) and IL-10 as anti-inflammatory, that could be offsetting the damage generated.

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## 11
## COMPARATIVE STUDY OF LIPID PERCENTAGE IN THE LIVER OF TWO EXPERIMENTAL MODELS OF NON-ALCOHOLIC FATTY LIVER DISEASE: METHIONINE-CHOLINE DEFICIENT (MCD) DIET *VS.* HIGH-FAT DIET (HFD)

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**Introduction and aim.** Experimental models of non-alcoholic fatty liver disease induced by diet exhibit differences in the time of exposure that is needed to achieve different degrees of the disease as well as the susceptibility of the strains used. Methionine-Choline Deficient (MCD) Diet is a model of NAFLD and is not associated to insulin resistance or metabolic alterations. High-Fat Diet (HFD) model induces obesity, insulin resistance and NAFLD. We aimed to compare lipid accumulation in the liver among these two models of NAFLD, MCD *vs* HFD. **Material and methods.** Male C57BL76 mice weighing 25 ± 5g and 14 ± 2 weeks old, were randomly assigned to the following groups: MCD group was subdivided in control (MCC) and deficient (MCD) and fed the corresponding diet for 2, 8 or 12 weeks; HFD group was divided in control (CD) and HFD and fed for 4 or 6 months. Frozen sections were obtained and stained Oil-Red O. Morphometric analysis was performed to assess the percentage of fat. Data=Median(rank), one-way ANOVA followed by Dunn's test. $p \leq 0.0001$. **Results.** MCD model showed an increased %lipid in the liver of MCD treated compared with MCC; MCD12 %lipid was significantly higher than the observed in MCC and MCD2 (MCC = 0.19 ± 0.42, MCD2 = 6.09 ± 6.00, MCD = 8.00 ± 5.76, MCD12 = 9.65 ± 5.19 %). In the obesity group, an increased %lipid was observed in HFD6m compared with CD (CD = 1.1 ± 0.40; HFD4m = 3.3 ± 3.02; HFD6m = 11.5 ± 9.28 %). **Conclusions.** Both models of NAFLD show progressive increase in steatosis with the time of exposure to the diet. In the MCD model, hepatic steatosis is observed at short-term compared with HDF. Although both models show a similar %lipid at the time analyzed, other studies have shown a higher degree of liver damage en MCD (e.g. NASH is observed in MCD12). Choice of the appropriate model should consider not only the amount of fat in the liver, but also the stage of NAFLD and the presence or absence of other metabolic complications.

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## 12
## EVALUATION OF OXIDATIVE STRESS THROUGH THE LEVELS OF GSH AND GSH/GSSG RATIO IN PEDIATRIC PATIENTS WITH NAFLD

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**Introduction.** The prevalence of non-alcoholic fatty liver disease (NAFLD) has recently increased in pediatric patients by its association with metabolic syndrome and obesity. Glutathione is a molecule with antioxidant capacity that inactivates peroxides. More than 90% of Glutathione is found in reduced form (GSH) and the rest it's in oxidized form (GSSG). GSH/GSSG ratio is useful to determine the presence of Oxidative Stress (OS). However, the concentrations of GSH and GSSG, as well as the role in the pathophysiology of NAFLD in pediatric patient, are currently unknown. **Objetives.** Determine the concentrations of GSH and GSSG, as well as the GSH/GSSG ratio in pediatric patients with obesity and NAFLD. **Material and methods.** A cross-sectional study was performed. Patients of pediatric age with body mass index over 95th percentile according to World Health Organization criteria, and without previous liver or metabolic disease, were included. The diagnosis of NAFLD was performed by Hepatic Ultrasonography. GSH and GSSG levels were determined in blood (Calbiochem, USA) and GSH/GSSG ratio was calculated. Finally, we compare the differences between NAFLD and non-NAFLD groups. We determined statistically significant differences at 95% confidence using non-parametric test of median differences. **Results.** A total of 116 patients were included. The mean age was 10.59 ± 3.17 years, with male predominance (62.5%). The diagnosis of NALFD was made in 89 patients (76.72%). The results of GSH and GSH/GSSG ratio are expressed in median and interquartile range. Patients with NAFLD compared to non-NAFLD patients had decreased levels of GSH (378.5 ± 349.5-443.2 $\mu$mol *vs.* 490.8 ± 409.8-771.3 $\mu$mol, p = 0.0001) and the GSH/GSSG ratio (0.17 ± -0.67-1.41 *vs.* 1.44 ± -0.36-8.93, p = 0.048). **Conclusions.** Low levels of GSH indicate decreased antioxidant capacity. For other hand, decrement of GSH/GSSG ratio suggest increased OS in pediatric patients with obesity and NAFLD.

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## 13
## SELECTION OF TREATMENTS IN NON-ALCOHOLIC FATTY LIVER IN CLINICAL PRACTICE THROUGH THE EVALUATION OF A LITERATURE REVIEW

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**Background and objective.** Non-alcoholic fatty liver disease treatment guidelines highlight four recommendations with greater strength of evidence including lifestyle interventions, vitamin E supplementation, omega-3 fatty acid, and statins. The aim of this study was to contrast the recommendations with the selection of treatment carried out in clinical practice in a third level hospital through a review of the literature by gastroenterologist. **Material and methods.** Based on the methodology of a systematic review of the literature, the research was made in PubMed, Scielo, Cochrane and Elsevier with the following keywords: "NASH in obesity patients", "NAFLD in obesity patients", "Nutrition therapy in NASH patients "And" Supplementation in NASH patients" collecting free complete, randomized clinical trial articles published between 2009 and 2015. The first selection was made by one independent reviewer considering the selection criteria, the second choice was made by two reviewers considering the articles had the keywords in the title. Using the CONSORT guidelines, the reviewers selected the sample of articles concentrated according to the best qualifications by a third reviewer, with the current monthly costs of each treatment. **Results.** There were found 660 items located in the electronic bases, 642 were excluded, which not meet the selection criteria, leaving 18 articles. Of the second selection they were 8 articles that met the CONSORT criteria for the quality of clinical trials. The reviewers rated ezetimibe as the best treatment and with less punctuation they rate changes for lifestyle. The costs for the treatment of ezetimibe sum up a total of 70 USD per month and for the change in lifestyle 108 USD per month. **Conclusion.** In clinical practice, according to the review of literature, the pharmacological use as ezetimibe/statins was considered the best treatment for non-alcoholic fatty liver disease although the effect is low, the monthly price is apparently lower than changes in lifestyle which are more effective in the treatment of the disease.

## 14
## DETERMINATION OF IGFBP-3 IN SUBJECTS WITH DIFFERENT BODY MASS INDEX AS A NON ALCOHOLIC GREASE LIVER MARKER

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**Background.** Overweight and obesity are a growing epidemic that is associated with insulin resistance, an increase in the risk of non-alcoholic fatty liver, this is a common condition that affects 25% of the people in the world. The visceral fatty tissue secretes cytokines that generate a systemic inflammatory state. IGF-1 is produced by hepatic stellate cells and is modulated by insulin-like growth factor binding proteins (IGFBPs). One of the independent functions of IGFBP-3 is to act as an anti-inflammatory molecule. In human adipocytes, IGFPB-3 inhibits the induction of TNF-α and NFκB activation independently of IGF-1. **Objec-**

**tive.** To evaluate IGFBP-3 levels in overweight and obese subjects. **Material and methods.** Peripheral blood samples were obtained from donor subjects, with the informed consent of all participants. IGFBP-3 levels were quantified by Luminex technology (Biorad). An ANOVA analysis of variance and an orthogonal analysis were used to determine the differences between the groups, with different degrees of BMI and gender. **Results.** We included 94 subjects with different degrees of BMI, 21 had Normal weight, 44 overweight, 23 Obesity Degree I and 6 Obesity Degree II. Significant differences were found between Normal group and Normal and Obesity Grade I ($p = 0.019$) and Uric Acid Normal and Overweight ($p = 0.021$) and Normal and Obesity Grade I ($p = 0.019$) ($p = 0.004$) and Obesity Degree I ($p = 0.052$), Normal and Obesity Degree II ($p < 0.000$), as well as difference between Overweight and Obesity. **Conclusions.** Human studies have shown that IGFBP-3 is associated with obesity and insulin resistance. Our study shows significant differences in IGFBP-3 values among patients with a BMI greater than 25 against the control group. The levels of these proteins in these subjects suggest that it can be used as a predictive biomarker of systemic damage.

## 15
## BEHAVIOR OF THE IMMUNE SYSTEM IN ALCOHOLISM IN DIFFERENT STAGES OF HEPATIC DAMAGE

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**Background.** Among the different mechanisms involved in the pathophysiology of alcoholism and in alcohol-induced liver disease (ALS) are disorders of the immune system, which are associated with liver damage, patients with alcoholism show an altered lymphocyte profile. Currently, most of the evidence in this regard comes from animal models and in vitro assays. **Objective.** To evaluate the peripheral blood lymphocyte profile of chronic alcoholic patients and their relationship to alcoholic liver disease. **Materials and methods.** Two groups of patients were studied at the General Hospital of Mexico's Liver Clinic, the first group was composed of subjects with chronic alcoholism without evidence of EHA, the second by subjects with any degree of EHA, a group control. The lymphocyte profile (T lymphocytes, NK cells, NKT cells, B lymphocytes, CD8 T cells and CD4 T cells) in peripheral blood was determined by flow cytometry. For statistical analysis, ANOVA and orthogonal analyses were performed to find differences between groups. Results: We included 129 subjects, of whom 66 were controls, 53 patients with alcoholic liver damage and 10 chronic alcohol users. Mean age: 39 years (± 10), 49 years (± 13) and 45 years (± 16) respectively, only finding a difference between the control group and the other two groups ($p = 0.014$). Differences were found between the subpopulations of T lymphocytes, NK and NKT cells between the control group and the non-hepatic group ($p = 0.032$ and $p = 0.010$, respectively). **Conclusions.** We found differences in T lymphocytes, NK and NKT cells between controls and alcoholics (with and without hepatic damage). Differences in NK cells and T lymphocytes between the control group and the no-harm group suggest that immunological alterations are present from subclinical stages and are similar to those described in low-grade inflammation condition.

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## 16
## ALTERATIONS IN LYMPHOCYTES AND CYTOKINES IN PATIENTS WITH HEPATIC DISEASE BY ALCOHOL

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**Background.** Chronic alcohol consumption causes an imbalance in the immune system and induces liver damage. Currently,

**(VII.16) Table 1.**

| | Control | Child A | Child B | Child C |
|---|---|---|---|---|
| Gender n(%) | | | | |
| F | 19 (16) | 4 (12) | 2 (10) | 1 (6) |
| M | 98 (84) | 30 (88) | 19 (90) | 15 (94) |
| Age (year) | 36 ± 9[a,b,c,d] | 50 ± 11[a,b,g] | 50 ± 7[a,c,f] | 57 ± 11[a,d,f,g] |
| BMI (kg/m$^2$) | 28 ± 4 | 27 ± 4 | 29 ± 5 | 26 ± 3 |
| Alcohol consuption (g) | 2 ± 4[a,b,c,d] | 273 ± 190[a,b] | 304 ± 287[a,c] | 239 ± 115[a,d] |
| GGT (U/L) | 34 ± 30[a,b,c,d] | 111 ± 99[a,b] | 120 ± 96[a,c] | 125 ± 155[a,d] |
| Albumin (g/dL) | 4 ± 0.3[a,b,c,d] | 3 ± 0.9[a,b,g] | 3 ± 0.6[a,c,f] | 2 ± 0.6[a,d,f,g] |
| IL-4 (pg/mL) | 0.1 ± 0[a] | 0.4 ± 0[a] | 0.5 ± 0.2[a] | 0.1 ± 0.2[a] |
| IL-8 (pg/mL) | 2 ± 0.2[a,c,d] | 54 ± 26[a] | 23 ± 9[a,c] | 50 ± 17[a,d] |
| TNFα (pg/mL) | 0.4 ± 0[c,d] | 6 ± 3.9 | 0.8 ± 0[c] | 0.8 ± 0[d] |
| Lymphocytes T (%) | 67 ± 7[a,b] | 59 ± 12[a,b] | 64 ± 10[a] | 62 ± 12[a] |
| NK (%) | 11 ± 6[a,b,c,d] | 16 ± 9[a,b] | 16 ± 8[a,c] | 18 ± 11[a,d] |
| CD8 (%) | 23 ± 7[a,c] | 23 ± 12[a,e] | 34 ± 13[a,c,e] | 26 ± 14[a] |
| CD4 (%) | 41 ± 8[a,b,c] | 31 ± 17[a,b] | 23 ± 16[a,c] | 34 ± 22[a] |
| Proportion CD4/CD8 | 2 ± 0.7[c] | 2 ± 1[e] | 1 ± 1[c,e] | 2 ± 2 |

the most important evidence comes from animal models and *in vitro* assays. **Objective.** To evaluate the lymphocyte profile and cytokines in peripheral blood of subjects with Alcoholic Liver Disease (EHA). **Material and methods.** Participants were divided into two groups. Group 1 (control): Subjects with ethanol consumption <10 g/day and AUDIT < 8. Group 2, subjects with EHA who were classified according to the Child-Pugh scale. The lymphocyte profile (T cells, B, NK, NKT) was determined in peripheral blood by flow cytometry and serum cytokines by Luminex technology (Bio-Rad). Data were analyzed using ANOVA and orthogonal analyzes. **Results.** We included 188 subjects, 71 diagnosed with EHA and 117 healthy subjects. **Conclusions.** These results demonstrate that in EHA the percentage of cytotoxic cells and pro-inflammatory cytokines is increased, whereas CD4 cells decrease so that in EHA the immune response is altered and is persistent even in more severe stages.

## 17
## CORRELATION OF FIBROSCAN WITH NAFLD SCORE AND FIB4 IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE AND INSULIN RESISTANCE

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**Background and aim.** The prevalence of non-alcoholic fatty liver disease (NAFLD) is higher in patients with diabetes mellitus, being > 70%. The NALFD has a clear correlation with the presence of insulin resistance, which can be determine with the measurement of glycosylated hemoglobin (HbA1C) from values > 5.7% (ADA 2016). Fibrosis that accompanies this pathology can lead to cirrhosis and hepatocellular carcinoma, so an early diagnosis is essential. This study aims to determine the correlation of FibroScan with the scales in patients with NAFLD and insulin resistance in the Gastroenterology Department of the Hospital Juárez de México. **Material and methods.** An observational, cross-sectional study of patients with NAFLD who assessed their age, gender, HbA1C levels, body mass index (BMI), NAFLD score and FIB4 determination which were correlated with FibroScan. The stages of fibrosis were defined by KPa. **Results.** We included 40 patients, 32 women and 8 men (80 and 20% respectively), mean age of 49.85 years. They were divided into 2 groups, patients with 5.7% (17 = 42.5%) and HbA1C < 5.7% (17 = 42.5%). Of the total number of patients, 7 (17.5%) showed advanced fibrosis with FibroScan (F3-F4). A positive correlation was found between FIB4 and Kpa in patients with insulin resistance (r = 0.5575), lower than that found with the NAFLD score (r = 0.2434). **Conclusions.** The FIB4 scale showed a higher correlation with FibroScan in patients with NAFLD and insulin resistance, it is required to expand the sample size to support the result.

## 18
## RELATIVE CHANGES IN BIOCHEMICAL AND ANTHROPOMETRIC INDICATORS IN PATIENTS WITH NON ALCOHOLIC FATTY LIVER DISEASE ACCORDING TO NUTRITIONAL INTERVENTION. TWO YEAR FOLLOW-UP REPORT

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**Introduction.** The clinical practice guidelines for the treatment to the fatty liver disease point out that a weight loss of 3% reduces steatosis level; the loss weight must be gradual, accompanied by exercise. Several studies indicate that initial changes in treatment, influence transaminases. **Objective.** Describe the changes produced by hypocaloric diet and exercise in biochemical indicators and anthropometry in patients with the fatty liver disease through 2 years of follow up. **Material and methods.** In 173 patients belonging to Non alcoholic fatty liver disease cohort, received hypocaloric diet using adjusted weight and prescription of exercise (1,200-1,800 kcals/day; 50% carbohydrates, 30% lipids and 20% protein and more than 180 min/week of aerobic exercise); the changes of two years in body composition and biochemical indicators disease related, were analyzed with Wilcoxon and Friedman test using the SPSS v20 statistic software. **Results.** 69.3% of patients remained in this cohort during the first 18 months and 47.9% at 24 months. The median of the weight loss was of 2.4 kg (p = 0.003), arm circumference loss was of 0.05 cm (p = 0.005), waist circumference loss was of 0.22 cm (p = 0.003) and Body Mass Index (BMI) loss was of 0.1 kg/m$^2$ (p = 0.027). The distance between nutritional periodic reviews was 6-7 months; from the first to the second checkup, the differences were in the body weight and arm circumference (P = 0.019 and 0.004 respectively) from the second to the third, change in BMI (p = 0.026) and between the third and fourth, in glucose (p = 0.027), glycated haemoglobin (p = 0.028) and ALT (p = 0.007) were see. **Conclusion.** The weight loss in this cohort was lower than the guidelines point out, so the changes in the both, anthropometric and biochemical indicators were small and inconstant. It is suggested radicals dietetic strategies, structured/supervised exercise and a minor time between periodic reviews.

## 19
## IMMUNOTYPICAL PROFILE ALTERATIONS IN PERIPHERAL POLYMORPHONUCLEAR CELLS OF BINGE DRINKERS

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**Background.** High alcohol intake on weekends or "binge drinking", could cause early liver damage. Alcohol-induced liver

**(VII.21) Table 1.** Data demographic, biochemical and protein carbonyls of study subjects.

| | cHC (30) | CT (166) | p |
|---|---|---|---|
| Gender n (%) | | | |
| Male | 7(23) | 139(90) | < 0.001 |
| Female | 24(77) | 27(11) | |
| Age (years) | 51 ± 10 | 37 ± 9 | < 0.001 |
| AST (U/l) | 84 ± 7 | 30 ± 1 | < 0.001 |
| ALT (U/l) | 90 ± 6 | 28 ± 2 | < 0.001 |
| Viral Load (UI/mL) | $12x10^5$ ± $20x10^5$ | — | — |
| Protein carbonyls (mg/mL) | 0.092 ± 0.066 | 0.046 ± 0.082 | 0.004 |

Results in mean ± standard deviation.

damage is characterized by polymorphonuclear cell (PMN) infiltration, which can be represented in the peripheral blood by altered trafficking and activation profiles. **Objective.** To evaluate the PMN trafficking and activation immunophenotypic profiles in people with a binge drinking pattern. **Material and methods.** People between 20-29 years old with binge drinking (n = 18) or at low risk (n = 16) based on their AUDIT and HEPCA scores were studied. Hematic biometry and liver enzyme tests were conducted. Peripheral blood leukocytes were analyzed for expression of CCR5, CCR4 and CXCR4 (trafficking), and CD69 and CD127 (activation) by FACS. The data were analyzed using the T-test and Mann-Whitney's *U*-test for contrasts and principal component and Fuzzy C means analyses for clustering, with $p < 0.05$ considered significant. **Results.** Compared to the low-risk group, the binge group showed higher CCR5 expression on PMNs, decreases in the CD69 percentage and positive PMNs per microliter, and decreased CXCR4 expression on monocytes. Six immunophenotypical clusters were identified, all of which were distributed following the CCR5 and CXCR4 main vectors. **Conclusion.** Young adult binge drinkers have differential PMN trafficking and activation immunophenotypes, which could be related to the initial onset of alcoholic liver disease and a systemic inflammatory state in response to their alcohol consumption pattern. These findings could lead to the future development of an early diagnostic tool.

## 20
## COMPARISON OF THREE SCALES SEES IN PATIENTS WITH SEVERE ALCOHOLIC HEPATITIS AT THE HOSPITAL JUÁREZ DE MÉXICO

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**Background.** The discriminant function of Maddrey was the first prognostic scale to be developed and has the limitation that it only staged patients in severe (> 32) or non-severe. Other indices have been proposed by observing that creatinine, INR and age are determinants of survival, so the ABIC scale (age, serum bilirubin, INR and serum creatinine) is later performed, which includes three categories (low risk, Intermediate and high) as well as Glasgow, which is becoming more important today. **Aim.** Determine which of the three prognostic scales is most useful for predicting mortality in patients with alcoholic hepatitis. **Material and methods.** We performed an ambispective and observational analysis of 106 patients with severe alcoholic hepatitis at Hospital Juárez de México during the 2013-2017 period, to whom the Maddrey, ABIC and Glasgow scales were applied. Descriptive statistics and data exploration were performed to corroborate if they followed a normal distribution, a one-way and one-factor Bonferroni *post-hoc* ANOVA was performed. The SPSS program was used to analyze the results. **Results.** We obtained 106 patients, 8 women (7.54%) and 98 men (92.45%). The average age for the male gender was 42.73% and for the female gender of 49.75%. The total number of live patients was 46 (44.89% male and 25% female) and 60 (55.10% male and 75% female). For the deceased patients the Glasgow average was 10.2 (9.87-10.52), Maddrey 102.78 (88.86-116.7) and ABIC 9.26 (8.47-9.76). In the case of living patients the Glasgow average was 9.17 (8.71-9.64), Maddrey 57.16 (49.1-65.8) and ABIC 7.93 (7.46-8.37). There is a statistically significant difference between the methods studied with a $p < 0.05$. **Conclusions.** Two scales were correlated ABIC and Glasgow. We obtained a new cohort value from the Maddrey index (65.8) to express gravity, so the utility of this scale should be evaluated. We must emphasize that these data only support the population of our hospital and a multicenter study is suggested to establish a cohort value in Mexican population.
Sponsorship: None.

## 21
## USE OF NON-INVASIVE SEROLOGIC BIOMARKERS IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER AND FIRST BLEEDING EPISODE DUE TO PORTAL HYPERTENSION

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**Background.** Non-alcoholic fatty liver (NAFL) is the most common cause of chronic liver disease worldwide, with an estimated prevalence in Mexico of 10-14%. Patients are at risk of developing cirrhosis and its complications. **Objectives.** To evaluate liver fibrosis by serological biomarkers of patients with upper digestive bleeding (UDB) due to portal hypertension secondary to chronic liver disease by NAFL in HGR 251 during 2016. **Material and methods.** Cross-sectional study. We included adults, admitted to the emergency room and hospitalization during 2016, diagnosed with UDB, with laboratories, abdominal ultrasound (US) and upper digestive endoscopy. Patients with current alcohol consumption, positive serology for HCV, HBV and autoimmune hepatopathy were excluded. The relationship AST/ALT, APRI, FIB-4 and the NAFLD fibrosis score were used as non-invasive serological biomarkers. Central tendency measures and coefficient of correlation of Pearson were used for the analysis. A significant value of $p < 0.05$ was considered. **Results.** Of the 44 patients analyzed, 23 were men (52%), 59.2 years old (+ 11.49 years). Endoscopy identified small varices and mild portal gastropathy in 23 individuals (53%), respectively. The body mass index was 24.84 $kg/m^2$ (+ 2.32), 28 patients (63%) with diabetes mellitus and glucose of 139.11 mg/dL (+ 87.67). The US reported chronic diffuse

liver disease in 29 cases (65%), with 11.38 mm of portal vein (+ 2.12) and 130 mm (+ 27.82) spleen length. The possibility of significant fibrosis was: 100% of cases with NAFLD score (3.51 + 1.22); 29 patients with FIB-4 (6.33 + 4.19), APRI in 28 patients (2.05 + 2.83) and AST/ALT in 34 cases (1.47 + 0.67). There was only a significant association between NAFLD score and age with r (42) = 0.41, p = 0.005. **Conclusions.** The possibility of hepatic fibrosis in patients with NAFL determined by serological biomarkers is frequent with the appearance of portal hypertension.

### 22
### EVALUATION OF OXIDATIVE DAMAGE IN PROTEINS IN PATIENTS WITH CHRONIC HEPATITIS C

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**Introduction.** Hepatitis C is one of the most frequent causes of morbidity and mortality in the liver in the world. While the complex interaction between hepatitis C virus and the host is known, currently is unavailable enough information on the pathogenic mechanism of liver damage in chronic hepatitis C (cHC), even though they seem to be involved both immunological mechanisms such as direct cytotoxicity due to various viral products and the induction of oxidative stress. However, little is known of the effect that oxidative stress mediated by the hepatitis C virus. **Objective.** Quantify the serum levels of protein carbonyls in patients with chronic hepatitis C and compared with control subjects. **Material and methods.** We included patients with diagnosis of cHC and were compared with a group control (CT) with viral serology negative, each group signed informed consent. Protein Carbonyl levels were quantified by spectrophotometry method. For statistical analysis we used Man Whitney *U*. **Results.** Thirty patients with cHC, which were compared with 166 CT subjects. **Conclusion.** Viral replication of hepatitis C virus induces oxidative damage to proteins resulting in the maintenance of the chronic inflammatory process in this pathology.

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### 23
### PREVALENCE OF DISEASE HEPATIC FAT NON-ALCOHOLIC IN NECROPSIES PERFORMED DURING 5 YEARS IN THE HOSPITAL DE ESPECIALIDADES DEL CENTRO MÉDICO NACIONAL SIGLO XXI, IMSS

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**Introduction.** Non-alcoholic fatty liver disease (NAFLD) is the most common liver disease worldwide with a prevalence of 25-45% and 5% of steatohepatitis and is the most frequent cause of alterations in liver function tests in individuals Asymptomatic. In Mexico, a prevalence of 17.1% was estimated by ultrasound in an asymptomatic population and in a metabolic syndrome of 86.9%. **Objective.** To determine the prevalence of nonalcoholic fatty liver disease by necropsy in a Mexican population over a period of 5 years. **Material and methods.** A retrolective cross-sectional study was carried out at the "Bernardo Sepúlveda" Hospital of CMN XXI Century, including all necropsies performed in the department of pathological anatomy from January 2011 to January 2016 regardless of cause of death, clinical and biochemical variables were collected as well as the existence of steatosis by abdominal ultrasound, and for the histological evaluation, the modified Kleiner score (NAS) was used (NAFLD Activity Score). **Results.** We included 91 patients who fulfilled the inclusion criteria, 47 were excluded. Each of the leaflets of the autopsies lettered as liver were reviewed by two pathologists who did not know the results of the complementary studies of the samples analyzed. Of the 91 patients analyzed, a prevalence of NASH of 52% and steatohepatitis of 10% was found. The variables with statistical significance ($p < 0.05$) associated with a higher prevalence of NAFLD were overweight (BMI > 25), obesity, hyperglycemia > 120 mg/dL (101-138 mg), hypertriglyceridemia > 171 mg/250 mg/dL). **Conclusions.** The prevalence of NAFLD is increasing in the last two decades, in our study the prevalence in the general Mexican population is 52% and steatohepatitis 10% is very similar to the world population, this means that one In addition, NAFLD is in close relation with other cardiovascular risk factors (overweight, obesity, dyslipidemia, DM2, SAH), increasing the risk of morbidity and mortality in these patients.

## VIII. OTHER TOPICS

### 01
### EPIDEMIOLOGICAL, CLINICAL AND HISTOLOGICAL ASPECTS OF ELEVATED TRANSAMINASES IN A THIRD LEVEL HOSPITAL

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**Introduction and objectives.** Alterations in liver chemistry (LQ) are frequent reasons for consultation that may be related to different conditions. There are multiple studies that have demonstrated the association of increased ALT and the risk of death related to liver conditions. **Material and methods.** We performed a descriptive observational study, obtaining the data from the clinical records of patients with a diagnosis of elevated transaminases of the IMSS-UMAE No. 25 Gastroenterology Service, from January 2015 to January 2017, including those without a cause identifiable of hepatic pathology and that hepatic biopsy was performed as part of the diagnostic protocol. The characteristics of the categorical variables were described by frequencies and percentages, making inferential statistics in the corresponding case. **Results.** Thirty cases formed the study group, 36% were males and 63% were females, the mean age was 46.8 (SD: 15.1). The 83% were overweight or obese, being

predominantly prevalent in overweight and obesity grade 1 (67%). Diabetes mellitus was documented in 23%, arterial hypertension in 13%, dyslipidemia in 27% and a metabolic syndrome was integrated in 23%. The enzymatic elevation was mild in 63% and severe in 7%. The pattern of altered LQ was mixed in 46%, hepatocellular in 37% and cholestatic in 17%. The main associated diseases were rheumatologic (71%), neuropsychiatric (29%), endocrine (14%). The groups of related drugs were DMARDs (24%) and steroids (21%). In the histological findings, fatty liver disease (FLD) was found in 72%, presenting pure steatosis and steatohepatitis in 36%, respectively. FLD had statistically significant associations with mild enzyme elevation and overweight/obesity, with a p: 0.11 and 0.1 respectively. **Conclusions.** In our study population, the main condition associated with LQ alterations was FLD, which is the main cause of chronic liver disease worldwide; may be influenced by multiple causes with a clear association with overweight/obesity and/or related diseases and many drugs. It is very important an adequate detection to reduce metabolic risk factors, key to its management and to avoid complications.

## 02
## COMPARISON OF HEPATIC FUNCTION TESTS IN PATIENTS WITH DIFFERENT ARBOVIRAL INFECTIONS: ZIKA, CHIKUNGUNYA AND DENGUE

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**Objective.** To investigate the presence of characteristic pattern of hepatic enzymatic alteration in mexican patients infected with CHIKV or ZIKV when compared to patients infected with DENV. **Material and methods.** We studied patients from Tapachula, Chiapas, and Monterrey, N.L., Mexico, during 2015 and 2016, which had acute fever, arthralgia or RASH, suggesting arboviral infection. CHIKV/DENV/ZIKV infection confirmed by RT-qPCR. Informed consent was obtained and 5 mL of blood was extracted in order to evaluate alkaline phosphatase (ALP), alanine aminotransferase (ALT), aspartate aminotransferase (AST), γ-glutamyl transferase (GGT), total bilirubin, direct bilirubin, indirect bilirubin and serum cholesterol of patients. **Results.** Twenty patients with fever by chikungunya (CHIKF), 18 patients with dengue fever (DF), 6 patients with dengue hemorrhagic fever (DHF) and three patients with Zika virus disease (ZVD) were studied. 56% women, mean age 31 ± 16.79 years, with ALP being elevated 26% in patients with CHIKF, 28% in patients with DF and 50% in patients with DHF.ALT and AST elevated in the four diagnostic categories, but patients with DHF had higher levels (median 71.5, IQR 117, median 96.5, IQR 185, respectively). AST, difference statistically significant (P = 0.001). ALT elevated in 42% of CHIKF patients, 33% in patients with DF, 67% in patients with DHF and 100% in patients with ZVD. AST was elevated in 58% CHIKF patients, 72% in patients withDF, 100% in patients with DHF and 67% in patients with ZVD. Differences in proportions of both enzymes were statistically significant (P < 0.005). GGT elevated in 42% of CHIKF patients, 44% of DF patients, and 83% of patients with DHF, like the other liver enzymes, had higher levels (median 55, IQR 60) (P = 0.01). When stratifying patients infected with DENV in serotypes, patients infected with DENV-3 had higher levels of AST (median 96, IQR 52) (P = 0.03). **Conclusions.** No characteristic pattern of hepatic enzymatic alteration was found in patients infected with CHIKV or ZIKV as with patients infected with DENV. Further studies are needed to define the role of liver function in these infections.

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## 03
## CURRENT STATUS OF SIGNIFICANT FIBROSIS AND CIRRHOSIS BY ELASTOGRAPHY IN HOSPITAL JUÁREZ DE MÉXICO

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**Introduction.** The introduction of the Fibroscan non-invasive method, evaluates the degree of fibrosis, allows to avoid hepatic biopsy in 90% patients with cirrhosis and 70% in patients with significant fibrosis in combination with other non-invasive methods. **Objective.** To determine the main etioloy and frecuency of significant fibrosis (F > 2) and cirrhosis (F4). **Material and methods.** Retrospective, descriptive, longitudinal study, during the period from January 2016-January 2017. All patients who underwent transient elastography were evaluated. The studies were performed with two MX, LX probes. The study was considered valid with an SR > 70% and an IQR < 23%, the results were correlated with the exception of METAVIR for the degree of fibrosis, according to the etiology and values expressed in Kpa. **Results.** 260 studies were evaluated; there were 149 (57.30%) women, 111 (42.69%) men; mean age 55 years. Etiologies: hepatitis C virus (HCV) infection (46.29%), non-alcoholic fatty liver disease NALFD (29.6%), non-alcoholic steatohepatitis NASH (13.07%), alcohol (3.4%), cholestasis, autoimmune hepatitis (1.9%), primary biliary cirrhosis CBP (1.15%), hepatitis B virus (HBV) infection (0.38%). **Conclusions.** We obtained results similar to the literature, with a higher incidence of fibrosis in patients with HCV 32.78%; cholestasis and NALFD showed signif-

**(VIII.03) Table 1.** Frequency of significant fibrosis and cirrhosis by etiology.

| Etiology | n | Frequency of F2 ≥ | Cut point F ≥ 2 (kPa) | Frequency of F4 | Cut Point F4 (Kpa) |
|---|---|---|---|---|---|
| VHC | 122 | 9.38% | 7.1 | 32.78% | 12.5 |
| Cholestasis | 9 | 11.11% | 7.3 | 33.33% | 22.7 |
| NALFD | 77 | 7.79% | 9.38 | 27.27% | 12.5 |
| Alcohol | 9 | 0% | 11.6 | 17.5% | 33.5 |

icant fibrosis increase (11.11% and 7.79%) respectively. This has clinical implications since in most cases, the threshold for initiating treatment is considered.

## 04
## VON MEYENBURG COMPLEX. CASE REPORT

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**Introduction and objectives.** The Von Meyenburg Complex or biliary tract microhamatomas is a rare congenital hepatic lesion consisting of deformation and disorganization of the bile ducts with the formation of cystic structures of variable size, as a consequence of the failure of involution of the embryonic bile ducts. The objective is the report of a clinical case and the review of literature. **Material and methods.** A 69 year old male, with a 12 month history of asthenia, adynamia, hyporexia, weight loss. During its evolution, presented episodes of abdominal pain, nausea, vomiting, being treated with multiple antibiotic regimens without improvement. Before this it was realized an abdominal US evidencing in the liver a echogenic, confluent and micronodular lesions in starry sky pattern, after which a tomographic study was carried out, documenting nodular, hypoechogenic lesions with well defined borders. His laboratory studies and tumor markers without any alteration. Hepatic biopsy of a lesion was performed. **Results.** In the histopathological study dilated and tortous bile ducts were found and periportal fibrosis, concluding in microhamartomas of the bile duct. **Conclusions.** The presence of the Von Meyenburg Complex is a rare condition, involving a high clinical, pathological and radiological suspicion, which can and should be diagnosed even without the need for biopsy by means of sonographic, CT and MRI studies. Usually it is an incidental finding being the main clinical data abdominal symptoms nonspecific and rarely present with recurrent episodes of cholangitis or infectious complications. The main differential diagnoses are intrahepatic cholangiocarcinoma and metastatic adenocarcinoma, this being the importance of an adequate diagnosis. It has been evaluated the association of these cases with malignancies without a clear relation, especially with the cholangiocarcinoma. One possible complication is portal hypertension, especially in large and extensive lesions. In general, the therapeutic approaches are conservative, with a routine observation by image.

## 05
## MEDIASTINITIS AS AN ATYPICAL PRESENTATION OF SYSTEMIC IGG4 RELATED SCLEROSANT DISEASE REPORT OF A CASE

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**Introduction.** IgG4-related disease (ER-IgG4) is a newly recognized entity characterized by tumour-like swelling in multiple sites caused by lymphoplasmacytic infiltration and sclerosis, and is associated with elevated serum IgG4 levels and infiltration of IgG4-positive plasma cells in the organs and tissues involve. The involvement of an isolated organ is the exception, but not the rule in ER-IgG4, being in most cases a multisystemic disease. Lymphadenopathy, renal, aortic, retroperitoneal and pulmonary involvement are frequently described present in more than 40% of patients with autoimmune pancreatitis with extrapancreatic affection, however mediastinitis accounts for 1-3% of them being an atypical condition. **Objective.** Describe a case as an unusual presentation of systemic sclerosing disease previously considered a pathology of the gastrointestinal system, currently considered multisystemic. Case presentation: 54-year-old female with previous history of smoking, 3 previous ectopic pregnancies, hypothyroidism. Admited in the gastroenterology department because upper gastrointestinal bleeding. Endoscopy finding with extrinsic esophageal compression, grade C esophagitis (Los Angeles classification), type 1 hiatal hernia, chronic antral gastropathy. The clinical diagnosis of death was hypovolemic shock however necropsy was performed with diagnosis of basic cause of the death of fibrosing mediastinitis compatible with Igg4 related disease affecting the esophageal wall, main bronchi, thoracic aorta and pleura affection. **Discussion.** While mediastinal lymphadenopathy is a frequent extrapancreatic manifestation in patients with systemic sclerosing disease, until 2010 only one case of mediastinitis due to this disease had been reported in the medical literature. Most patients with mediastinal disease remain asymptomatic or have adenomegaly, but mediastinitis as an acute proinflammatory represents an exceptional case. **Conclusion.** IgG4-related disease represents a diagnostic challenge because of its low prevalence. The systemic inflammatory response by IgG4 cells is associated with a higher mortality and could be effectively treated with corticosteroid therapy.

## 06
## COEXISTING LIVER DISEASES IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE IN INSTITUTO MEXICANO DEL SEGURO SOCIAL, HOSPITAL DE ESPECIALIDADES CENTRO MÉDICO NACIONAL LA RAZA (HE CMNR)

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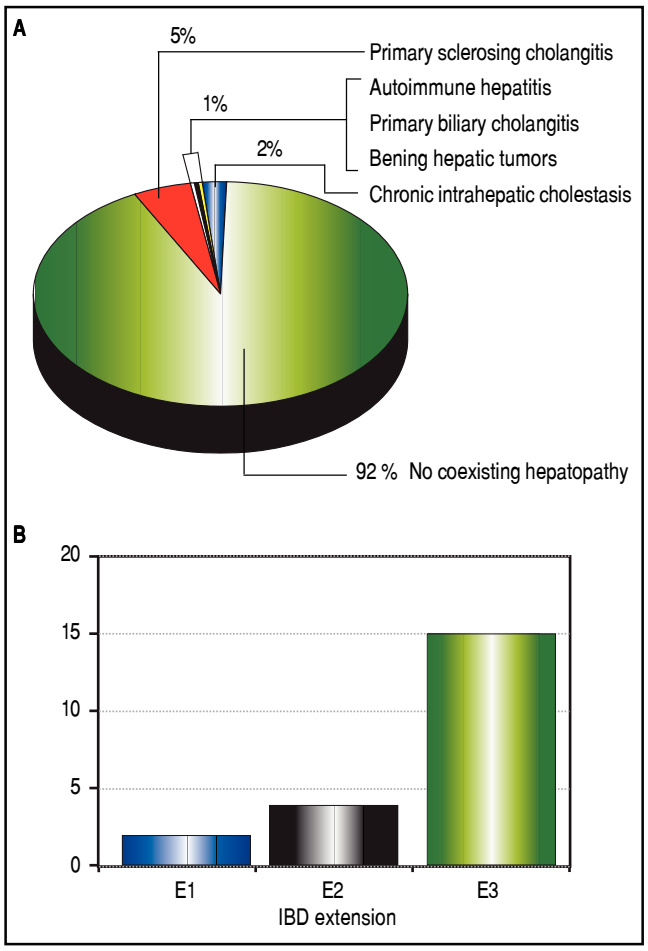
**Introduction and objectives.** Alterations in liver function tests are found in up to 30% of patients with Inflammatory Bowel Disease (IBD) and therefore represent a diagnostic challenge; hepatic and biliary tract disorders are extraintestinal manifestations typical of ulcerative colitis (UC) and Crohn's disease and typically do not correlate with intestinal activity; these can occur at any time in the natural history of the disease. Liver steatosis is considered the most common hepatobiliary complication in patients with IBD while PSC is the most specific alteration. Less common liver disorders are autoimmune hepatitis, PSC/HAI overlap sindrome and primary biliary colangitis. The objective of this study is to determine the prevalence and the characteristics of patients with coexisting IBD and hepatobiliary alterations in Gastroenterology Service at HE CMNR.




***(VIII.06) Figure 1. A.*** *Coexisting liver disease in patients with inflammatory bowel disease.* ***B.*** *IBD extension.*

**Material and methods.** We determined the prevalence of liver diseases in patients diagnosed with IBD in the Gastroenterology Service of the HE CMNR between the period of 1993 and 2017. **Results.** The prevalence of liver disorders associated with IBD was 21 of 241 patients (8.7%). 1 patient whit Crohn disease's the rest whit UC. The male-female ratio was 3:1. The mean age of the patients was 42 years. The mean time evolution of IBD was 9.2 years. The most prevalent hepatic disorder was primary sclerosing cholangitis (PSC) present in 12 of 241 patients (5%) followed by chronic intrahepatic cholestasis in 5 (2%) patients. The extent of colitis was rectosigmoid in 2 patients (9.5%), left colon in 4 patients (19%) and extensive colitis in 15 patients (71.4%). **Conlusions.** The prevalence of hepatic impairment in HE CMNR is similar to that reported in previous studies conducted in Western countries, with a predominance of males. The hepatic disorder most commonly associated with IBD was PSC. Most patients have extensive colitis.

## 07
## EVALUATION OF THE QUALITY OF LIFE OF THE CAREGIVER OF PATIENTS WITH ADVANCED CIRRHOSIS, USING SF-36

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**Background.** Cirrhosis is the fourth leading cause of morbidity and mortality in our country. The concept of quality of life includes a functional health status, perception of good health, satisfaction with life and ability to compete. Multiple instruments have been developed to evaluate the quality of life of patients. The SF-36 questionnaire is one of the instruments most used to evaluate the impact on the quality of life in patients with liver cirrhosis. **Objective.** To evaluate the quality of life of the patient's caregiver with advanced liver cirrhosis in the outpatient department of Gastroenterology Service through the SF-36 questionnaire. Hypothesis: Quality of life of the caregiver of the patient with advanced cirrhosis (Child-Pugh B and C) is impaired. **Material and methods.** A descriptive, cross-sectional, observational, analytical study in which quality of life will be assessed by applying the SF-36 questionnaire version 1.1 in Spanish to caregivers of patients with advanced cirrhosis of the outpatient Department of Gastroenterology. Statistical analysis: Descriptive statistics with variables of central tendency and dispersion. The sample obtained for prevalence study was calculated with statistical equation for population proportions considering the population of cirrhotic patients in the Gastroenterology Service of 7000 patients with margin of 10% error and 99% confidence level obtaining a sample size of 162 caregivers. **Results.** In a pilot study conducted by our group, 50 questionnaires based on SF-36 were analyzed, 42 questionnaires were performed by female caregivers, 35 of whom reported scores of 0 (83%), 7 female caregivers with 100 points (16.2%), while in men, 8 questionnaires were performed, of which 5 were computed with 0 points (62.5%), 3 with a score of 100 (3.7%). Of all the studied group, 80% presented a significant deterioration in the quality of life. **Conclusions.** The deterioration in the quality of life of the primary caregiver of patients with advanced cirrhosis in general is not a parameter that is taken into account in daily clinical practice and that could have a deleterious effect in the same patient. Our pilot study shows that the deterioration in the quality of life of the caregiver occurs highly frequently.

## 08
## PARTICIPATION OF THE LIVER TRANSPLANT TEAM IN ONE OF THE INTERNATIONAL GOALS ON PATIENT SAFETY

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**Background.** International Patient Safety Goals, published by WHO in 2001 intended to reduce the likelihood of an adverse event during the care process. Providing adequate and sufficient

information to patients prevents interpretation and content limited errors. Health education groups are a learning strategy where skills such as self-care and decision-making are favored and they can impact in quality of life and in the social environment of a patient. **Objective.** To strengthen the information to liver transplant (LT) candidates and their families through health education groups. **Material and methods.** LT candidates and their families were included from August 2015 to September 2016. A social group work method and a traditional teaching with variants (controlled participation) were performed. For this purpose, health education courses were designed with a focus on evaluation and selection of LT candidates, surgical, psychiatric and anesthetic procedures as well as nutritional education, organ donation promotion and socio-familial alterations derived from the disease and LT. **Results.** Twelve group sessions involving 59 families were executed. A total of 221 participants with mean of 3 family per patient were observed. All participants answer an initial survey about the initial knowledge in the involved areas. Among all, 64% of participants were women, with an age of 70 ± 14 years. At least some basic education (middle or junior high) was coursed by 91% of the attendants. At the end of the sessions, 81% of the participants were able to identify the patient's own characteristics in relation to LT (donor and recipient), associated care need, surgical risks, importance of mental health and family participation as well as the need of a post-biopsychosocial follow-up THO. At the moment, a 200% increase in attendance was observed. **Conclusion.** The participation of patients and their families in health education groups allowed them to acquire supplemental information about LT process, reduced the anxiety associated to list wait-time and provided comprehension of behavioral changes that patients can have. It also promoted an active participation of the family, self-management, and communication with members of the health team.

## 09
## CASE REPORT: ACALCULOUS CHOLECYSTITIS ASSOCIATED WITH HEPATITIS A VIRUS (HAV)

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**Introduction.** Acalculous cholecystitis secondary to viral hepatitis A, is a rare presentation which can influence the presence of acute abdomen. **Objective.** Report uncommon case of acute acalculous cholecystitis secondary to infection by HAV. **Case.** female, 18 years, that 1 week prior to admission with asthenia, adynamia, hiporexia; including abdominal pain in right upper quadrant, EVA 6-10, lancinating pain, irradiated to right lumbar region; concomitant nausea, vomiting, 38-degrees fever, jaundiced tinge. Physical exam: BP: 120/70 HR: 128, RR: 24, dry mucous membranes, abdomen: decreased peristalsis, painful to the superficial and deep palpation of predominance in right upper quadrant, Murphy sign (+), with data of peritoneal irritation. With the following analytical alterations: AST: 1630, ALT: 2083, TB: 8.2, DB: 7.9, GGT: 441, ALP: 262, LDH: 597, viral Panel: IgG hep. To (-) IgM hep. A (+), US of abdomen: Vesicular inflammatory process of heterogeneous content. CT of Abdomen: images in relation to acalculous cholecystitis. Treatment was Conservative and symptomatic with satisfactory evolution being discharged in 6th day. Studies of control to the 4th week: AST: 48, ALT: 61, TB: 0.7, DB: 0.5, GGT: 40, ALP: 90, LDH: 55. **Discussion.** The theory of cellular tropism described in hepatitis E virus infection is being observed more frequently in patients with HAV, affecting the vesicular wall and ducts, producing a severe inflammatory reaction, peri-cholangitis and acalculous cholecystitis. Conditioning greater severity and morbidity and mortality. The treatment so far is controversial and the therapeutic decision depends on the evolution of the patient. **Conclusion.** Acute acalculous cholecystitis is a rare complication of hepatitis A however should be suspected in all patients with clinical presentation of acute cholecystitis because that can precipitate a fulminant hepatic failure.

## 10
## CASE REPORT: HEPATIC ABSCESUS BY *BURKHOLDERIA PSEUDOMALLEI* IN HOSPITAL JUÁREZ DE MÉXICO

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**Introduction.** In Mexico the main etiological agents of the liver abscesses piogenes son *E. coli* and *Klebsiella,* a difference of Asian countries that caused by a single pathogen *K. pneumoniae*. However, there are rare agents such as *Burkholderia pseudomiallei* that can lead to multiple hepatic abscesses. Taiwan has been considered endemic since 2001. **Objective.** To present an uncommon etiologic agent of hepatic abscess in Mexico. **Case.** A 24-year-old female from Taiwan residing 6 months ago in Mexico City, she begins with pain in the right hypochondrium, fever of evening origin and later with no predominance of schedule. EF: TA 100/60 mmHg, FC 100x, T 38.8°, generalized pallor, conjunctival jaundice, painful hepatomegaly 5 cm below the costal border, the following paraclinics are requested: AST 69 IU/L, ALT 71 UI/L, DHL 566. Abdominal CT: multiple hepatic abscesses, initiating empiric treatment with Ceftriaxone and Metronidazole without clinical improvement; hemoculture negative, performing puncture guided by TAC obtaining positive culture for *B. pseudomallei*, based on an antibiogram management with Ceftazidime 2 g started every 8 h for 14 days. **Discussion.** Meloidosis is a systemic infection caused by *B. pseudomallei* and is endemic to Taiwan, has a mortality rate of about 37% in acute septicemia, antimicrobial therapy should be given at least 5 months otherwise there is a risk of relapse of approximately the 10%. The culture of liver abscess is the gold standard for diagnosis. The treatment of choice son: tetracyclines, trimethoprim, ceftazidime and carbapenemics. **Conclusion.** In Mexico there are no reports of hepatic abscesses by *B. pseudomallei,* we should suspect in all (a) original patient or antecedent of recent trip to Taiwan, to suspect *B. pseudomallei* as an etiological agent.

## 11
## MANAGEMENT OF GIST TUMOR WITH CELECOXIB AND PENTOXIFYLLINE: A CASE REPORT

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**Introduction.** Gastrointestinal Stromal Tumors (GIST) are mesenchymal neoplasms of spindle cells derived from Cajal cells; characterized by expressing in 95% of cases KIT protein. Represent less than 1% of digestive tumors, with an incidence of 10-20 per million inhabitants and predominance in male sex, between 40 and 60 years. It affects the small intestine by 20 to 30% the final diagnosis is histological and immunohistochemical. Surgery remains the gold standard treatment, but it also exists drugs that improve survival such as imatinib; however, due to its side effects and high resistance rates, it was used a therapy based on celecoxib and pentoxifylline because of their anti-inflammatory, antiangiogenic and pro-apoptotic properties. **Objetive.** To assess the response of GIST tumor to the treatment with celecoxib and pentoxifylline. **Clinical case.** A 74 years old female patient with no chronic degenerative diseases was admitted in the Gastroenterology Service of Hospital Regional "Valentín Gómez Farías" (ISSSTE), Zapopan, Jalisco, for abdominal pain and jaundice; BT 6.0 mg/dL, BD 5.0 mg/dL, GGT 400 mg/dL, AST 15 mg/dL, ALT 80 mg/dL and FA 300 mg/dL. A liver and biliary tree ultrasound reported choledochal dilatation of 13 mm. Colangioresonance showed tumor in the second portion of the duodenum of 3.5 x 2.5 cm causing distal compression of the common bile duct. Enteroscopy showed a tumor in the second and third portions of duodenum, obstructing 40% of the intestinal lumen. Biopsies were taken and sent to histopathological study reporting compatible tissue with GIST. Due to the patient's condition and surgical risk, it was iniciated treatment with Pentoxifylline 400 mg every 12 h and celecoxib 100 mg every 12 h. After 5 months of treatment, she is asymptomatic, and with normal liver function tests. **Conclusion.** Management of duodenal GIST tumors continues to be a challenge in patients who are not candidates for surgery. In this case, as in previous research, it was shown that an alternative therapy with Pentoxifylline and Celecoxib improves clinical and laboratory status of the patient; however, more studies are required to assess their real effectiveness.

## 12
## IMPACT OF THE COSTS OF HOSPITALIZATION IN PATIENTS WITH HEPATIC CIRRHOSIS AT THE HOSPITAL JUÁREZ DE MEXICO

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**Introduction.** Liver cirrhosis is one of the main causes of morbidity and mortality in our country, particularly affecting people of productive age and therefore considered a public health problem. Our objective is to present the economic impact considered an intrahospital management of hepatic cirrhosis. **Material and methods.** This is a descriptive, cross-sectional study of 211 patients with liver cirrhosis hospitalized in one year (March 2016 to February 2017) at Hospital Juárez de México. Age, sex, cause of liver cirrhosis, reason for admission, days of hospital stay, hospitalization costs were studied. **Results.** Of 211 patients, 62.6% were men and the mean age was 58 years. The major cause of cirrhosis was the following: Alcohol (51.18%), NASH (20.85%), HCV (12.80%), autoimmune (2.84%), medication (1.42%), HBV (0.48%). The mortality rate was 1.8 patients/year, with 38 deaths in total. The median number of days of in-hospital stay was 3, the total annual cost was 2,448,205.6, the average cost per day was 3,859.06, and of which the medications accounted for 81.6%, while medical care represented only 2% due to the low socioeconomic level granted. **Conclusions.** The main cause of liver cirrhosis is secondary to alcohol consumption predominating in males, the highest proportion of patients is of productive age, economically impacting our health system, the cost of hospitalization increases proportionally to the days of (e.g., terlipressin, endoscopy, transfusion expenses, antibiotic prophylaxis), infectious processes (e.g., EBP, antibiotic therapy), as well as the use of high-cost medications, as well as other resources derived from the main complications, including gastrointestinal bleeding). Encephalopathy (antiammonium measures). More than 70% of patients with cirrhosis (alcohol, fatty liver) with modifiable risk factors could be prevented, which would lead to a decrease in the economic impact of our hospital.

## 13
## HEPATIC FIBROSIS IN HEALTH PROFESSIONALS, ACCORDING TO A NON-INVASIVE BIOLOGICAL TEST. CONCIENCIA PREVALENCE STUDY

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**Introduction.** Despite knowing the impact of fibrosis on the natural history of chronic liver diseases, there is few information about its prevalence in health professionals in Mexico. **Objective.** To describe the prevalence and degree of hepatic fibrosis in health professionals based on a commercially availa-

ble noninvasive marker. **Material and methods.** A total of 209 specialized health professionals: gastroenterologist (97), hepatologist (63) or Internist (49) were studied with the commercially available test, called Fibromax®, under 10 h fasting conditions. Clinical, somatometric, and biochemical data were collected. **Results.** 44% were women, 49 ± 13 years old. According to BMI 32% were normal, 41% overweight, and 27 % with obesity. Waist circumference was elevated (> 102 cm in men and > 88 cm in women) in 35 and 33%, respectively; 37% had chronic alcohol intake and 39% had health associated conditions. Fibromax® test results in table 1. Additionally, 26.2% presented some degree of necroinflammatory activity, 21.3% with varying degrees of steatosis and 33.3% with steatohepatitis. **Conclusions.** A quarter of the total health professional sample evaluated depicted some degree of liver fibrosis; hepatologist subgroup were the least affected. One-third presented different degrees of potential metabolic damage, suggesting the need for additional confirmatory studies to implement appropriate corrective measures.

This work has been sponsored by Cellpharma (Fibromax® test).

**(VIII.13) Table 1.** Fibromax® test results.

| Liver fibrosis score | Gastroenterologist | Hepatologist | Internist | Total population (%) |
|---|---|---|---|---|
| F0 | 74 (76.2%) | 55 (87%) | 27 (55%) | 156 (74.6%) |
| F0-F1 | 11 (11.3%) | 3 (5%) | 5 (10%) | 19 (9.1%) |
| F1 | 1 (1%) | 0 (0%) | 7 (14%) | 8 (3.8%) |
| F1-F2 | 7 (7%) | 4 (6%) | 6 (12%) | 17 (8.1%) |
| F2 | 2 (2%) | 1 (2%) | 2 (4%) | 5 (2.4%) |
| F3 | 0 (0%) | 0 (0%) | 2 (4%) | 2 (0.95%) |
| F3-F4 | 2 (2%) | 0 (0%) | 0 (0%) | 2 (0.95%) |
| F4 | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |

## 14
## ALAGILLE SYNDROME AND LIVER TRANSPLANTATION

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**Introduction.** Alagille syndrome is an infrequent autosomal dominant disorder, with great penetrance and variable expressivity. It usually manifests before 2 years of age and is characterized by intrahepatic biliary hypoplasia associated with three to five major features: chronic cholestasis, cardiac disease, skeletal abnormalities, ocular anomalies and characteristic facial phenotype. Liver transplantation is indicated in children with cirrhosis and hepatic insufficiency. **Objective.** To describe the characteristics of patients with Alagille syndrome referred for evaluation to the liver transplantation in the Transplant Unit, Hospital General CMN La Raza, IMSS. **Material and methods.** A retrospective and descriptive study of a series of patients with Alagille syndrome referred to the liver transplant unit of CMN La Raza Hospital General during the period 2014-2016. **Results.** We have studied 3 patients with Alagille syndrome. The mean age at diagnosis was at 24 months and the mean age at which they were sent for evaluation for transplantation was at 7 years. Male was seen in 100%, cholestasis was seen in 100%, liver biopsy specimens showed paucity of the interlobular ducts and characteristic facies in 100%, cardiac anomalies (pulmonary stenosis) in 66.6%, pruritus refractory to treatment in 66.6%, xanthomas in 33%, skeletal alterations in 66.6%, and growth retardation in 66.6%. One patient was in the stage of decompensated cirrhosis (Child C PELD of 30 points) and underwent liver transplantation in March 2015. Another patient is on the waiting list for liver transplant due to refractory pruritus and multiple xanthomas. The third patient is in follow-up and comprehensive treatment, without criteria for liver transplantation. **Conclusion.** The prognosis of the patient with long-term Alagille syndrome depends on the severity of the liver disease and associated malformations, requiring liver transplantation from 21 to 31%.

## 15
## ACUTE HEPATIC FAILURE OF SECONDARY LEPTOSPIROSIS: REPORT CASE OF AUTOPSIA

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**Background.** It is a zoonosis of worldwide distribution, with available reports the incidence varies approximately 0.1-1 per 100 thousand inhabitants in tropical humid climates. 10% presents the severe form called icteric hemorrhagic or Weil's disease, with a mortality of 40-50%. **Report of case.** Male of 23 years old from Hidalgo, nurse, with sudden onset 9 days prior to admission with headache, myalgia, arthralgia, nausea, vomiting associated with quantified fever of 38.8°C after chills, 3 days after generalized jaundice, coluria. He went to the hospital presenting tachycardia, tachypnea, diaphoresis, generalized jaundice of mucosa and teguments, hemithorax with discrete disseminated rales, altered heart sounds, distended abdomen, hepatomegaly 3 cm below costal margin, painful palpation, ecchymosis and disseminated petechiae. 24 h post admission hypotension with vasopressor requirement, epistaxis and neurological deterioration with Glasgow of 13 points. Laboratory: leukopenia, procalcitonin 1.56, creatinine 1.6 mg/dL, urea 46 mg/dL, normal electrolytes, total bilirubin 35.9 direct standard, AST 1,228, ALT 1,516, alkaline phosphatase 183, GGT 50, TP 10.8%, INR 6.9, chest X-ray bilateral hilar congestion hepatic ultrasound without thrombosis, viral panel and TORCH negative cultures negative. Immunologic negative, PCR for leptospirosis negative. Terrible evolution and death. Pathological findings Microscopic: lung alveolar spaces with blood material. Liver extensive necrosis and staining of warthin-starry photomicrograph of one of the vessels of the hepatic parenchyma, with evidence of filiform structures in the vascular wall corresponding to leptospira sp. Renal tubules with extensive necrosis some with bile cylinders, peripancreatic adipose tissue with extensive necrosis. **Discussion.** Leptospirosis disease is a zoonosis that affects a large part of

Mexico's tropical zones and does not have accurate records. PCR was performed to detect DNA from leptospira with a negative report which could be associated with the late phase of the disease. Therefore serology and molecular studies increase the sensitivity and diagnostic specificity since the progression to late phase is associated with an increase in mortality. **Conclusion.** It is interesting that the case is that we must take into account so many risk factors and false negative studies depending on the time of evolution of the disease.

This work has been fully subsidized by the Gastroenterology Service, Hospital General de México.

## 16
## COST OF INTRAHOSPITAL STAY OF THE MAIN CAUSES OF REIGNATION OF PATIENTS WITH CIRRHOSIS DESCOMPENSED IN THE HGZ MF NO. 1 IMSS

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**Background.** Patients with hepatic cirrhosis are a group vulnerable to several comorbidities, which decompensate their general condition, requiring on occasion, in-hospital stay for the management of each of these. **Aim.** Determinate the cost generated by the main causes of hospital readmission, in decompensated cirrhotic patients in Hospital General de Zona No.1 IMSS, Pachuca, Hidalgo. **Material and methods.** Observational, transversal, descriptive and retrospective study, performed in HGZMF No.1 IMSS Pachuca, Hidalgo, from January 2012 to August 2014, in which the main causes of hospital readmission, in decompensated cirrhotic patients were evaluated, and Subsequently used the table of unit costs for care to non-entitled IMSS 2017, published in Diario Oficial de la Federación (DOF). **Results.** There were 77 cirrhotic patients who returned to this unit 20 of them with Child-Pugh A (25.97%), 33 in Child-Pugh B (42.85%) and 24 in Child-Pugh C (31.16%), determining as the main causes of hospital readmission, to hepatic encephalopathy (EH) with 33 patients (42.86%), followed by variceal hemorrhage with 17 (22.07%), infections, ascites and jaundice with 9 each (11.69% each); within the causes of hospitalization average, for (HE) and jaundice 7 days, while for variceal hemorrhage, infections and ascites is 5 days; subsequently, according to the table of unit costs for care to non-entitled IMSS 2017, it was determined that the in-hospital stay of patients with cirrhosis during the period studied would be $3,893,299.00; divided into: hepatic encephalopathy $1,859,913.00, variceal hemorrhage $783,547.00, ascites $ 371,295.00, jaundice $ 507,249.00, infections $ 371,295.00, considering that per day/patient and, the condition is on average for HE of $56,361.00, variceal hemorrhage $46,091.00, ascites $41,255.00, jaundice $56,361.00 , and infections $41,255.00. **Conclusions.** In the absence of prior evidence of the cost of hospitalization for the main causes of reentry of patients with cirrhosis, this study shows the importance of performing this type of study in other units, and determine adequately the Impact of Hepatic Cirrhosis on the Health System.

## 17
## ASSOCIATION OF PRURITE SEVERITY WITH PERINATAL COMPLICATIONS IN PATIENTS WITH INTRAHEPACTIC CHOLESTASIS OF PREGNANCY

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**Introduction.** Intrahepatic Cholestasis of Pregnancy (IHCP) occurs in the second or third trimester of pregnancy and it is characterized by the presence of intense pruritus and increases in serum total bile acids and hepatic transaminases. It is associated with an increased risk of preterm labor, prematurity, fetal hypoxia, meconium amniotic fluid, and intrauterine fetal death. It has been proposed to use questionnaires that measure pruritus intensity in patients with IHCP in order to find an association of the pruritus intensity with the perinatal outcome. **Objective.** To determine the association of pruritus severity with perinatal complications in patients with IHCP. **Material and methods.** Pregnant women were included during their second and third trimester, with a presumptive diagnosis of IHCP. The diagnosis of IHCP was suspected by discrete liver biochemical alterations and the presence of pruritus. At the time of diagnosis two methods of measuring pruritus severity, the 5D questionnaire and a visual analog 10 cm line scale were used by patients crossing the line scale at the corresponding pruritus severity point. **Results.** 45 patients were included; (N = 14) had a preterm labor threat, 11.1% (n = 5) fetal hypoxia, 24.4% (n = 11) showed meconium amniotic fluid and only 1 fetal death (2.2%). 100% of evaluated patients showed some degree of pruritus at their examination time. Combining the two scales to determine pruritus intensity, mild pruritus was found in 6.7% (n = 3), moderate in 55.6% (n = 25) and severe in 37.8% (n = 17). The higher the intensity of pruritus the greater the possibility of perinatal complications such as the threat of preterm labor (P = 0.003). **Conclusions.** The present study indicated that a greater severity of pruritus is associated with preterm delivery. Therefore the scales used may help to identify a risk of a poor neonatal prognosis group that requires more vigilance and could be used as a diagnostic tool in those institutions where there is not available the bile acids test.

# IX. TRANSPLANTATION/LIVER SURGERY

## 01
## APPLICATION OF ULTRASOUND TO IMPROVE THE PROTECTIVE EFFECTS OF DRUGS AGAINST ISCHEMIA-REPERFUSION INJURY IN HEPATIC SURGERY

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**Background and aim.** In clinical practice, hepatic resection is usually performed under vascular occlusion. Ischemia-reperfusion (I/R) injury, inherent to vascular occlusion, adversely affects liver regeneration and is a determining factor of postoperative morbidity after resection. In recent years, the use of ultrasound (US) as a drug delivery technique has received the attention of many research groups. In several cell types and tissues, it has been reported that US facilitate drug delivery and therefore improve the therapeutic effect. To date, the utility of US to enhance the effects of drugs on hepatic I/R injury has not been evaluated. In the present work we investigate whether the application of continuous or pulsed US improves the beneficial effect of melatonin on I/R injury associated with hepatic resection under vascular occlusion. **Material and methods.** An experimental model of 70% hepatic resection under vascular occlusion for 60 min (RH-IR) in Wistar rats was performed, and the following experimental groups were studied: RH-IR; RH-IR with melatonin administration; RH-IR with application of continuous or pulsed US; RH-IR with the administration of melatonin combined with the application of continuous or pulsed US. **Results.** Administration of melatonin reduced hepatic injury. In experimental groups with application of US alone (either in continuous or pulsed mode), transaminase levels were also reduced. The administration of melatonin combined with the application of continuous or pulse US did not modify the parameters of hepatic injury, when compared with the experimental group treated with only melatonin. **Conclusions.** The application of continuous or pulsed US did not improve the beneficial effect of melatonin on hepatic I/R injury. However, the application of continuous or pulsed US by itself reduced I/R injury in hepatic resection under vascular occlusion, and the protective effect was similar to that afforded by melatonin. This indicates a non-invasive therapeutic strategy against hepatic I/R that had not been previously described.

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## 02
## EVOLUTION OF THE GLOMERULAR FILTRATION RATE DURING THE FIRST 12 MONTHS AFTER LIVER TRANSPLANTATION IN MEXICAN PATIENTS

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**Introduction and aims.** Renal dysfunction is an important problem after liver transplantation (LT). Early changes in glomerular filtration rate (GFR) have been associated with a later development of chronic kidney disease (CKD). Thus, knowing these changes and their conditional factors can be beneficial for this population. We aimed to evaluate changes in GFR, during evaluation for LT and at 12-month follow-up, as well as the associated factors with these changes. **Materials and methods.** This retrospective cohort study included adult patients who received LT between 2012 and 2016. All patients had a complete evaluation protocol and had clinical consultations at 1-, 3-, 6- and 12-month follow-up. Clinical, demographic and listing data were reviewed. GFR was determined by three different equations (Cockcroft-Gault (CG), CG-adjusted to body surface area and CKD epidemiology collaboration (CKD-EPI). **Results.** Among 100 patients initially evaluated, 85 met inclusion criteria (mean age 46.61 ± 13.68 years, 54% females). The main indication for LT were Hepatitis C virus (n = 28). At baseline, 16.5% of patients had hypertension, 14.1% had diabetes. At LT, 48.1% of patients were in a Child-Pugh C stage and a MELD of 21.46 ± 4.52. Patients had a mean basal creatinine (Crea) of 0.90 ± 0.93 mg/dL and mean basal GFR of 111.17 ± 46.96 mL/min by CG, of 110.16 ± 44.37 by CG-BSA and 97.87 ± 28.33 by CKD-EPI. At 12-month follow-up, Crea increased to 1.0 ± 0.30 mg/dL and GFR decreased to 85.90 ± 26.45 mL/min (26.7% decrease), to 85.44 ± 27.01 (22.44% decrease) and to 82.29 ± 23.76 (15.91% decrease); respectively. Basal predictor of any CKD grade (GFR < 90 mL/min) were age ≥ 40 years (OR: 8.468, 95% CI: 2.764-25.943) and serum creatinine ≥ 1.0 mg/dL (OR: 5.263, 95% CI: 1.003-27.604). The binary logistic regression models were adjusted by gender, hypertension, diabetes, indication for LT and quantity of iodine contrast media received during the first year after LT. **Conclusions.** Deterioration of renal function occurs in the majority of patients during the first year after LT. The most important predictor of CKD is age and decreased liver function. Our data also suggest that with 3 different GFR estimation models the renal function changes can be detected early and comparably.

## 03
## IMPACT OF NASH IN THE ETIOLOGY OF HEPATOCELLULAR CARCINOMA IN NORTHEASTERN MEXICO

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**Introduction.** Hepatocellular carcinoma (HCC) is the 4th most common cause of death in the state of NL. The incidence is in 7th place. Main risk factors: liver cirrhosis, hepatitis B and C. However, the metabolic syndrome and non-alcoholic steatohepatitis (NASH) are increasing considerably. **Material and methods.** We studied 51 patients: 27 (53%) of the Liver Unit (LU) and 24 (47%) of the University Center against Cancer (UCAC) of the University Hospital; 32 males (63%), age 65 ± 10y. NASH 22 (43%), OH 20 (39%), HCV 7 (14%). Alpha-fetoprotein (AFP) in 42/51 (82%) diagnosis was made by biopsy in 27 (47%), CT scan 46 (90%), and elevation of AFP 31 (61%). Cirrhosis (100%), BMI 24 ± 15 kg/m$^2$. We applied the functional classifications of Child-Pugh and MELD and the CHC classifications of Okuda, Barcelona (BCLC), and Milan Results: Single lesion (54%). Only 10% a liver transplant (LT) (n = 5) in both centers. Mean AFP 3547 ± 199,431 ng/mL (0.79 to 1,294,000 ng/mL). Ten pat. (19%) metastases. Ten (19%) chemoembolization 1 to 3 times, the rest of them are in the process of receiving it. Attended more than once at LU 18 patients, and 21 to the UCAC, in spite of that for economic reasons very few get appropriate treatment. **Conclusions.** The most common etiology of HCC was NASH at both centers. Patients from UCAC presented a more advanced stage by the classifications of Okuda, BCLC and Milan, the majority presented a single lesion (54%). Only a small percentage received the benefit of LT (10%) in both centers.

**(IX.03) Table 1.**

| | CUCC | | UdeH | |
|---|---|---|---|---|
| AFP elevated | 15 | 63% | 16 | 59% |
| ALT elevated | 11 | 46% | 12 | 44% |
| AST elevated | 20 | 83% | 17 | 63% |
| Etiology | EHNA | 46% | EHNA | 48% |
| Child-Pugh | A | 46% | A | 52% |
| MELD | 6-15 | 63% | 6-15 | 70% |
| Okuda | II | 63% | I | 56% |
| BCLC | B | 50% | A | 52% |
| Milan (surpassed) | 17 | 89% | 17 | 71% |

## 04
## ASSOCIATION BETWEEN CMV SEROLOGY IN THE PRE-TRANSPLANT PERIOD AND THE INCIDENCE OF POST-TRANSPLANT CMV INFECTION.

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**Background.** Cytomegalovirus (CMV) infection is a common complication after liver transplantation (LT). The most important clinical predictors for the development of CMV infection after LT are the serostatus of the donor (D) and the recipient (R). That is why screening is performed with anti-CMV IgG. The highest risk is in CMV seronegative IgG receptors and/or seropositive (D+ / R-) grafts.In contrast, double negative donor-receptor (D- / R-) combinations have less risk. **Objectives.** To evaluate the association between serology for CMV in the pre-transplant period and the incidence of post-transplant CMV infection. **Material and methods.** Descriptive and retrolective study. We included post-transplant patients treated at the National Institute of Nutrition between 2010 and 2015. Intermediate risk was defined as: (D+ / R+) and as high risk: (D + / R-). All transplanted patients were followed with pp65 / PCR antigenemia every week for 3 months; and all patients at high risk received prophylaxis with Valganciclovir for 3 months. Demographic, anthropometric and laboratory data were measured. The analysis was done using the statistical package: SPSS v21. The p was significant if < 0.05. **Results.** We evaluated 188 patients who underwent liver transplantation; 164 (87.2%) had intermediate risk (D+ / R+) and 24 (12.8%) had a high risk for CMV infection (D+ / R-). The overall prevalence of CMV infection after transplantation was 16% (30 patients: 16 men and 14 women); and the average age was lower than the non-infected (45 vs 51 years old p 0.02); 83.3% (n = 25) were intermediate risk, and 20.8% (n = 5) were high risk for transplantation, (OR 0.72 95% CI 0.29-1.78 p 0.32). Two patients (8%) died in the intermediate risk group who had post-transplant CMV infection (0R 1.21 CI 95% 1.02-1.44, p NS). No high-risk patient died. **Conclusion.** Cytomegalovirus infection is 16% in patients after liver transplantation. High risk patients had a lower association with CMV infection than intermediate risk patients. This can be explained by prophylaxis with valganciclovir in the high risk; it should be investigated whether patients with intermediate risk with other predisposing factors could receive prophylaxis in selected cases.
Sponsorship: None.

### 05
## CURRENT OVERVIEW OF THE CIRRHOSIS BY HEPATITIS C AND LIVER TRANSPLANTATION IN THE TRANSPLANT UNIT, HOSPITAL GENERAL CMN LA RAZA, IMSS

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**Introduction.** The chronic infection for the virus of the hepatitis C (HCV) is the main indication of liver transplant (LT) in adults. Although the recurrence of the infection for the HCV after the LT is almost universal, the advances in the antiviral agents of direct action (DAA) have revolutionized the management of the infection for the HCV later to LT. **Objective.** To determine clinical and epidemiological characteristics of patients with HCV cirrhosis submitted to evaluation for LT. **Material and methods.** Cross-sectional, observational, descriptive study of the epidemiological and clinical characteristics of patients with HCV cirrhosis submitted for evaluation for LT in Transplant Unit of HG CMN La Raza IMSS during the period from January 2014 to May 2017. **Results.** We evaluated 55 patients with HCV cirrhosis referred for LT. Most females (56.36%) average age 49 years. Regarded to the genotype, 1b was the most reported (61.81%). Received antiviral treatment with pegylated interferon and ribavirin 65.45% and only 5.55% had a sustained viral response. Two patients (3.63%) received treatment with interferon-free regimens, obtaining adequate response at the end of treatment (100%) and only one patient presented spontaneous clearance of the virus after liver transplantation. At the moment, 43% of these patients have been transplanted, 14.54% are on the waiting list, 12.72% are in the evaluation for LT and 29% are carriers of compensated cirrhosis. **Conclusion.** Cirrhosis secondary to HCV is the main indication of LT in the Transplant Unit of HG CMN La Raza. Most patients have received antiviral treatment with pegylated interferon and ribavirin without achieving adequate response and universal recurrence of the virus after transplantation. It is necessary to know the clinical and epidemiological characteristics of these patients to propose treatment measures before or after liver transplantation.

# X. HEPATIC TUMORS

### 01
## RESECTION OF FOCAL NODULAR HYPERPLASIA IN A PATIENT WITH HEPATITIS C VIRUS

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**Background.** Focal Nodular Hyperplasia (FHN) is the second most common benign hepatic lesion. Has been reported in 0.6-3% of general population. Predominant in women 8:1 (30-50 yo). In 2/3 of the cases, Nodular regenerative hyperplasia is solitary. Regarded as a vascular malformation, conformed by cells of the Normal parenchyma. **Aim.** Case report of surgical resection of FNH with co-infection of Hepatitis C virus. **Case report.** Female 55 yo, previously healthy without history of blood transfusions or drug consumption, two cesarean sections more than 30 years ago. Reason of consultation: abdominal pain, palpable mass and postprandial fullness. Decreasing her intake and weigh loss of 3 kg during the last month. Diffuse abdominal pain, oppressive. Physical examination with abdominal asymmetry because of epigastric tumor, well delimited, soft, with a 4x4 cm of diameter, follow the respiratory movements and painful wit deep palpation. Murphy sign negative, no hepatomegaly, without signs of peritoneal irritation, without free abdominal fluid or collateral venous network was detected. Laboratory analysis with slightly increase of liver enzymes (ALT 59 IU/I, AST 58 IU/I, GGT 137 IU/I and FA 227 IU/I). Normal levels of bilirubin, hemoglobin, platelets, albumin and clotting times. Anti-HCV was positive 13.2 (genotype 1b, viral load 341,693.00 IU/mL) Ag surface HBV was negative. Alfa Fetoprotein 18.6 ng/mL. CT Scan with contrast showing a lesion in left hepatic lobe, isodense mass with enhancement in portal phase and a central scar. Liver biopsy was performed with a histopathological report of regenerative nodular hyperplasia. Because of compression symptoms was surgical removed, macroscopic examination showed a yellow and soft nodular mass, 4 cm of diameter; histopathological report conclusive in FNH with minor steatosis. **Conclusions.** FNH consist of masses with capsule, well-delimited wall and fibrous central scar. If the diagnosis is accurate, resection is not recommended. However, in some cases is recommended (painful, organs compression, or rule out hepatocarcinoma).

## 02
## GROWTH DIFFERENTIATION FACTOR 11 INDUCES CELL CYCLE ARREST DECRESIG MALIGNANCY IN HUMAN HEPATOCELLULAR CARCINOMA CELLS

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**Background and aim.** Growth differentiation factor 11 (GDF11) has been recently characterized as an important regulator of proliferation and differentiation in cells that retain stemness features but its role in cancer cells is not characterized yet. Here, we focused to elucidate the regulatory effects induced by GDF11 in hepatocellular carcinoma (HCC). **Material and methods.** Human HCC cell line Huh7 and mouse Hepa1-6 cell line were cultured with and without the presence of 50 ng/mL rhGDF11 for 3 days. Proliferation, spheroid, colony formation as well as wound-healing assays and invasion assays were performed. Main cell cycle-, mesenchymal-epithelial-related proteins were addressed by Western blot and immunofluorescence. To assess long-term effects of GDF11, proliferative properties were also assessed after initial exposure of the cells for 3 days followed by culturing in the absence rhGFD11 for subsequent 5 days (reprograming). **Results.** GFD11 significantly reduced proliferation, colony and, spheroid formation in Huh7 and Hepa1-6 cells. Consistently, down-regulation of cyclin D1, cdk2 and cdk4 and concomitant upregulation of p27 was recognized after 24 h of treatment. Interestingly, viability of the cells remained unchanged. Additionally, GDF11 significantly reduced invasive properties of Huh7 in chick embryo chorioallantoic membrane. These effects were potentially induced by induction of E-cadherin and occludin expression as well as Snail and N-cadherin repression in a time dependent manner. Furthermore, reprograming experiments showed that cells exposed to GDF11 were incapable of sustaining their colony forming and sphere forming capacity indicating that the effect of GDF11 on self-renewal capacity is not transient. **Conclusion.** GDF11 induces an antitumorigenic response and diminishes invasive properties of hepatoma cells.

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## 03
## CHARACTERIZATION OF HEPATOCELLULAR CARCINOMA CASES PRESENTING IN A TERTIARY HEALTCARE FACILITY

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**Background.** Hepatocellular carcinoma (HCC) is the sixth most frequent cancer. It represents 90% of primary liver tumors and is the third cause of cancer related death worldwide. Most of them are a complication of chronic liver disease. The incidence has increased due to older age. It has a male predominance and its risk factors are cirrhosis, viral chronic hepatitis, alcohol consumption, steatohepatitis and exposure to aflatoxins. In cirrhotic patients, the risk increases with increased hepatopathy severity and portal hypertension (PH). Since 2001, non-invasive diagnostic procedures have been accepted in cirrhotic patients. **Objectives.** Characterization of patients with HCC. **Material and methods.** Descriptive and retrospective study. We analyzed files of patients with Hepatocellular carcinoma at the HECMNR, from January 2012 to March 2017. Patient's age, gender, age at diagnosis, presence of cirrhosis, cirrhosis etiology, Child-Turcotte-Pugh score (CTP), PH and treatment were taken. **Results.** Overall, 31 patients were evaluated (54.8% women), 90.32% had cirrhosis due to HCV infection. Mean age at diagnosis of HCC was 63.5 years. They were classified per the BCLC-staging system. Six (19.3%), 9 (29.03%), 9 and 7 (22.58%) patients were in stage A, B, C and D respectively. In BCLC-A, 90% were cirrhotic, 60% had CTP-B, and 66.6% of them had grade 1-2 PH. With BCLC-D, 90% were older than 60-year-old and CTP-C, in 71.4% of the patients who had grade 4 or 5 of PH. Liver biopsy was performed in 12 patients, 100% with a well-differentiated pattern. In two patients tumor resection was performed, 6 were treated with sorafenib and 2 received chemoembolization, in one of them was added sorafenib, which reported the highest survival (36 months). **Conclusion.** An incidence of 35 cases of HCC were documented at 5 years, 90% were cirrhotic, the most common etiology was HCV infection. NAFLD was present in 90% of the non-cirrhotic patients. Patients with BCLC-D had the most advanced age and stages of liver disease at the time of diagnosis. This study demonstrates some important features of patients with HCC. This knowledge will be useful for the development of surveillance programs and management of HCC.

## 04
## HYDATID CYST AS HEPATIC INCIDENTALOMA

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**Background.** The hydatid cyst or echinococcosis is an endemic disease caused by the larval form of *Echinococcus granulosus.* It can develop in any organ of the human body, but more frequently in the liver (60-70%). **Objective.** Through this entity can be symptomatic or identified as an incidental finding when undergoing studies not related to that disease, its medical knowledge is of vital importance and should be part of the differential diagnosis of hepatic incidentalomas. **Results.** A 65-year-old woman with a personal history of diabetes mellitus. She was admitted at hospital in the service of neurosurgery because a low back pain and hypoesthesia in bilateral T12-L1 dermatome, secondary to L4-L5 disc extrusion. During the study of low back pain, in abdominal radiography a radiopaque oval image was identified in the topography of the right hypochondrium. Therefore, they asked for evaluation by the Gastroenterology Service. The hepatic ultra-

sound demonstrates a hypoechoic image with a defined hyperechoic wall. A double-contrast abdominal computed tomography scan showed a hepatic lesion in segment VII and VIII, hypodense that does not reinforce with contrast medium, with regular borders and hyperdenses with central calcification. **Conclusion.** The hydatid cyst does not have a pathognomonic pattern of signs or symptoms, and in the presence of a cystic hepatic mass we must have a high index of suspected diagnosis.

## 05
## MANAGEMENT OF HEPATOCARCINOMA WITH CELECOXIB AND PENTOXIFILINE: 3 CASES REPORT

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**Introduction.** Hepatocarcinoma is the third cause of cancer in the world, in Mexico it is the fifth cause of cancer death and its survival is limited, even with treatment. In this study, 3 patients with hepatocarcinoma were treated with Celecoxib and Pentoxifylline; because has been found COX-2 overexpression in liver tumors among others, involved in angiogenesis, inhibition of endothelial growth factors, TNF and transcription factors, which are inhibited by both drugs particularly celecoxib. **Objective.** To assess the response to treatment with pentoxifylline and celecoxib in patients with hepatocarcinoma. **Case report.** 60-year-old male patient with alcohol cirrhosis presents a tumor that affects the whole of the right lobe. Laboratory tests comparing baseline and at 18 months were TGO of 192-18.2 U/L, TGP of 115-19.4 U/L, total proteins of 5.6-3.8 g/dL, Albumin of 1.8-3.6 g/dL, bilirubin of 3.6-1.1 mg/dL, ALF of 240-2.97 $\mu$g/L. A 86 years old female with cirrhosis due to C virus, with a tumor in the right lobe 32 x 23 x 23 mm at diagnosis and 30 x 26 x 32 mm at 18 months, with laboratory studies of TGO of 70-68 U/L, TGP Of 54.5-46 U/L, total proteins of 6.1-6.6 g/dL, Albumin of 3.3-3.2 g/dL, bilirubin of 1.14-0.8 mg/dL, ALF of 47.71-22.13 $\mu$g/L. A 65-year-old male with alcohol cirrhosis, with a tumor of 39 mm x 39 mm at diagnosis and 48 mm x 46 mm at 24 months, presented laboratory studies of TGO of 42.2-31 U/L, TGP of 16.3-12 U/L, total proteins of 7.0-7.5 g/dL, Albumin of 3.3-3.98 g/dL, bilirubin of 1.85-2.58 mg/dL, ALF of 4.09-2.87 $\mu$g/L. **Conclusion.** The treatment with Celecoxib and Pentoxifylline synergized the response in these patients preserving a Child A stage and reducing or maintaining the size of the tumor, presenting too clinical improvement after 2 years of treatment. This promising combination invites multicenter and randomized studies to assess its real effectiveness.

## 06
## NODULAR REGENERATIVE HYPERPLASIA OF THE LIVER A DIAGNOSTIC TO CONSIDER IN PATIENTS WITH CIRROSIS AND LIVER TUMOR: PRESENTATION OF TWO CASES

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**Introduction.** Nodular regenerative hyperplasia of the liver (NRHL) is a rare benign liver lesion, characterized by diffuse hepatic micronodular transformation in groups without fibrous septa between the nodules. The disease is diagnosed in 0.52% of liver biopsies and in 0.72% of autopsies. Clinically, it is usually asymptomatic. Its pathogenesis is unknown. We present 2 cases of patients referred for evaluation to the liver transplantation in the Transplant Unit Hospital General CMN La Raza IMSS with diagnosis of cryptogenic liver cirrhosis and hepatocarcinoma during the period march 2016 to February 2017. Both patients in Child B functional class and MELD between 15 and 17 points. The diagnosis of hepatocarcinoma was made by imaging findings (three-phase abdomen CT scan), alpha-fetoprotein levels were normal, both were chemoembolized in order to reduce the size of the tumor prior to ht and both patients were prioritized and submitted to LT, one in april 2016 and another in january 2017. The histopathological report of the explanted livers was nodular regenerative hyperplasia without histological alterations in relation to hepatocarcinoma. **Conclusion.** In these patients the clinical manifestations and the radiological images were not specific enough to allow an accurate diagnosis. HNRH is a rare diagnosis that should be considered in all patients with cirrhotic liver tumor as it may mimic hepatocarcinoma. The liver biopsy is mandatory for diagnosis.

## 07
## PRURITUS AS A PARANEOPLASTIC MANIFESTATION OF HEPATOCELLULAR CARCINOMA IN NON-CIRRHOTIC LIVER: A CASE REPORT

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**Introduction.** Hepatocellular carcinoma (HCC) is the sixth most common cancer. Most (> 80%) are due to liver cirrhosis associated with HBV, HCV, alcohol, NAFLD and hemochromatosis. The CHC can develop in cirrhotic patients, the reported prevalence varies from 2% to 20%, and the diagnosis can be delayed, so that CHC that arises in the non-cirrhotic surgeon presents more advanced disease with poor prognosis and less therapeutic options. The association with paraneoplastic syndromes is uncertain, mainly with hypoglycemia, pemphigus, hypercalcemia, hypercholesterolemia and erythrocytosis. Pruri-

tus is related to malignancy, particularly with lymphoproliferative diseases; in solid tumors has been reported anecdotally, its appearance is early and precedes the clinical evidence of cancer, it is not a product of invasion or neoplastic compression and it remits with tumor resection. **Objective.** To describe a case of pruritus as a paraneoplastic manifestation of CHC in a woman with non-cirrhotic liver. **Clinical Case.** A 63-year-old female, a history of type 2 diabetes mellitus, pruritus of 2 years of evolution without response to treatment. Sent to Internal Medicine for the diagnostic approach of systemic pruritus. Paraclinical studies were performed to identify hepatic lesions in USG, three-phase CT of the liver was observed, with multiple lesions suggestive of CHC plus 1476 ng/mL alpha-fetoprotein. Panendoscopy, colonoscopy, normal tomography and chest tomography, liver biopsy-guided biopsy with histological findings of well differentiated hepatocellular carcinoma with pseudoglandular pattern, immunohistochemistry with antibodies against HEPAR I positive, CD34 positive, Ki67 positive, CK8 and non-valuable AFP. **Conclusions.** The pathophysiological mechanisms of paraneoplastic pruritus are poorly understood. In pruritus caused by hepatobiliary tumors, cholestasis is often the cause, however in our patient bilirubin levels were normal, as well as the synthetic function of the liver, indicating that pruritus was not due to accumulation of toxins pruritogenic by hepatic dysfunction. There are few reports of pruritus as an initial manifestation of CHC in patients with non-cirrhotic liver, the pathophysiological mechanism and adequate treatment are unknown. Paraneoplastic manifestations in HCC are associated with poor prognosis.

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## INCIDENCE AND EPIDEMIOLOGY OF HEPATOCECELLULAR CARCINOMA A IN A CENTER OF THIRD LEVEL OF ATTENTION IN MEXICO: ITS BEHAVIOR IN 5 YEARS

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**Introduction and objective.** Liver cancer is the fifth most common cancer in the world, and the second cancer-related cause of death, GLOBOCAN 2012. An epidemiological analysis will allow us to create strategies for prevention, diagnosis and timely treatment. There is a variation in the incidence of hepatocellular carcinoma worldwide, in Mexico it represents 1.4% of malignancies, associated with alcoholism and chronic HCV infection. The objective of this study is to know the incidence and epidemiology of hepatocellular carcinoma in a third level hospital. **Material and methods.** A descriptive study of 148 patients diagnosed with hepatic tumor collected by electronic file was carried out at the National Medical Center November 20, ISSSTE, from January 2011 to December 2015. Hepatocellular carcinoma patient selection was determined by liver biopsy and/or image study (USG, dynamic CT, NMR). Patients with incomplete information in their file were excluded. Descriptive statistics were used with the SPSS 24 software to calculate the incidence and demographic characteristics of the population. **Results.** A total of 70 patients with a diagnosis of hepatocellular carcinoma were included, reaching an incidence of 0.27% during the period of time studied. It predominated in the female sex 55.7% and advanced age 72%. The mean age was 66 years SD ± 10.7, with a minimum age of 21 years and a maximum of 86 years. Most of the patients had a history of cirrhosis 70%, of which the main etiology was chronic HCV infection 40% (28 patients), followed by alcoholic etiology 10% (7 patients); finding > 2/3 of the BCLC intermediate stage population, who were treated with TACE. **Conclusions.** The hepatocellular carcinoma is a tumor of high incidence in cirrhotic patients and infected by the HCV, which concurs with the reported in the international literature. Unlike other studies in our population, the female gender predominates. It is advisable to include high-risk patients in screening to make possible an improvement in the timely diagnosis and prognosis.

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