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002
ANTIBIOTICS FOR SPONTANEOUS BACTERIAL PERITONITIS IN CIRRHOTIC PATIENTS; SYSTEMATIC REVIEW AND META-ANALYSIS

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003
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BORJAS-ALMAGUER OD, CORTEZ-HERNÁNDEZ C, ALEJANDRE-LOYA JV, GARCIA-GARCIA J, SILVA-RAMOS HN, BOSQUES-PADILLA FJ, MALDONADO-GARZA HJ
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JIMÉNEZ-LUEVANO MA,[1] UGALDE IA,[1] RAMÍREZ-FLORES S,[2] RODRÍGUEZ-VILLA P,[2] JIMÉNEZ-PARTIDA MA,[1] CERVANTES-RODRÍGUEZ G,[1] BRAVO-CUELLAR A[1]
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006
ENDOSCOPIC BEHAVIOR OF PATIENTS WITH SEVERE HYPERTENSIVE GASTROPATHY TREATED WITH LONG-ACTING OCTREOTIDE IN COMPARISON WITH PROPANOLOL- PILOT STUDY

JIMÉNEZ-LUEVANO MA,[1] MUÑOZ-SÁNCHEZ DM,[1] RAMÍREZ-FLORES S,[2] RODRÍGUEZ-VILLA P,[2] JIMÉNEZ-PARTIDA MA,[1] CERVANTES-RODRÍGUEZ G,[1] BRAVO-CUELLAR A[1]
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ROJAS-LOUREIRO G, HIGUERA-DE LA TIJERA F, PÉREZ-TORRES E, GÁLVEZ-MARTÍNEZ M, SERVÍN-CAAMAÑO A
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009
SARCOPENIA IN PATIENTS WITH LIVER CIRRHOSIS AND PORTAL HYPERTENSION OF THE INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN

CRUZ-SANCÉN NA, MORA-BULNES S, LÓPEZ-MÉNDEZ EE, SÁNCHEZ-ÁVILA JF, GÓMEZ-REYES E
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010
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SARABIA-ALDANA C, SANTANA-VARGAS D, GARCÍA-FORONDA C, HIGUERA-DE LA TIJERA M, PÉREZ-HERNÁNDEZ JL
LIVER CLINIC, HOSPITAL GENERAL DE MÉXICO, MEXICO CITY, MEXICO.

011
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RAMÍREZ-ESCOBAR SC, ÁVILA-LANGARICA MC, BARRAGÁN-VALAREZO MA, AVILÉS-GONZÁLEZ AG, ZAMARRIPA-DORSEY F
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BETANCOURT-SÁNCHEZ F, CERPA-CRUZ S, BARRIENTOS-ÁVALOS R, ÁLVAREZ-LÓPEZ F, MORA-HUERTA A, VELARDE-RUIZ VELASCO JA
GASTROENTEROLOGY, ENDOCRINOLOGY AND RHEUMATHOLOGY DEPARTMENTS, "HOSPITAL CIVIL FRAY ANTONIO ALCALDE", GUADALAJARA, JALISCO, MEXICO.

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HERNÁNDEZ-VELÁZQUEZ B,[1] CORTEZ-HERNÁNDEZ C,[1] BORJAS-ALMAGUER O,[2] ALEJANDRE-LOYA J,[1] BOSQUES-PADILLA F,[1] MALDONADO-GARZA H,[1] GARCÍA-GARCÍA J[1]
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MARTÍNEZ-RAMÍREZ G, ZAMARRIPA-DORSEY F, MEJÍA-LOZA S, GARCÍA-RUÍZ E, LÓPEZ-LURÍA A
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PÉREZ HERNÁNDEZ JL, SANTANA-VARGAS AD, BARAJAS-TOLEDO D, GARCÍA FORONDA CG, HIGUERA DE LA TIJERA MF
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CLINICAL RESEARCH- HEPATOCELLULAR CARCINOMA

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ESTRADA-LEDESMA AL, MONTAÑO-LOZA A, AGUAYO-VILLASEÑOR JF, JARAMILLO-BUENDÍA C, GONZÁLEZ-HUERTA SM
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CLINICAL RESEARCH - AUTOIMMUNE AND CHOLESTATIC LIVER DISEASE

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HOSPITAL DE PEDIATRÍA, CENTRO MÉDICO NACIONAL SIGLO XXI "DR. SILVESTRE FRENK FREUND", MEXICO CITY, MEXICO.

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VALDIVIA-CORREA B,[3] CHABLÉ-MONTERO F,[2] JUAREZ-HERNÁNDEZ E,[3] CHAVEZ-TAPIA N,[3] URIBE M,[3] MÉNDEZ-SÁNCHEZ N[1]
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MUÑOZ L,[1] LÓPEZ Y,[1] GUEL T,[1] ALARCÓN G,[2] ÁVALOS V,[1] CORDERO P1
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LÁZARO-PACHECO I,[1] ARISTI-URISTA G,[2] CASTILLO-GUITARRERO S,[2] HIGUERA DE LA TIJERA M,[1] PÉREZ-HERNÁNDEZ J[1]
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MUÑOZ-ESPINOSA L,[1] CORDERO-PÉREZ P,[1] SILVERA-LINARES A,[1] ZAPATA-CHAVIRA H,[2] ESCOBEDO-VILLARREAL M,[2] PEREZ-RODRIGUEZ E,[2] SANCHEZ-MARTINEZ M[3]
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JOANICO-AGUILAR R, LÓPEZ-MÉNDEZ YI, CHÁVEZ-VELÁZQUEZ JH, SEGURA-GONZÁLEZ RA, SIXTOS-ALONSO MS, LEAL-VILLALPANDO PR, CONTRERAS-SALDÍVAR AG, VILATOBÁ-CHAPA M, CASTRO-NARRO GE
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ZAPATA-CHAVIRA HA,[1] CORDERO-PÉREZ P,[2] MUÑOZ-ESPINOSA LE,[2] JIMÉNEZ-PÉREZ JC,[2] PERALES-QUINTANA MM,[1] ZAPATA-SALAZAR NA,[2] ORTIZ-GARZA O,[2] HERNÁNDEZ-GUEDEA M,[1] GUEVARA-CHARLES A,[1] ESCOBEDO-VILLARREAL MM,[1] PÉREZ-RODRÍGUEZ E[1]
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SEGURA-GONZÁLEZ AR, GÓMEZ-REYES E, LÓPEZ-MÉNDEZ YI, CHÁVEZ-VELÁZQUEZ JH, JOANICO-AGUILAR R, SIXTOS-ALONSO MA, CONTRERAS-SALDIVAR AG, LEAL-VILLALPANDO RP, VILATOBÁ-CHAPA M, CASTRO-NARRO GE
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JOANICO-AGUILAR R, LÓPEZ-MÉNDEZ YI, CHÁVEZ-VELÁZQUEZ JH, SIXTOS-ALONSO MS, SEGURA-GONZÁLEZ R, GÁLVEZ-CALVO E, CONTRERAS-SALDÍVAR AG, VILATOBÁ-CHAPA M, SÁNCHEZ-CEDILLO A, LEAL-VILLALPANDO PR, GAMBOA A, CASTRO-NARRO GE
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CHÁVEZ-VELÁZQUEZ JH, LÓPEZ-MÉNDEZ YI, GÓMEZ-REYES E, SEGURA-GONZÁLEZ AR, JOANICO-AGUILAR R, SIXTOS-ALONSO MS, HUERTA ÁVILA EE, VILATOBÁ-CHAPA M, LEAL-VILLALPANDO P, CONTRERAS-SALDÍVAR AG, CASTRO-NARRO GE
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CHÁVEZ-VELÁZQUEZ JH, GÓMEZ-REYES E, LÓPEZ-MÉNDEZ YI, SEGURA-GONZÁLEZ AR, JOANICO-AGUILAR R, SIXTOS-ALONSO MS, HUERTA ÁVILA EE, VILATOBÁ-CHAPA M, LEAL-VILLALPANDO P, CONTRERAS-SALDÍVAR AG, CASTRO-NARRO GE
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CRUZ-SANCÉN NA, SÁNCHEZ-ÁVILA JF, CASTRO-NARRO GE, VILATOBÁ-CHAPA M, GÓMEZ-REYES E
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CLINICAL RESEARCH - DRUG INDUCED LIVER INJURY

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HIGUERA-DE LA TIJERA F,[1] GÁLVEZ-MARTÍNEZ M,[1] SALAS-GORDILLO F,[1] PÉREZ-TORRES E,[1] CAMACHO-AGUILERA J,[2] ALEXANDERSON-ROSAS EG,[2] CRUZ-ESTRADA A,[2] PÉREZ-HERNÁNDEZ JL,[1] SERVÍN-CAAMAÑO A[2]
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IMPACT OF DRUG-INDUCED LIVER DAMAGE IN JUAREZ HOSPITAL OF MEXICO

AVILÉS-GONZÁLEZ A, MEJIA-LOZA S, AVILA-LANGARICA M, BARRAGÁN-VALAREZO M, RAMIREZ-ESCOBAR S, ZAMARRIPA-DORSEY F
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CLINICAL RESEARCH - PEDIATRICS

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ACUTE LIVER FAILURE. EXPERIENCE IN A THIRD LEVEL PEDIATRIC HOSPITAL

REYES CERECEDO A, GONZÁLEZ ORTIZ B, ARIAS FLORES R, FLORES CALDERÓN J
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FLORES CALDERÓN J, REYES CERECEDO A, VILLASIS KEEVER MA
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003
BILE DUCT PAUCITY EXPERIENCE IN A THIRD LEVEL PEDIATRIC HOSPITAL

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005
SMALL INTESTINAL BACTERIAL OVERGROWTH FREQUENCY IN PEDIATRIC PATIENTS WITH CHRONIC LIVER DISEASE

ROMERO-GARCÍA B, ESPINOSA-SAAVEDRA D, FLORES-CALDERÓN J, AGRAZ-ORTIZ D
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CLINICAL RESEARCH - MISCELLANEOUS

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INTRAHEPATIC CHOLANGIOCARCINOMA MUCINOUS MULTICENTER AS SECOND PRIMARY

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002
DETECTION OF LIVER FIBROSIS BY NONINVASIVE METHODS IN PATIENTS WITH PSORIASIS

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003
BANTI SYNDROME INCIDENCE IN A TERTIARY CENTRE

AVILA-LANGARICA MA, AVILÉS-GONZÁLEZ A, BARRAGAN-VALAREZO MA, RAMÍREZ-ESCOBAR S, MEJÍA-LOZA SA, **GONZÁLEZ-ANGULO A, ZAMARRIPA-DORSEY F**
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004
GIANT LIVER CYST TREATED WITH PERCUTANEOUS DRAINAGE AND SCLEROTHERAPY. CASE REPORT

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005
FLUOROSCOPY GUIDED PERCUTANEOUS LIVER BIOPSY. HOSPITAL JUAREZ DE MEXICO EXPERIENCE

ANGELES-LABRA AR,[1] JUÁREZ-BARRIENTOS TE,[1] ZAMARIPA-DORSEY F,[1] MEJÍA-LOZA S,[1] RODRÍGUEZ-BLAS A[2]
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ABSTRACT SECTION

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Introduction. Liver cancer is one of the leading causes of death worldwide, representing a global health problem. For his varied etiology (exposure to biological agents, biochemical and xenobiotics), although not fully understood mechanisms and molecular pathways involved in the process of liver carcinogenesis. However, it has been suggested to oxidative stress (EOX) as a possible starter of this process. Clinical reports relate the presence of damage to bio-molecules (DNA, lipids, proteins) and EOX in different liver diseases such as cancer; this as a result of the increased concentration of reactive oxygen species (ROS) and the reduction of antioxidants (AOX). **Objective.** To assess the participation of the antioxidant barrier in the process of cellular transformation in a model of human hepatic origin untransformed (WRL-68); though inhibition of the antioxidant glutathione (GSH), catalase (CAT) and chronic exposure to environmental carcinogens mixture (As-Pb-Cd). **Material and methods.** WRL-68 cells were cultured and evaluated four study groups (untreated control, mixture of metals, antioxidant inhibitors mixture and metals mixture + antioxidant inhibitors). The treatments were renewed every 72 h, crops and cell passaging made every 5 days during 25 days of exposure. With the harvested cells was evaluate the intracellular concentration of ROS (oxidation of Rhodamine-123); lipoperoxidation (T-BARS); genotoxicity (comet assay); AOX activity and concentration (spectrophotometry); cellular transformation (morphology and anchorage-free culture); protein expression (immunohistochemistry). **Results.** A significant increase in the generation of reactive oxygen species, cytotoxicity, genotoxicity, lipoperoxidation, gene and morphological changes associated with cell transformation was observed; treated with exclusive blend of metals more antioxidant inhibitors group. **Conclusion.** Our results demonstrate the direct involvement of antioxidant barrier inhibiting the transformation of the WRL-68 line; by preventing ROS formation and establishment of EOX.
The authors declare no conflict of interest.

002
IL-17 A AND F ISOFORMS AND THEIR RECEPTORS IN EXPERIMENTAL CHOLESTASIS AND THE IL17A/F HETERODIMER INDUCES A PROFIBROGENIC PROFILE IN HEPATIC STELLATE CELLS *IN VITRO*

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Background. IL-17 plays a central role in the pathogenesis of fibrosis associated with various etiologies. Significant decrease in liver fibrosis in IL-17RA knockout mice has been demonstrated. However, the expression of IL-17 isoforms and their receptors in cholestatic liver fibrosis has not been explored yet. Aditionally, there is not enough information about IL-17A/F heterodimer *in vitro* signaling on hepatic stellate cells (HSC). Objetives. To analyze the expression of IL-17A, IL-17F and their receptors IL-17RA and IL-17RC in the liver of rats with cholestasis; aditionally we investigated the participation of IL-17A/F on HSC signaling. **Material and methods.** Male Wistar rats were sacrificed at 8 and 30d after bile duct ligation (BDL). Hepatic IL-17A, IL17-F, IL-17RA and IL-17RC expression was determined by qRT-PCR. Protein levels of IL-17 and RORgammaT were analyzed by Western Blot. Activated HSC were stimulated with IL-17A/F, then the transcriptional factors Stat-3p, NF-κB and Smad-2p and profibrogenic genes collagen I, III and TGF-beta were evaluated by qRT-PCR. **Results.** Hepatic gene expression of IL-17A, IL-17-F and IL-17RC dramatically increased at 8 and 30d post BDL. IL- 17RA significantly increased at 30d post BDL. The overall IL-17RC level was positively correlated with both IL-17A and IL-17F. At the protein level, IL-17 and RORgammaT significantly increased 8 and 30d post BDL. *In vitro,* Stat-3p, NF-κB, Smad-2p and collagen I, III and TGF-beta significantly increased in HSC stimulated with IL-17A/F. **Conclusions.** IL-17 (A and F) isoforms and their receptors are critical mediators of liver damage in experimental cholestatic fibrosis. Th17 cells might represent an important source of IL-17. Heterodimeric IL-17A/F potentially induces profibrogenic genes in HSC cultures.
The authors declares that there is no conflict of interest.

003
EVALUATION OF THE HEPATOPROTECTIVE ACTIVITY OF SILYMARIN, SILIBININ AND SILIFOS IN MODELS *IN VITRO* AND *IN VIVO* OF LIVER DAMAGE INDUCED BY CCL4 AND ACETAMINOPHEN

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Background. The extracts of medicinal plants, are assessed increasingly models hepatoprotection. Select the appropriate model and the experimental conditions for assessing the biological activity of natural products is a guideline to follow. **Aim.** To evaluate the hepatoprotective activity of Silymarin, Silibinin and Silifos *in vitro* and *in vivo* in induced liver damage by carbon tetrachloride (CCl_4) or acetaminophen (APAP). **Material and methods.** Hepatotoxicity of CCl_4 and APAP at different concentrations and times in $HepG_2$ was evaluated. Viability by MTT, AST, ALT, LDH and mediators of oxidative stress (total antioxidants, TBARS, SOD and GSH), to select the best model of hepatotoxicity was determined. Cytotoxic activity of Silymarin, Silibinin and Silifos at 10, 100 and 150 μg/mL for 12 h through the afore mentioned parameters were evaluated. The hepatoprotective activity of these agents was assessed in the damage induced by the best hepatotoxic agent in $HepG_2$ and Wistar rats, which were pre-treated orally every 12 h for 3 days before intoxication (intraperitoneal injection) and 24 h after sacrificed. At least 3 replicates were performed. **Results.** Regarding hepatotoxicity, the CCl_4 was better than APAP. Silymarin, Silibinin and Silifos showed no cytotoxicity at the doses tested and the best of these compounds hepatoprotective activity in $HepG_2$ cells and Wistar rats was shown by silibinin followed by silymarin. **Conclusions.** 1. The best hepatotoxic agent for bioassay-guided fractionation bioassays during CCl_4 conditions was evaluated. 2. The hepatoprotective agents were not toxic, based on the evaluated parameters. 3. Pre-treatment of $HepG_2$ cells with 150 μg/mL and Silibinin pretreatment Silibinin Wistar rats at 70 mg/kg reduced the damage induced by CCl_4, indicative of its hepatoprotective activity.

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004
EFFECT OF HEPATOCYTE GROWTH FACTOR IN CELLS INFECTED WITH HCV

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Background. The hepatitis C virus (HCV) affects the liver by increasing the oxidative stress in hepatocytes. It has demonstrated the role of hepatocyte growth factor (HGF) in hepatic regeneration, decrease of oxidative stress and the viral load in infected patients, however there are not information about the molecular mechanisms implicated in the effect of HGF in modulating of HCV replication. **Aim.** Evaluate the modulation of genetic expression of antioxidants proteins in the presence of HGF in cells infected with HCV. **Material and methods.** Transient transfection assays to overexpress the viral structural and non-structural proteins of HCV were performed in presence and abscence of HGF. The Huh 7 cells were transfected with 250 ng of each plasmid: pFK1-VHC, pNS5A-HCV and pE2-HCV. Then transfected cells were treated with 50 ng/μl of HGF 24 h. Later, the total RNA was extracted to quantify the mRNA by real-time PCR of superoxidase dismutase 1 and 2 (SOD1 and SOD2), methionine adenosyltransferase 1 and 2 (MAT1 and MAT2), catalase (CAT), thioredoxin (TRX), and 18S ribosomal RNA. The levels of HCV-RNA were quantified using TaqMan probes of the IRES region of each plasmid. Simultaneously the levels of reactive oxygen species (ROS) in transfected cells were assessed by the DHCF-DA assay. **Results.** The genetic expression of SOD1, SOD2, MAT2A, TRX and CAT were decreased in parental Huh7 cells with HGF compared to untreated control at 24 h. Cells with pFK1 showed higher mRNA levels of those proteins compared to pE2 and pNS5A and decreased with HGF treatment at 24 h. MAT1A was not detected because is often silenced in hepatocellular carcinoma. The levels of ROS were reduced 14, 10 and 40% in pFK1, pNS5A and pE2 with HGF respect to untreated control. **Conclusions.** The HGF significantly reduces the levels of SOD1, SOD2, MAT1A, MAT2A, TRX and CAT in cells expressing the HCV proteins. The HGF alters the mRNA of antioxidant proteins and the ROS levels, demonstrating the antiviral activity mediated by modulation of the oxidative stress.

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005
SPIRONOLACTONE EFFECT ON SECONDARY DAMAGE BY HEPATIC ISCHEMIA/REPERFUSION IN WISTAR RATS

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Background. Ischemia-reperfusion (IR) involves the formation of reactive oxygen species and an excessive inflammatory response. Recent studies have shown that spironolactone (SPI) reduces the damage induced by IR in brain, heart and kidney, but has not been reported its effect on the liver. **Objective.** To evaluate the effect of SPI during injury induced by IR in rat liver. **Material and methods.** The study was performed with 15 male Wistar rats (200-250g) and divided into 3 groups (n = 5). After anesthesia with Fentobarbital (60 mg/kg): in SHAM group was operated without ischemia, the group with IR was underwent to 20 min of hepatic ischemia (occlusion hepatoduodenal ligament, which contains the hepatic artery, portal vein and bile duct) followed by 60 min of reperfusion, and ESP group received 2.6 mg/kg orally 20 h before IR and the same process of IR group was performed. For this Project were measured the degree of hepatic lesion morphology and serum concentrations of ALT, AST, LDH, TNFα, IL-6, IL-1a, total antioxidant, lipid peroxidation (TBARS) and catalase activity. The data were analyzed in a statistical software program SPSS 15.0 using ANOVA test with Tukey contrasting. **Results.** After the IR liver tissue damage was evident, characterized by widespread acute inflammatory infiltrate, and disorganization of hepatic hemorrhage trabeculae, and presence of apoptotic bodies. Likewise, serum levels of liver enzymes, cytokines IL-6, TNF-α, levels of MDA and catalase were increased in IR group compared with SHAM group, but only showed significantly increase in AST, ALT, MDA and catalase ($P < 0.05$). Histologically the group level with pretreatment SPI present cellular architecture preserved, isolated pockets of inflammation and apoptotic bodies isolated. The evaluated mediators are shown in the table 1. **Conclusions.** SPI prevented the liver damage induced by IR, characterized by decrease of histological changes, liver transaminase levels and increase antioxidant enzyme catalase.

Table 1 (005). Evaluated mediators on SHAM, IR and SPI groups.

Group	ALT (U/L)	AST (U/L)	LDH (U/L)	IL-1β (ng/mL)	IL-6 (ng/mL)	TNF-α (ng/mL)	Total antioxidants (mM)	MDA (μm)	Catalase activity (nmol/min/mL)
Sham	54 ± 6	149 ± 63	5,245 ± 5,345	1.07 ± 0.49	0.14 ± 0.31	0.89 ± 0.58	3.10 ± 0.14	10.62 ± 0.71	8.95 ± 15.03
I/R	673 ± 409*	1,407 ± 787*	24,747 ± 13,878*	1.27 ± 0.31	0.68 ± 1.53	1.08 ± 0.76	3.18 ± 0.05	13.22 ± 0.34	177.22 ± 84.46
SPI 2.6 mg/kg + I/R	260 ± 128**	559 ± 176**	14,195 ± 12,793	1.24 ± 0.74	2.14 ± 0.59	2.16 ± 0.63	2.98 ± 0.34	17.16± 3.84*	661.55 ± 61.16*,**

*p < 0.05 *vs.* SHAM. **p < 0.05 *vs.* IR.

006
GDF11 INDUCES AN ANTITUMORIGENIC EFFECT IN HEPG2 CELLS

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Background. Growth differentiation factor 11 (GDF11) is a member of the TGFβ family, which has been characterized as a potent player in development and differentiation. It has been reported that GDF11 content diminish with longevity, the restoration of levels of this protein was associated to muscle tissue repair, at the same time it has been observed that GDF11 can antagonize the effect of canonical growth factors such as EGF and FGF, inducing cell cycle arrest and even apoptosis. Taking in consideration this evidence, the aim of the present work was to address the effect of GDF11 in a well-characterized cancer cell line $HepG_2$, as a first approach of GDF11 in liver cancer. **Material and methods.** The human hepatoblastoma cell line $HepG_2$ was cultured in standard conditions, cells were treated or not with 100 ng/mL GDF11. Wound healing and Spheroid forming assays were performed. Protein content was measured by Western blotting. **Results.** Data show that GDF11 induced a decrease in the number and size of the spheroid, in comparison with not treated cells at seven days of treatment, in addition wound healing assays revealed a better repair process in not treated cells, when comparing with GDF11 treated plates at three days of treatment. These data were correlated with a decrease in Akt activation, which lead a signaling pathways associated to proliferation and survival. In conclusion our results suggest that GDF11 could have an antitumorigenic effect in the hepatoblastoma cell line, supporting that GDF11 could be considered as a possible therapeutic target.

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007
THE PROTECTIVE EFFECT OF THE HGF AGAINST THE TOXICITY INDUCED BY ISONIAZID AND RIFAMPICIN IN A MOUSE MODEL OF PROGRESSIVE TUBERCULOSIS

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Background. Tuberculosis is a disease that is responsible of two million of deceases every year worldwide, this fact is mainly associated to an increase of the number of infections with multidrug resistant strains (MDR), and also to the miscarry on the conventional treatments due to liver failure. It has been proposed the elevation in the doses of drugs, such as rifampicin (RIF) and isoniazid (INH) could be useful for the elimination of the bacteria, but this also could be related to an increase in liver damage. The aim of the present study was to address the effect of the hepatocyte growth factor (HGF) in the liver and lung in the treatment with high doses of RIF and INH in mice infected with a MDR strain of *Mycobacterium tuberculosis*. **Material and methods.** In this preclinical assay we used Balb/c, which were infected with a MDR strain of *Mycobacterium tuberculosis*. Once mice developed the disease we treated them with RIF and INH (150 and 75 mg/kg, i.g. respectively), and cotreated or not with HGF (10 ug/kg). After that, mice we sacrificed at 30 and 60 days post-treatment. We determined colony-forming units, H&E staining, reactive oxygen species (ROS) determination by DHE staining in liver and lungs. **Results.** Data show that high doses of both drugs increase the production of ROS, steatosis in the liver. The treatment with HGF significantly diminished both conditions. Interestingly, HGF also induced a decrease in the colony-forming units in the lung by increasing ROS, contributing to the lung repair. In conclusion, HGF could be considered as a good adjuvant in the treatment of tuberculosis due to the protective effect in the liver and lungs.

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008
CTGF EXPRESSION DURING LIVER FIBROSIS IN RATS

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Background and aims. Connective Tissue Growth Factor (CCN2/CTGF) is protein involved in wound healing. Increased serum levels of CCN2/CTGF have been related to fibrosis in lung, skin and kidney. *In vitro,* hepatic stellate cells express this protein under TGF-β1 induction. CCN2/CTGF has been suggested as a fibrosis biomarker in patients infected with hepatitis B virus. However, no evidence of the dynamics of its hepatic expression during liver fibrosis is available. The aim of this study was to assess CCN2/CTGF expression during liver fibrosis in a murine model. **Material and methods.** Three month male Wistar rats weighing 250 ± 20 g were ad-

ministered a different number of CCl_4 doses intraperitoneally (250 μl; 33% v/v in olive oil) in order to induce different fibrosis stages: F1 (8 doses), F2 (12 doses), F3 (20 doses) y F4 (40 doses) according to METAVIR score. A control group was included (F0) as well as a group that received 20 doses followed by a moth of recovery (F3-R). Livers were collected and fibrosis was established by histology (H&E, Sirius red). CCN2/CTGF expression was assessed by RT-PCR using specific primers and normalized with 18S. Results were analyzed by One-way ANOVA followed by Tukey test or Student's *t*-test when appropriate. Mean ± SD. $P < 0.05$ was considered significant. **Results.** Liver expression of CCN2/CTGF was significantly increased in all fibrosis groups compared to control, however no difference was found among the different stages (F0 = 0.085 ± 0.140; F1 = 0.449 ± 0.095; F2 = 0.598 ± 0.086; F3 = 0.616 ± 0.130; F4 = 0.663 ± 0.149 OD; n = 6). During fibrosis reversion, CCN2/CTGF expression was lower compared to the F3 group that had received the same number of CCl_4 doses (F3 = 0.616 ± 0.130; F3-R = 0.010 ± 0.001 OD; n = 6). **Conclusions.** CCN2/CTGF is overexpressed in liver fibrosis induced by CCl_4 independently of the degree of damage present in the tissue. This gen is down regulated during fibrosis reversion.

009
IGFBP-1, -3 AND -6 PROTEIN EXPRESSION IN LIVER FROM RATS WITH DIFFERENT FIBROSIS STAGES

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Background and aims. Insulin like grown factor binding proteins (IGFBPs) have been implied in processes like cellular proliferation, apoptosis and extracellular matrix production. Recently, the role of some IGFBPs in fibrogenesis in lung and skin has been established, however few data exist on liver regardless of being their main source. These proteins are mainly produced by the liver but there is poor evidence about IGFBPs in liver fibrosis. We aimed to evaluate the amount of IGFBP-1, -3 and -6 in the liver of rats with diverse fibrosis stage. **Material and methods.** In order to induce diverse degrees of liver fibrosis, male Wistar rats weighing 250 ± 20 g were included in groups to receive different intraperitoneal doses of CCl_4 (250 μl; 33% V/V in olive oil). Fibrosis stage was established by histological analysis of liver tissue (Sirius red staining) and according to METAVIR score. A control group (F0) without liver fibrosis and four groups with fibrosis (F1, F2, F3 and F4) were included. Liver samples from every group were obtained, total proteins were isolated from 100 mg of tissue and IGFBP-1, -3 and -6 were measure by MILIPLEX kit. Data was presented as Mean ± SEM and analyzed by One-way ANOVA and Tukey *pos hoc* test. $P < 0.05$ was considered significant. **Results.** The amount of IGFBP-1 in liver tissue was significantly lower in F4 group compared to F0 and F1 groups (F0 = 14.7 ± 3.0; F1 = 15.5 ± 5.0; F2 = 13.2 ± 4.7; F3 = 13.23 ± 4.5; F4 = 7.2 ± 2.3 ng/100 mg of tissue). IGFBP-3 decreased significantly in group F4 compared to F1 and F2 groups (F0 = 4.32 ± 0.48; F1 = 4.8 ± 1.51; F2 = 4.4 ± 1.60; F3 = 3.96±1.12; F4 = 2.98 ± 0.96 ng/100mg). Furthermore, the amount of IGFBP-6 decreased in F2, F3 and F4 groups compared to F0 and F1 groups (F0 = 2.19 ± 0.32; F1 = 2.30 ± 0.86; F2 = 1.28 ± 0.50; F3 = 1.32 ± 0.36; F4 = 0.9 ± 0.22 ng/100 mg). **Conclusions.** IGFBP-1 and -3 are diminished in F4 group, while IGFBP-6 decreased from earlier stages. Changes in hepatic synthesis of these proteins trough chronic liver damage could be associated to the progression of liver fibrosis induced by CCl_4.

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010
ASSESSMENT OF THE IGFBP PROTEINS 2 AND 5 DURING FIBROGENESIS IN RAT LIVER TISSUE

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Background and aim. Insulin-like growth factor binding proteins (IGFBP) are primarily produced by the liver. IGFBP-5 has been involved in fibrogenic processes in different organs including lung, skin and intestine. IGFBP-5 enhances activated hepatic stellate cell survival in culture by inhibiting their apoptosis. Despite the structural similarity among this protein family, no evidence has involved IGFBP-2 in fibrogenesis. These proteins might have a role in hepatic fibrogenesis. For this reason, we aimed to assess IGFBP-2 and -5 in liver rats with different degrees of fibrosis induced by CCl_4. **Material and methods.** Three months old male Wistar rats weighing 250 ± 20 g were organized in groups of 10 animals, and administrated with 8, 12, 20 and 40 intraperitoneal doses of CCl_4 (250 μl; 33% V/V in olive oil) to induce different degrees of liver fibrosis. A control group (C) without fibrosis was included. Liver samples were obtained from each group; tissue proteins were extracted by freezing-thawing cycles and quantified by suspension array technology. Histological evaluation of liver was performed by Masson's trichrome stain and graded according to METAVIR score. Data was presented as mean ± SEM and analyzed by one-way ANOVA followed by Tukey test. $p < 0.05$ was considered significant. **Results.** Liver fibrosis increased according to the number of CCl4 doses administered. IGFBP-5 was decreased in the group of 40 doses (cirrhosis) compared to the groups C, 8D, 12D and 20D (C = 89.23 ± 14.45; 8D = 146.39 ± 32.96; 12D = 119.36 ± 29.93; 20D = 89.41 ± 17.86; 40D = 45.15 ± 6.00 ng protein/100 mg tissue). While IGFBP-2 was significantly different in the group 40D compared to 8D (C = 0.26 ± 0.02; 8D = 0.42 ± 0.10; 12D = 0.23 ± 0.04; 20D = 0.22 ± 0.04; 40D = 0.16 ± 0.04 ng protein/100 mg tissue). **Conclusions.** These results show that IGFBP-2 and IGFBP-5 present similar patterns in synthesis during liver fibrosis induced by CCl_4, both proteins are significantly decreased in cirrhosis. Further studies are needed to establish their role in hepatic fibrogenesis.

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011
CADMIUN SUBCRHONIC EXPOSURE POTENTIATES LIVER DAMAGE IN HYPERCHOLESTEROLEMIC MURINE MODEL

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Introduction. Non-alcoholic liver disease (NAFLD) is a highly common disease that can progress to steatohepatitis, fibrosis and cirrhosis. Oxidative stress plays an important role in hepatic damage progression. Cadmium (Cd) is a pro-oxidative metal that we could be exposed to through smoke, some food products and contaminated water, mainly. **Aim.** To evaluate the effect in the liver of Cd subchronic exposure in a hypercholesterolemic murine model. **Material and methods.** C57bl/6 male mice were feed with a hypercholesterolemic diet (HC; 2% cholesterol and 0.5% sodium cholate) and were expose to $CdCl_2$ 15 ppm through drinking water for 30 days. Mice were sacrificed and blood serum was isolated for AST determination. Hepatic tissue was analyzed by using optic and electronic transmission microscopy. Antioxidant enzymes like superoxide dismutase 1 (SOD-1), gamma glutamylcysteine synthetase (γ-GCS), glutathione peroxidases 1 and 2 (GPx's 1/2) and glutathione S-transferase (GST), as well as autophagy-related proteins like AMP kinase (AMPK), dynamin-related protein 1 (Drp-1), optic atrophy protein 1 (OPA1) and mitofusins 1 and 2 (Mfn 1/2) were evaluated by Western blot. Reactive oxygen species (ROS) were determined by immunofluorescence. **Results.** The HC diet along with Cd exposure increases AST activity levels (4.1 *vs.* 12.6 fold), indicating liver damage; furthermore more inflammatory infiltration, mitochondrial alteration and autophagosomes formation is observed as confirmed by electronic microscopy and related protein expression. Finally there is an antioxidant enzymes increase despite the ROS elevated induction. **Conclusion.** Our data suggest that HC diet-induced liver damage is exacerbated by Cd exposure, which could lead to NAFLD progression.

012
ASSESSMENT OF IGFBP7 IN LIVERS AT DIFFERENT STAGES OF FIBROSIS IN A MURINE MODEL

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Background. Insulin-like growth factor binding protein 7 (IGFBP7) is implicated in diverse physiological processes including cellular senescence, apoptosis and proliferation. This protein has been related to p53 activity, this latter being a protein involved in cell cycle regulation and apoptosis. In the liver, IGFBP7 expression is specific to activated hepatic stellate cells (HSCs). High levels of this protein are able to initiate cellular senescence in HSC as well as other cells. Recent evidence suggests a role for both IGFBP7 and p53 during the fibrotic process in the liver. **Objective.** To assess IGFBP7 protein levels and p53 expression in hepatic tissue of rats with different degrees of fibrosis. **Material and methods.** Male Wistar rats weighing 250±20g were given intraperitoneal injections of CCl_4 (8, 12, 20 y 40 doses; 250 μl, 33% V/V in olive oil) to induce different degrees of fibrosis. A control group without fibrosis was included. The degree of fibrosis was established by histological staining according to METAVIR score. Total protein was obtained from 100 mg of liver for each sample and IFGBP7 was quantified by suspension array. Specific oligonucleotide sequences were used to evaluate p53 expression by RT-PCR. 18S was used as loading control. Data was presented as Mean ± SEM and was analyzed by one-way ANOVA followed by Tukey *post hoc* test. $P < 0.05$ was considered significant. **Results.** IGFBP7 protein levels significantly decreased in F4 compared to F_0, F_1 and F_2 (F0 = 0.21 ± 0.07; F_1 = 0.23 ± 0.09; F_2 = 0.17±0.08; F_3 = 0.10 ± 0.06; F_4 = 0.07 ± 0.04 OD). No significant changes were observed in p53 expression at different stages of fibrosis. **Conclusions.** These results show a significant decrease in IGFBP7 protein levels in the cirrhotic liver induced by CCl4, which could favor activated HSC survival consequently perpetuating fibrogenesis without a role for p53.
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013
EFFECT OF A NATURAL ANTIOXIDANT COMPOUND ON HCV EXPRESSION AND REPLICATION

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Background. Gallic acid (GA), a natural phenol obtained from plants and fruits, which has antioxidant properties could be used as an adjuvant therapy in treatment of viral infections, heart diseases and cancer. Hepatitis C virus (HCV) is a public health problem. Current HCV treatments are expensive, have side effects and are unavailable for many patients. **Aim.** We investigated the effects generated by different doses of GA in HCV-replication, using the subgenomic replicon cell system (Huh7-HCV-replicon) that expresses HCV-nonstructural proteins. **Material and methods.** Cells were exposed to 100, 200, 300 μM GA at different times (0-72 h), then we evaluated GA cytotoxicity in Huh7 replicon cells by MTT assay. In addition, total RNA and proteins were extracted from treated and untreated cells (control). Expression levels of HCV-nonstructural proteins NS3 and NS5A proteins were evaluated by Western blot analysis and real time RT-PCR for each time. Furthermore, the effect of GA on HCV replication was also evaluated by RT-PCR. Experiments were performed in triplicate and analyzed using a Tukey test ($P < 0.05$). **Results.** We observed that GA treatment did not produce toxicity in Huh7 replicon cells. The expression levels of NS3 and NS5A proteins were down-regulated by 200 μM GA, compared with the control without GA (40 and 50%, respectively). Furthermore, GA modulates virus replication (HCV-RNA) negatively, decreasing it 40% at 24-48 h at the concentrations of 100, 200 and 300 μM GA. **Conclusions.** These results suggest that GA treatment reduces *in vitro* HCV protein expression and HCV-RNA replication, causing a transcriptional and translational effect by modulating expression of proteins involved in viral

cycle, as NS3 and NS5A nonstructural proteins, without affecting cell viability. For this reason GA could be consider a potential natural adjuvant in the treatment of chronic HCV infection.

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014
HEPATIC CHOLESTEROL OVERLOAD PROMOTES AN AGGRESSIVE HEPATOCARCINOMA PHENOTYPE IN A N-DIETHYLNITROSAMINE-INDUCED CARCINOGENIC MODEL

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Introduction. Liver cancer is one of the major causes of mortality worldwide. There are several risk factors for the development of this pathology, such as, hepatitis virus B, C, aflotoxin infection and/or insulin resistance and other diet-induced metabolic disorders. Nowadays, there is a vast amount of information that suggests that a high cholesterol intake promotes the pathogenesis and development of hepatic cancer but the mechanism remains to be elucidated. The aim of this work was to identify the role of a hypercholesterolemic diet (HC) in the liver microenvironment homeostasis as a precondition for hepatic cancer development. A single dose of N-diethylnitrosamine (10 μg/g, ip) was administrated or not in C57BL/6 mice 14 days old followed or not by HC (2% cholesterol, 0.5% sodium cholate, 16 days old) feeding for different times (0, 2, 5, 7, 14 days and 8 months) mice were weight and sacrificed; serum was collected (-80 °C); the liver tissue was weighted and stored for western blot, immunofluorescence, reactive oxygen species (ROS) detection *in situ,* by HPLC. Data showed that the HC diet promotes cholesterol accumulation in both, serum and the liver tissue (7 days). Moreover, an increase in lipid, protein and DNA oxidation was shown (7 days after DEN administration) and it was potentiated with the HC feeding; these results correspond with the ROS production. Furthermore, the antioxidant enzymes expression increased significant on the DEN/HC groups. Finally the content of DNA damage repair proteins were diminish significant in both experimental groups suggesting that the diet alone could impair the DNA repair by negatively control the proteins related to DNA damage repair and promoting mutation accumulation that leads to cancer. Importantly, mice treated with DEN/HC for 8 months showed more and bigger tumors that also were more vascularized suggesting a more aggressive phenotype when cholesterol is administrated.

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015
S-ADENOSYLMETHIONINE ENHANCES ANTIOXIDANT ENZYME SYSTEMS, GLUTATHIONE BIOSYNTHESIS AND SWITCHES MAT2/MAT1 TURNOVER IN HCV EXPRESSING CELLS

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Background. SAM decreases Hepatitis C Virus (HCV) expression by unknown mechanisms. SAM is the main precursor of glutathione synthesis. Methionine adenosyltransferase 1A (MAT1A) enzyme is responsible of its biosynthesis in normal liver, but is replaced by MAT2 in liver regeneration and HCC. Our aim was to elucidate the mechanism(s) by which SAM decreases HCV expression, using a hepatoma cell line expressing HCV non-structural proteins. **Material and methods.** Huh7 HCV-replicon and parental cells were treated with 1 mM SAM. Total glutathione level was evaluated at different times by Ellman's recycling method (0-24 h). ROS level was determined by dichlorofluorescein method (0-48 h), PDTC treatment was used as an antioxidant agent and hydrogen peroxide as a positive oxidative agent. Total RNA and protein were extracted (24-72 h), and then cDNA was synthesized and real time-PCR was performed to quantify HCV-RNA, SOD1, SOD2, catalase, thioredoxin 1, MAT1A and MAT2A expression; GAPDH and RPS18 were measured as endogenous gene. Cellular and viral protein expression were evaluated by western blot using antibodies *vs.* HCV-NS5A, SOD1, SOD2, catalase, thioredoxin-1, MAT1A, MAT2A and actin. **Results.** SAM treatment decreased HCV-RNA levels 50-70% compared to untreated control (24-72 h). Total glutathione levels increased upon 6 and 12 h post-treatment in replicon cells, but it was earlier in parental cells (2 h post-treatment). Transcriptional antioxidant protein expression (SOD1, SOD2 and thioredoxin1) was increased at different times but this effect was not observed for catalase. Interestingly, there was no significant change in ROS levels in both cell types upon SAM treatment, contrary to what was observed with PDTC, where an average of 30% reduction was detected. Finally, MATIA expression was increased (2.5 foldtimes at 48h) and MATII was decreased (from 24 h) upon SAM exposition at both transcriptional and translational level in both cell lines. **Conclusions.** A possible mechanism(s) by which SAM decreases HCV expression could involve modulating antioxidant enzymes systems, biosynthesis of glutathione and switching MAT2/MAT1 turnover in hepatitis C virus expressing cells.

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016
BACTERIAL TRANSLOCATION ASSOCIATED TO INCREASE OF TH1/TH17 CYTOKINES AND DECREASE OF OCCLUDIN EXPRESSION IN EXPERIMENTAL CHOLESTASIS

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Background. Bacterial translocation (BT) in patients with hepatic cirrhosis is an important trigger of bacterial peritonitis and sepsis, with a mortality rate of 30-50%. BT has been demonstrated in experimental models of hepatic fibrosis. In the model of bile duct ligation (BDL), the BT can be present within the first 24 h following the liver damage. However, it has not been well described the dynamic of cytokines type T_H1/T_H17, which is currently considered as an emerging field of study. Similarly, there is little information about molecules involved in the integrity of intestinal epithelium as occludin in this experimental model. **Objective.** To assess the expression of cytokines and transcription factors related to T_H1/T_H17 response, occludin and bacterial load in the bowel of rats with cholestatic liver injury by BDL. **Material and methods.** Male Wistar rats were sacrificed at 8 and 30 days after BDL. T-bet, IFN-γ, RORγ and IL-17 were measured by Western blotting in total protein extracts of intestine. Bacterial load was assessed through detection of *E. coli* by qPCR. Occludin expression was analyzed by immunohistochemistry. **Results.** Expression of T-bet, IFN-γ, ROR-γ and IL-17 were increased during early fibrosis (8 days) in the small and large intestine, compared with control group. In advanced fibrosis (30 days), the T_H1/T_H17 response was very similar to early fibrosis in small and large intestine, with the exception of T-bet, which was down-regulated in small bowel. Immunostaining of occludin decreased drastically at 8 and 30 days of BDL. Bacterial overload of *E. coli* was detected at 8 and 30 days after BDL. **Conclusions.** Bacterial overgrown associated to bacterial translocation is intimately linked to overexpression of IFN-γ and IL-17. These cytokines might contribute synergistically to exacerbate the inflammatory process, as well as to weaken important transmembrane proteins of tight junctions, such as occludin, which in turn would facilitate the intestinal permeability.

The authors declare that there is no conflict of interest. This work has no subsidy.

CLINICAL RESEARCH – HEPATITIS C VIRUS

001
EFFICACY AND SAFETY WITH THE USE OF TRIPLE THERAPY WITH PROTEASE INHIBITORS IN PATIENTS WITH HCV GT1 IN LATIN AMERICA. RESULTS OF THE LALREAN COHORT

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Introduction. In North America and Europe the efficacy and safety of treatment with Peginterferon-alfa+ribavirin (PR) + boceprevir (BOC) or telaprevir (TVR) in patients with HCV genotype 1 in clinical practice is comparable to randomized clinical trials (RCT). In our region there is no data to confirm this. **Objective.** Evaluate efficacy and safety of triple therapy in clinical practice in Latin America. **Material and methods.** Clinical records from patients treated with triple therapy in Argentina, Brazil, Chile, Colombia, Mexico and Venezuela were recorded in HepatiC™ data base for analysis. Patients < 18a, HIV/HBV- coinfected or treated in RCT were excluded. **Results.** 213p were included, 141 (66%) male, age $\bar{x}$ 52.6y, 110 (52%) BMI > 25, $\bar{x}$ HCV-RNA 3,898,064 IU/mL, Gt1 24 (11.2%), Gt1a 61 (28.6%), Gt1b 127 (59.6%), F3-F4 in 129 (61%). 119p (56%) naïve and treatment experienced: 53(56%) relapsers, 17(18%) partial responders and 24 (26%) null responders. 73p with IL28B: 20(27%) were CC. 100p (47%) received PR + TVR (68% cirrhotics and 58% naive) and 113(53%) received PR + BOC (52% cirrhotics and 54% naïve). Genotype distribution in PR + TVR *vs.* PR + BOC was GT1a *vs.* 1b *vs.* 1(n, %): 26 (26) *vs.* 60 (60) *vs.* 13 (13); 35 (30.9) *vs.* 67 (59.2) *vs.* 11 (9.7) and mean HCV-RNA was 4,601,832 IU/mL *vs.* 3,140,034 IU/mL, respectively. In group PR + TVR, 10p are in treatment. 90p completed with 11 early suspensions [6 breakthrough (BT) y 5 serious adverse events, SAEs]. 80% with end of treatment response (ETR), and those who completed follow-up: 42% SVR, 23% relapses and 35% null responders. In PR + BOC, 19p are in treatment. 94p completed with 14 early suspensions (10 BT y 4 SAEs). 78% achieved ETR, and those who completed follow-up: 67% SVR and 9% relapses. In AEs, group PR + TVR had 8-36% anemia (Hb < 12 g/dL), 15-36% neutropenia (< 1,500/mm^3) and 13-40% thrombocytopenia (< 150,000/mm^3). In group PR + BOC had 8-36% anemia, 4-24% neutropenia, and 4-19% thrombocytopenia. **Conclusion.** Triple therapy was safe and effective in

Table 1 (002).

Parameters	Control	Visit 1	Visit 2	Visit 3	Visit 4
Gender F/M (%)	39/91 (30/70)	12/7 (63/37)	12/7 (63/37)	12/7 (63/37)	12/7 (63/37)
Age (years)	38.1 ± 0.8	49.2 ± 2.2[a]	49.2 ± 2.2[a]	49.2 ± 2.2[a]	49.2 ± 2.2[a]
AST (UI/L)	29.9 ± 0.9	77.3 ± 8.8[a]	82.1 ± 12.0[a]	73.4 ± 10.1[a]	80.2 ± 9.0[a]
ALT (UI/L)	27.8 ± 1.6	82.4 ± 12.4[a]	86.9 ± 14.1[a]	75.8 ± 10.1[a]	78.4 ± 8.2[a]
Carbonylated prot. (nmol Carb prot/mg prot)	0.05 ± 0.007	0.05 ± 0.01	0.08 ± 0.01[a]	0.07 ± 0.01[a]	0.07 ± 0.01[a]

[a] P < 0.05 *vs.* control.

this cohort with a high percentage of cirrhotic patients treated in Latin America, similar to that reported in RCTs.

002
OXIDATIVE STRESS EVALUATION IN LIVER DAMAGE INDUCED BY HCV

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Background. In patients chronically infected, the virus replication is continuous and can develop a variety of liver diseases such as fibrosis, cirrhosis and hepatocellular carcinoma in a period of 5 to 30 years. Researchers reported that in chronic hepatitis, immunity initiates the production of ROS and nitric oxide. Furthermore, it is known that HCV produces more ROS than other viruses. **Aim.** Evaluate the oxidative stress through the quantification of carbonyl groups in patient whit hepatitis C. **Material and methods.** Patients with positive HVC viral panel of Hospital General de Mexico were recruited (n = 19). Also a group of 130 subjects without clinical or biochemical stigmata of liver disease with negative HVC viral panel constituted the control group. Four Whole blood samples were obtained of each patient in the course of a year. Content of carbonyl groups were quantified in the serum of patients and controls by a spectrophotometric technique. **Results.** Values represented as the mean ± SE. **Conclusions.** Our results demonstrate that oxidation of proteins in patients with hepatitis C is increased. Carbonylated proteins content did not increase proportionally in each of the visits in a year, but levels of this marker of oxidative damage were higher than the control group. With these results we can demonstrate that oxidative stress has an important role in the liver damage induced by VHC.

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003
EVALUATION OF PRO-INFLAMMATORY CYTOKINES IN CHRONIC HEPATITIS C PATIENTS

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Background. Chronic hepatitis C virus (HCV) infection represent an important global health problem, affecting 130-150 million people in the world. Cytokines play an important role in viral clearance, infection control, inflammation, regeneration and fibrosis. However, these molecules are also implicated in both viral persistence and the liver damage seen during chronic HCV infection. **Aim.** Evaluate levels of cytokines in patients with chronic HCV. **Material and methods.** Study two subject groups of Liver Clinic and Blood Bank of Hospital General de Mexico. Group 1 positive HCV patients and group 2: subjects without clinical or biochemical stigmata of liver damage with negative HVC viral panel. Serum cytokine levels were determined by Luminex technology. For statistical analysis was performed U-Mann Whitney and were considered significant differences when P < 0.05. **Results.** Included 80 subjects: 60 controls and 29 patients with HCV infection. The mean age was 39 ± 9.4 and 55 ± 11 years, respectively (P < 0.001). **Conclusions.** Our results showed that levels of cytokines in serum in chronic hepatitis C patients are augmented; this response demonstrated that inflammation is an important mechanism in this pathology. We propose to study the levels of this molecules considering different stages of liver cirrhosis induced by HCV.

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Table 1 (003). Clinical and biochemical parameters in patients with HCV.

	Control	HCV	P
Gender n (%), F/M	31(52)/29(48)	7 (24)/22(76)	0.014
Age (years)	39 ± 9.4	55 ± 11	< 0.001
Platelets (10^3/mm^3)	268 ± 57	107.7 ± 51.5	< 0.001
Albumin (g/dL)	4.2 ± 0.6	3.8 ± 0.5	0.009
ALT (U/L)	26.9 ± 22.2	74.1 ± 54.4	< 0.001
AST (U/L)	28.9 ± 12.2	93.4 ± 53.8	< 0.001
IL-6 (pg/mL)	0.3 ± 0.6	1.5 ± 3.7	0.048
IL-8 (pg/mL)	2.1 ± 2.8	6.5 ± 9.9	0.002
GM-CSF (pg/mL)	0.5 ± 1.1	0.5 ± 2.4	0.001
TNF-α (pg/mL)	0.4 ± 0.6	0.6 ± 2.0	NS

Data are expressed as mean ± SD. g/dL: grams per deciliter. U/L: units per liter. pg/mL: picograms per milliliter. NS: not significant.

004
USE OF RAPID SCREENING ASSAYS TO DETECT HCV CARRIERS IN A SOCIAL SECURITY FAMILY MEDICINE CLINIC IN MEXICO

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Background and aims. Hepatitis C virus (HCV) represents a global epidemic. In Mexico HCV prevalence is 1.4%. 50 to 70% of HCV carriers do not know they are sick, and that they have a high probability of evolving to chronic liver disease

and cirrhosis. Rapid antibody tests for HCV represent an important support for the detection of infected patients due to their high sensibility and specificity. The aim of this study was to evaluate de factibility of using rapid screening assays as a way to detect HCV carriers in waiting rooms of family medicine clinics. **Material and methods.** Descriptive, observational, prospective study carried in people between 18 and 75 years old, affiliated to social security system in Mexico, in the family medicine clinic #57, and having risk factors for HCV. The following risk factors were considered: blood transfusion before 1995, surgery before 1995, use of intravenous drugs, potentially contaminated needle exposure, first degree relative with hepatitis C or cirrhosis, high risk sexual activity and health worker. Candidates were surveyed with a questionnaire for risk factors. If they had risk factors, blood was obtained by digit puncture in order to perform a quick assay for hepatitis C OraQuick (OraSure Technologies, Inc). If HCV was detected, diagnosis was confirmed with third generation ELISA and patient was referred to the gastroenterology department for treatment. **Results.** 1,030 tests were performed (737 female and 293 males). Most of the patients aged between 40 and 60 years old. The most frequent risk factor identified was surgery before 1995 (56%), followed by use of potentially contaminated needle (41%), high risk sexual practice (31%), family history (20%), blood transfusion (14.8%), health worker (12%) and use of intravenous drugs (0.4%). Six patients having positive quick assays were identified, one of which was a false positive. **Conclusions.** Quick assays for HCV are useful and easy to screen population in a social security clinic.
No conflict of interest exist for any of the authors. OraQuick assays were provided by ROCHE.

005
DISTRIBUTION OF SNP RS 738409 OF PNPLA3 GENE AND ITS ASSOCIATION WITH METABOLIC SYNDROME IN MEXICAN POPULATION WITH CHRONIC HCV

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Introduction. Non-alcoholic hepatic steatosis in patients with chronic hepatitis C virus (HCV) accelerates the progression of hepatic fibrosis, reduce the viral response rate (VRR) and increase the incidence of hepatocellular carcinoma. Polymorphism on the patatin-like phospholipase-3 (PNPLA3) gene increases risk of steatosis and fibrosis progression in HCV infected patients. The PNPLA3 single nucleotide polymorphism (SNP) rs 738409 play as a genetic predictor for steatosis and fibrosis. This gene is located on the long arm of chromosome 22 at band 13.31 (22q13.31). It encodes a membrane protein with enzymatic activity and participates in the energy balance of adipocytes. **Objective.** To describe the SNP rs 738409 in PNPLA3 gene distribution in Mexican patients with chronic HCV, its response to treatment and association to metabolic syndrome. **Material and methods.** The blood of 85 subjects treated (ribavirin/pegylated interferon alfa-2α) for chronic HCV was analyzed. Clinical and biochemical data for metabolic syndrome were retrospectively collected. The polymorphism SNP Rs738409 in PNPLA3 gene was determined according to the following sequence GGAGATAAGGCCACTGTAGAAGGG[C/G]ATGGGAAGC AGGAACATCCAAGGCCT in genomic DNA obtained from peripheral blood mononuclear cells. Real-time PCR and PCR-dissociation curves (PCR-TR Light-Cycler v2) were used. **Results.** The prevalence of metabolic syndrome was 18% (n = 16). The most common cardiovascular risk factors in our population were hypoalphalipoproteinemia, hypercholesterolemia, overweight and obesity [n = 55, 42, 31, 19 (64.7%, 49.4%, 36.4%, 22.35% respectively)]. Carbohydrate metabolism alterations with prevalence of 37.6% (n = 32). The prevalence of genotype (GG) associated with the development of hepatic steatosis was 4.4% (n = 4). The GG and GC genotypes had better response kinetics at treatment week 12. The CC genotype carriers maintained a higher viral load. In overall, presence of this polymorphism did not modify the VRR. **Conclusions.** Hypoalphalipoproteinemia and weight problems were the most common risk factors. The data obtained suggest that SNP Rs738409 GG in PNPLA3 gene is rare and doesn't seem to alter the VRR. The SNP rs738409 must be assessed in open population to determine the true prevalence and impact in our population. The high prevalence of metabolic disorders could negatively impact the VRR in our population.
The author declares that there is no conflict of interest.

006
FACTORS ASSOCIATED WITH RESPONSE TO TREATMENT WITH PEGIFN AND RIBAVIRIN IN PATIENTS WITH HCV IN THE NORTHEAST OF MEXICO

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Introduction. HCV prevalence in the north of Mexico is 2%, treatment with Peginterferon and Ribavirin (PR) was the standard until 2011. Direct acting antivirals have improved sustained virological response (SVR) mainly in genotype 1 (GT1), but the availability in Mexico is very limited. **Objective.** Analyze factors associated with SVR or treatment failure (TF) with PR therapy in patients with chronic hepatitis C. **Materials and methods.** 71 patients treated with PR; GT1 n = 53, GTno-1 n = 18. Registered data: RNA-VHC, AST, ALT, BIL, ALB, ALP, GGT, GLU, Cr, INR, Hb, PLT, WBC, NEU; with follow-up at weeks 4, 12, 24, 48 y 72 of treatment; and significant differences between SVR and TF groups. **Results.** Age (53 ± 12), female gender [40(56%)] and BMI (26.9 ± 4.8) were comparable between groups ($p > 0.05$). Diabetes mellitus type 2 [6(8.4%)], cardiovascular disease [4(5.6%)], alcohol consumption [11(15.5%)] and use of IV drugs [8 (11.3%)] were not significant between groups ($p > 0.05$), nor in previous treatments: SVR 6% *vs.* TF 11%

Table 1 (006). Treatment response GT1 *vs.* GTno-1.

	SVR (%)	Relapse (%)	Breakthrough (%)	Partial response (%)	Null response (%)	Early discontinuation (%)
GT 1 (n = 53)	21 (40)	10 (19)	3 (6)	3 (6)	14 (26)	2 (4)
GTno-1 (n = 18)	13 (72)	2 (11)	1 (5)	0	2 (11)	0

(p = 0.67). GT1 was associated with TF (p = 0.02). Cirrhosis was associated with TF [SVR 3 (8%) *vs.* TF 10 (27%), p = 0.04]. In SVR group *vs.* TF group, lower baseline levels were found of AST (57 ± 29 *vs.* 96 ± 58, p = 0.001), ALP (86 ± 33 *vs.* 115 ± 69, p = 0.02), GGT (65 ± 89 *vs.* 110 ± 81, p = 0.05) and INR (1.06 ± 0.13 *vs.* 1.14 ± 0.16, p = 0.02), and higher baseline levels of ALB (4.2 ± 0.4 *vs.* 3.8 ± 0.5, p = 0.004), WBC (6.19 ± 1.9 *vs.* 5 ± 1.7, p = 0.009) and NEU (3.4 ± 1.3 *vs.* 2.5 ± 1.2, p = 0.008). Negative viral load by week of treatment: week 4 (SVR 26% *vs.* TF 3%), week 12 (SVR 56% *vs.* TF 16%), week 24 (SVR 56% *vs.* TF 24%) and week 48 (SVR 71% *vs.* TF 16%). **Conclusions.** There was a higher SVR in GT no-1 and a higher number of patients with null response in GT1 *vs.* GT no-1. Patients with GT1, cirrhosis, altered levels of AST, ALB, ALP, and GGT were associated with TF. Patients with higher WBC and NEW showed SVR. Comorbidities and previous treatments did not influence treatment response.

007
EFFICACY AND SAFETY OF PEGYLATED INTERFERON MONOTHERAPY IN THE TREATMENT OF CHRONIC HCV IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Background. Between 130-210 million individuals worldwide have chronic hepatitis C virus (HCVC); in Mexico the prevalence is estimated between 0.7 and 1.4 % for the general population and 8.4 % in patients with chronic kidney disease (CKD) on hemodialysis (HD) which means nearly 10 times the risk of the general population. The SVR rate in this group of patients globally does not exceed 40% with treatment discontinuation in 26% of adverse effects. **Objective.** To evaluate the sustained viral response (SVR) in patients with HCVC and CKD in HD HCVC of the Specialty Hospital National Medical Center XXI Century; secondary objectives were to assess demographic characteristics of patients and their clinical and biochemistry evolution and safety during antiviral therapy. **Material and methods.** A retrospective study including all patients with HCVC, CKD and replacement therapy of renal function with HD between January 1996 to November 2014 in a tertiary level of care was performed; who received antiviral treatment with pegylated interferon alfa monotherapy 2A (180 mcg/subcutaneous/week) for 24 or 48 weeks depending on genotype. **Results.** Twenty-eight patients with chronic hepatitis C virus without previous antiviral treatment, all under 60 years, 64% men were included and none had evidence of clinical, biochemical or transient elastography with liver cirrhosis ; 75% were carriers of genotype 1 (n = 21) , 17.8% genotype 2 (n = 5) and genotype 3 7.14% (n = 2) ; overall SVR rate was 57% (n = 16), only 1 patient (3.5%) discontinued treatment for a severe infectious condition, one patient had thrombocytopenia associated with use of interferon treatment setting without meriting suspension. **Conclusions.** In patients with HCVC in hemodialysis replacement therapy, pegylated interferon monotherapy at doses of 180 MCGR achieves an efficiency equivalent to that reported for dual therapy in patients without chronic kidney disease, with a good safety profile and tolerance.

008
TRIPLE THERAPY WITH PEGINTERFERON ALFA 2a, RIBAVIRIN, AND BOCEPREVIR IN PATIENTS WITH CHRONIC HCV ISSEMYM MEDICAL CENTER EXPERIENCE

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Introduction. In Mexico, the prevalent genotype in HCV infected individuals is type 1. Unfortunately, treatments based on interferon haven't had a satisfactory response in individuals infected with this genotype. The development and marketing of direct-acting antivirals has allowed a dramatic increase in sustained viral response (SVR) in these patients, thus preventing progression to complications such as cirrhosis and hepatocellular carcinoma. **Objective.** To describe 6 cases of HCV genotype 1 infection treated with triple therapy with boceprevir. **Material and methods.** Patients with HCV genotype 1 infection who finished treatment with triple therapy with boceprevir where included. Demographic, history or absence of pretreatment viral behavior were documented during treatment and results of determinations of IL28B when available. **Results.** We included 6 patients whose mean age was 51 years. 5/6 cases had high viral load (VL) (> 600,000 IU/mL) at the start of treatment. Average VL: 1,153,351 IU/mL. In the 8th week of treatment the VL was undetectable in 50% and in 100% at the end of treatment. Adverse effects during treatment included: cytopenias, fatigue, dizziness, weight loss, decreased appetite; drug dose adjustment was required in all patients. One case had a history of orthotopic liver transplantation requiring immunosuppressive therapy that required dose adjustment. **Conclusions.** Treatment with triple therapy achieved a SVR in 5/6 cases. Adverse effects occurred in 6/6 cases but were tolerable without the necessity to stop treatment. Drug interactions must be taken into account prior to the initiation of therapy, particularly in patients with liver transplantation.

Table 1 (008).

Age	Sex	Genotype	IL-28b	Baseline (U/mL)	VL VL12 (U/mL)	End of treatment	SVR	Status	Fibrosis
60	F	1b	NA	2,460,000	43,000	Undetected	Present	Virgin	NA
40	M	1a	NA	14,384	Undetected	Undetected	Present	Virgin	NA
34	F	1a	ND	602,000	Undetected	Undetected	Present	Nonresponder	NA
58	F	1a	CT	2,784,860	12	Undetected	Absent	Nonresponder	F4
50	F	1a	TT	599,665	Undetected	Undetected	Present	Virgin	F3
44	M	b	CT	1,001,000	Undetected	Undetected	Present	Relapse	F1

009
INFECTION DEMOGRAPHICS OF HCV USING RAPID TESTS

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Background. Currently, 170 million people worldwide are chronically infected with hepatitis C virus (HCV). In Mexico the reported prevalence is 1.4%. Groups at high risk of exposure to the virus may benefit from early detection, however remains controversial whether screening should be done in the rest of the population without risk factors. **Aims.** To determine the demographics of HCV infection through scrutiny through rapid tests (RT) in an open population, including the risk factors associated with the infection. **Material and methods.** A cross-sectional observational study was conducted using RT anti-HCV to test voluntary open population. The possible results were positive, negative or undetermined. The following variables: age, gender, occupation, risk factors for HCV infection and comorbidities were also study. The results are expressed as percentages, averages and medias. **Results.** We included 521 individuals, of whom 293 (56%) were women. Of the total study population 42% were health staff and the rest were patients attending the Gastroenterology consult for the first time, relatives of patients and people that request to be proof. The age range was 16 to 91 years, median 29 years, 80 were born between 1945 and 1964. Twenty one positive results were obtained, equivalent to 4% of the total population, 11 (52%) were born between 1945 and 1964. Two (9.5%) patients with positive results had no risk factors for HCV acquisition. In the rest intravenous drug use (14%) and blood-transfusion (76%) were found. **Conclusions.** In this study, we found a three times higher frequency of HCV compare to the reported in our country. It is also interesting that 9.5% of those infected had no risk factors identified. We consider important to extend this kind of studies to determine which patients should be screening in our country.

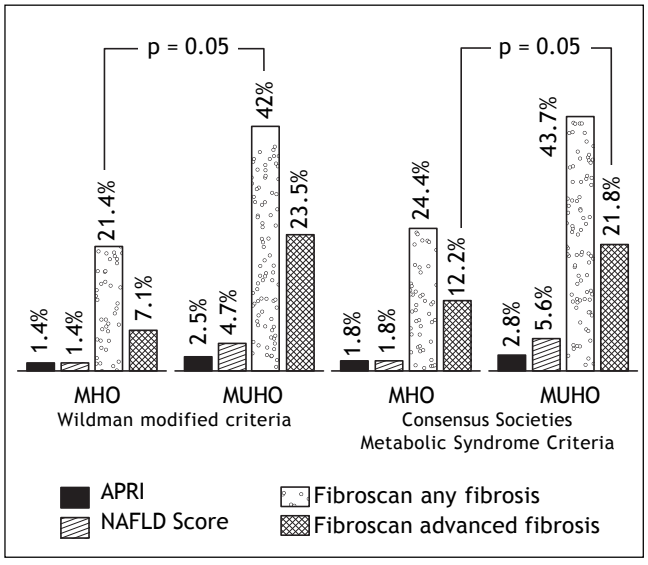

Figure 1 (001). MHO: metabolic healthy obese. MUHO: metabolic unhealthy obese.

CLINICAL RESEARCH-ALCOHOLIC AND NON ALCOHOLIC FATTY LIVER DISEASE

001
PREVALENCE OF LIVER FIBROSIS EVALUATED BY NONINVASIVE METHODS IN METABOLICALLY HEALTHY OBESE PATIENTS

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Background and aim. Obesity is a major cause of nonalcoholic liver disease (NAFLD). A phenotype of obese patients without metabolic syndrome comorbidities has been described, this patients are called metabolically healthy obese (MHO). The prevalence of liver fibrosis in MHO patients is unknown. The aim of this study was to determine the prevalence of liver fibrosis in MHO patients. **Material and methods.** A cross-sectional study nested in a clinical trial (NCT01874249) which evaluated 1,024 patients with NAFLD. The presence of liver fibrosis was assessed by NAFLD Score, APRI and Fibroscan® (150 patients). The MHO patient classification was performed using Wildman (W), Wildman Modified (WM), and metabolic syndrome consensus (MSC) criteria. Data were analyzed by Fisher exact test. **Results.** 428 obese patients were included, 84.6% were female, mean body mass index was 33.4 ± 3.2 kg/m^2. The prevalence of MHO patients for each criteria was W: 5.4%, WM 16.4% and MSC: 25.7%. Metabolically unhealthy obese patients classified by W criteria had a higher prevalence of liver fibrosis compared with MHO (42 *vs.* 21.4%), while MSC criteria, MHO patients had a higher prevalence of advanced fibrosis compared with metabolically unhealthy patients (12.2 *vs.* 21.8%) ($p < 0.05$) (Figure 1). **Conclusions.** According to classification criteria, MHO patients have less prevalence of hepatic fibrosis than metabolically unhealthy patients.

002
COMPARISON OF NONINVASIVE SCORES (APRI, FIB-4) AND EARLY FIBROSIS STAGES USING DIFFERENT HISTOPATHOLOGICAL CLASSIFICATIONS IN PATIENTS WITH NONALCOHOLIC STEATOHEPATITIS

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Background. Noninvasive models have been developed and approved for the prediction of hepatic fibrosis in patients with nonalcoholic liver disease (NAFLD). The aim of this study is to determine which of these models show a greater value for the prediction of early fibrosis stages using different histopathological classifications. **Material and methods.** The study included 39 hepatic biopsies with confirmed diagnosis of nonalcoholic steatohepatitis (NASH). Fibrosis stage was deter-

mined by an expert pathologist using the nonalcoholic liver disease activity score (NAS) and the Brunt classification. Early fibrosis was defined as fibrosis stage ≤ 2 in both classifications. The evaluated noninvasive models were AST/platelet index and FIB-4 index. **Results.** NAS reported 36 (92.3%) cases of early fibrosis (Ia, Ib, Ic, II) while the Brunt classification reported 35 (89.7%) cases in early stages I and II. APRI values showed a mean of 0.823 with a maximum of 2.61 and a minimum of 0.21. FIB-4 levels reported a mean of 1.79 with a maximum of 5.32 and a minimum of 0.52. Chi-square (χ^2) for the association of APRI with the stated fibrosis by NAS was 0.387 ($p = 0.009$) and by Brunt was 0.415 ($p = 0.45$). The χ^2 for the association of FIB-4 and fibrosis stated by NAS was 0.396 ($p = 0.74$) and FIB-4 with fibrosis by Brunt was 0.610 ($p = 0.223$). **Conclusion.** The noninvasive model APRI has a significant association with early fibrosis stages using NAS and Brunt classification. On the other hand, FIB-4 shows a poor performance when associating with the reported fibrosis by both histopathological classifications.

003
BILE ACIDS METABOLISM AND GUT MICROBIOTA IN PATIENTS WITH NON ALCOHOLIC FATTY LIVER

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Background. Non-alcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver disease. It has been suggested that bile acids (BA) modulate several metabolic pathways that regulate glucose, lipid, and energy homeostasis and in the other hand we know that microbiota can induce alterations in BA metabolism. **Objective.** The aim of this study was to investigate if there are differences in bile acids and microbiota composition between NAFLD patients and healthy controls. **Material and methods.** We studied 40 NAFLD patients diagnosed by ultrasound and 40 healthy controls, of both gender (24 women and 56 men) and age between 20 to 75 years old. Clinical, anthropometric and biochemical data were collected. Total and fractionated BA were determined by mass spectrometry and proteins expression quantified by ELISA assay and microbiota was determined by pyrosequencing. We also evaluated cytokeratin-18, 7α-hydroxylase and 27α-hydroxylase. **Results.** Media ± SD value of biochemical and anthropometric data in control and NAFLD group were as follows: BMI (25.47 ± 2.97 *vs.* 27.76 ± 4.88), glucose (91.17 ± 6.21 *vs.* 101.35 ± 21.27), ALT (23.8 ± 9.3 *vs.* 33 ± 18.17), AST (25.5 ± 5.2 *vs.* 29.12 ± 10.78), triglycerides (161.89 ± 100.4 *vs.* 210.42 ± 144.55), HOMA-IR (1.16 ± 0.56 *vs.* 1.84 ± 1.21); all this were significant ($p \leq 0.05$). Cholesterol (212.8 ± 43.0 *vs.* 204.77 ± 41.49) and LDL (131.6 ± 36.6 *vs.* 119.42 ± 38.69) were not different. Bile acids, protein expression and microbiota quantification in NAFLD patients and healthy controls are showed in table 1. **Conclusion.** We did not find significant differences in bile acids composition and microbiota between NAFLD patients and healthy controls. Cytokeratin-18 and enzymes involved in bile acid synthesis were different between groups.

004
EVALUATION OF THE ANTIOXIDANT BARRIER AND OXIDATIVE STRESS MARKERS IN PATIENTS WITH NONALCOHOLIC HEPATIC STEATOSIS

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Background. Nonalcoholic fatty liver disease (NAFLD) is a global health problem that affects 35% of the Western population. Begins with the accumulation of fatty acids or steatosis (E), progressing to inflammation, fibrosis and hepatocellular carcinoma. Reactive oxygen species (ROS), oxidative stress (OXS) and changes in antioxidant barrier have been proposed as potential mechanisms involved in NAFLD, suggesting their study in early and progression stages. **Aim.** Determine the involvement of oxidative stress and antioxidant barrier changes in patients with hepatic steatosis. **Material and methods.** Anthropometric and biochemical data, as well as serum samples, from 20 healthy volunteers as a control group (Ctl) and 20 patients with E (diagnosed by ultrasound) were collected from the CIDyT-Medica Sur Clinic and Foundation, Mexico,

Table 1 (003). Quantification of bile acids, protein expression and microbiota.

	Healthy control n = 40 Media ± SD	NAFLD n = 40 Media ± SD	p value
Bile acids (μmol/L)			
Cholic acid	1.7 ± 0.9	1.7 ± 0.5	0.80
Chenodeoxycholic acid	1.9 ± 1.2	2.1 ± 0.9	0.32
Deoxycholic acid	1.5 ± 0.2	1.5 ± 0.1	0.87
Total bile acids	4.9 ± 1.4	5.3 ± 1.3	0.27
Protein expression			
Cytokeratin 18 (CK-18) (U/L)	373 ± 0.01	393 ± 0.01	0.0001
7α-hydroxylase (pg/mL)	442 ± 0.2	369 ± 0.2	0.0001
27α -hydroxylase (ng/mL)	0.15 ± 0.04	0.27 ± 0.08	0.0001
Microbiota (relative abundace)			
Bifidobacterium	0.09 ± 0.03	0.06 ± 0.01	0.385
Akkermansia	0.13 ± 0.07	0.10 ± 0.03	0.624
Bacteroidetes	11.1 ± 0.65	11.5 ± 0.61	0.675

T-student test

Table 1 (005).

(n)	Normal (21)	BMI (94) Overweight (44)	Obesity G1 (23)	Obesity G2 (6)
Sex, M/F	17/4	44/0	20/3	3/3
IGFBP3	705 ± 157	835±382	912±353	1383±523

We found significant differences between Normal and Obesity Grade I (p = 0.052), Normal and Obesity Grade II (p <0.000) group and difference between Overweight and Obesity Grade I (p < 0.000) and Obesity and Obesity Grade I found II (p = 0.004).

D.F. Enzymatic activity of superoxide dismutase-1 (SOD-1) and catalase (CAT), as well as ROS (H_2O_2), lipid peroxidation (Lpx) and cell death (CK-18) levels were assessed by spectrophotometric techniques. Data were analyzed with T-Student statistical test. **Results.** The E group presented higher levels of glucose, triglycerides, liver enzymes, overweight and BMI in comparison with baseline values of Ctl group. A significant increased (P < 0.05) of H_2O_2 concentration (10%), cell death (15%) and Lpx (20%) were observed in E group *vs.* Ctl group. SOD-1 and CAT activity remained unchanged for both groups. **Conclusion.** The presence of ROS and OXS markers in early stages of NAFLD identified suggest the involvement of these mechanisms in the development and progression of the disease.

The authors declare no conflict of interest.

005
RELATION BETWEEN IGFBP-3 AND BMI ON BLOOD DONORS

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Background. Overweight and obesity are a growing epidemic that is associated with insulin resistance, increased risk of NAFLD, being a common condition that affects 25% of people in the world. IGF-1 is produced by hepatocytes and is modulated by binding proteins insulin-like growth factor type (IGFBPs), mainly by the IGFBP-3, which is an anti-inflammatory molecule. **Objective.** To evaluate the levels of IGFBP-3 according to body mass index (BMI); normal weight, overweight and obese subjects. **Material and methods.** Blood donors of General Hospital of Mexico, who signed informed consent, were included. The IGFBP-3 levels were quantified in serum by Luminex (Biorad) technology and orthogonal ANOVA analysis was used to determine differences between groups. **Conclusions.** The IGFBP-3 in previous studies is considered a potential biomarker of non-alcoholic fatty liver disease. Our results demonstrate that a higher BMI, the concentration of IGFBP-3 is greater. Levels of this protein may be involved in the development of NAFLD.

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006
INSULIN RESISTANCE AND METABOLIC SYNDROME IN PATIENTS WITH ADVANCED FIBROSIS WITH NON ALCOHOLIC STEATOHEPATITIS ACCORDING TO NAFDL SCORE AND FIB 4

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Background. Non-Alcoholic Fatty Liver Disease (NAFLD) is an entity difficult to diagnose so clinical scales have been developed to determine the probability of advanced fibrosis (F3-F4) with a PPV 90%, such as NAFLD score (AUROC 0.88), FIB-4 (AUROC 0.80). Insulin resistance as part of the pathophysiology for the development of steatosis and fibrogenesis, and the hallmark of the metabolic syndrome, which can identify patients at risk of liver disease and insulin resistance (HOMA-IR > 2.0). **Objective.** Identify patients with advanced fibrosis by applying scales NAFLD score, FIB-4 in patients diagnosed with Fatty Liver by ultrasound, and the presence of insulin resistance and metabolic syndrome. **Material and methods.** NAFLD score scales and FIB-4 were applied in patients into gastroenterology department at Hospital Juarez of Mexico from January 2014 to January 2015, in which secondary hepatic steatosis was discarded and values corresponding to advanced fibrosis (FIB 4 > 2.67, NAFLD score > 0.675). HOMA index and measuring waist circumference, HDL, triglycerides, impaired glucose metabolism, hypertension for diagnosis of metabolic syndrome was determined. **Results.** 60 patients with hepatic steatosis, of which 65% were women and 35% men, mean age 47 and 46.9 years respectively, were resistant to insulin 88.3% and 53.3% metabolic syndrome, obesity or overweight in 95% (55 and 40% respectively), the presence of steatohepatitis according to FIB 4 in 13.3% NAFLD score in 15%, and of these with HOMA > 2 in 87.5 and 77.8% and metabolic syndrome in 37.5 and 55.6% respectively. **Conclusions.** In patients with NAFLD are currently clinical tools that guide us to the presence of advanced fibrosis, so that failure to comply with 3 criteria for diagnosis of metabolic syndrome does not exclude the presence of insulin resistance, therefore FIB-4 and NAFLD score and HOMA IR scores, must be applied in patients with hepatic steatosis and overweight or obese.

Table 1 (007). Clinical differences according to alcohol consumption.

Variable	Overweight FLD (n = 213)	Mixed FLD (n = 65)	P-value
Weight (kg)	84.54 ± 13.24	89.85 ± 12.99	0.005
Height (m)	1.69 ± 0.8	1.73 ± 0.6	0.001
Hip waist index	0.94 ± 0.064	0.97 ± 0.58	0.002
ALT	37.15 ± 23.03	46.35 ± 34.52	0.01
AST	29.59 ± 11.62	40.04 ± 56.55	0.01
Frammingham score	8.4 ± 6.7	11.15 ± 9.03	0.01
APRI score	0.35 ± 0.17	0.50 ± 0.61	0.001

007
ALCOHOL CONSUMPTION AND CARDIOVASCULAR RISK IN PATIENTS WITH FATTY LIVER DISEASE

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Backgrounds and aim. Fatty liver disease (FLD) is considered the hepatic manifestation of metabolic syndrome, and it is associated with a higher cardiovascular risk, however the effect of the synergy with alcohol consumption is unknown. The aim of this study is to describe if cardiovascular risk is affected by alcohol consumption in patients with FLD. **Material and methods.** Patients that assisted to a diagnosis and treatment center with body mass index (BMI) > 25 kg/m^2 were evaluated between October 2010 to December 2012. FLD was diagnosed by hepatic ultrasound. An alcohol consumption questionnaire was applied to classify patients according to the total grams of alcohol consumed: < 140 g/week (overweight FLD) and > 140g/week (mixed FLD). Framingham score was used to evaluate cardiovascular risk using demographic, clinical and biochemical variables. Data were analyzed by student *t* Test and Fisher exact test. **Results.** 278 patients were included with a mean age of 45.1 ± 8.5 in the overweight FLD group and 45.3 ± 7.7 in the mixed FLD group. Both groups showed a male predominance. In the mixed FLD the mean grams of alcohol consumed were 290.4 ± 174.35 g/week. Factors associated to chronic hepatic damage were higher in the mixed FLD group (Table 1). Framingham score was significantly higher in the patients from the mixed FLD group (8.4 ± 6.7 *vs.* 11.2 ± 9.0, p = 0.01) with an increased probability of a higher ten-year cardiovascular risk compared to overweight FLD patients (OR 2.63; 95%CI 1.14-6.06, p = 0.02). **Conclusions.** Alcohol consumption > 140 g/week increases significantly the cardiovascular risk in patients with FLD and BMI > 25 kg/m.^{2}

008
ACUTE KIDNEY INJURY AS A PREDICTOR OF MORTALITY IN PATIENTS WITH SEVERE ALCOHOLIC HEPATITIS

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Background. Alcoholic hepatitis is a major cause of death and the third cause in Mexico. Recent studies show that acute renal failure is a major risk factor contributing independently of patient mortality. The AKIN classification (Acute Kidney Injury Network) is based on the appearance of new epidemiological data showing an increase of 80% in mortality risk with minimal changes in serum creatinine of 0.3 to 0.5 mg/dL. **Aim.** Identify acute kidney injury as predictor of mortality in patients with severe alcoholic hepatitis. **Material and methods.** Patients admitted to the Gastroenterology Department between January 2013 and January 2015 with diagnosis of severe alcoholic hepatitis, which was established by clinical and laboratory criteria, which in previous series have already proved their reliability without liver biopsy. Type of study: retrospective, cross-sectional. Variables analyzed: gender, age, baseline serum creatinine, serum creatinine at 48 h of hospitalization, overall mortality at 30 and 90 days and by type of renal injury. Statistical analysis: the results were analyzed with descriptive measures of central tendency for obtaining the mean, median, percentages. **Results:** In the 2-year period 98 patients with this diagnosis, of whom 59 had acute kidney injury were entered. The 27.11% of these patients developed AKIN type 1, type 2 42.37% and 30.50% type 3. The mortality rate at 30 days was 77.96% and 91.51% at 90 days, type 3 showed the worst prognosis with 100% mortality at 30 days. **Conclusions:** Our study showed that renal impairment is a critical event in the survival of patients with alcoholic hepatitis. The AKIN classification is useful for predicting short-term mortality. Strategies to prevent acute kidney injury should be considered in the initial treatment of patients with severe alcoholic hepatitis.

009
CLINICAL UTILITY OF THE RANGE OF RDW AS MARKER OF FIBROSIS IN NAFLD

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Background. The condition of nonalcoholic fatty liver disease (NAFLD) has effects over 30% of the population in developed countries and is considered the hepatic manifestation of the metabolic syndrome. The red cell distribution width (RDW) is a newly recognized risk marker in patients with cardiovascular disease, but its role in NAFLD has not been well defined. **Objective.** To determine existence of association between RDW and fibrotic stage in NAFLD fibroscan. **Material and methods.** A retrospective study conducted in the Hospital Juarez de Mexico from January to December 2014. We included 51 patients with suspected NAFLD. Transient elastography (TE) was performed as an alternative to liver biopsy for diagnosis of NASH. The diagnosis was based on the following criteria: elastography presence of fat infiltration > 10% and mild (F0-F2) and advanced fibrosis (F3-F4) was expressed in kPa. RDW values were collected and correlated with the fibrotic stage determined by ET. Pearson rank correlation coefficient *(r)* were used to correlation between RDW and fibrotic stage. **Results.** Of 52 patients, the mean age of

patients was 44 years, with a range of 11-82 years. There were 17 men and 34 women, where 43.2% were advanced stage of fibrosis and 56.8% for mild fibrosis stage. RDW values reported (11.8-20.8) with an average of 13.99. In Pearson correlation analysis there was significant correlations between RDW and fibrotic stage. This reached statistically significance such that Pearson's correlation coefficients were $r = 0.305$ and $p = 0.029$. **Conclusions.** The relationship between RDW and the advanced fibrotic stage was determined by correlation with $r = 0.305$ and p = 0.029, thus having this ratio is directly proportional to increased levels of RDW with fibrotic stage with statistical significance for the sample size. It means that in care centers in our country could be a useful tool in preventing application on NAFLD.
The authors declares that there is no conflict of interest.

CLINICAL RESEARCH-LIVER CIRRHOSIS

001
CYANOACRYLATE FOR ESOPHAGEAL AND GASTRIC VARICES IN PATIENTS WITH CIRRHOSIS. SYSTEMATIC REVIEW AND META-ANALYSIS

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Background and aims. Cyanoacrylate has been studied for the management of the spectrum of gastro esophageal varices. However, its efficacy and rate of adverse events are important concerns. The aim of this study was to compare the benefits and harms of cyanoacrylate in the treatment of gastro esophageal varices. **Material and methods.** The research was conducted at The Cochrane Central Register of Controlled Trials (CENTRAL) and on MEDLINE up to 2014. Randomized clinical trials comparing the use of cyanoacrylate versus other methods for acute bleeding, primary and secondary prophylaxis in cirrhotic patients were included. Data were analyzed using odds ratios (ORs) and 95% confidence intervals. Significant heterogeneity was considered at a P value ≤ 0.10 (χ^2) or $I^2 > 25\%$. **Results.** Twelve randomized clinical trials were included. For acute bleeding, cyanoacrylate achieved better rates of hemostasis (RR 1.09; IC95% 1.01-1.19), with less mortality (OR, 0.63; 95% CI, 0.43-0.91), bleeding-related mortality (OR, 0.41; 95% CI, 0.22-0.74), and rebleeding (OR 0.52; IC95% 0.38-0.71) compared with other endoscopic methods for any type of varices. For gastric varices, cyanoacrylate yielded less rebleeding (RR 0.53; IC 95% 0.34-0.78) than band ligation. For esophageal varices, cyanoacrylate produced less mortality (OR, 0.53; 95% CI, 0.29-0.97) and rebleeding (OR, 0.46; 95% CI, 0.24-0.88) than sclerotherapy. For secondary prophylaxis, cyanoacrylate showed more adverse events than other methods. For primary prophylaxis, cyanoacrylate showed less acute variceal bleeding episodes (10 *vs.* 38%) and less bleeding- related mortality (0 *vs.* 10%). **Conclusion.** For acute variceal bleeding, cyanoacrylate reduced rebleeding episodes, and exhibited a high hemostasis rate. Additional trials are necessary to support these data.

002
ANTIBIOTICS FOR SPONTANEOUS BACTERIAL PERITONITIS IN CIRRHOTIC PATIENTS; SYSTEMATIC REVIEW AND META-ANALYSIS

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Background and aim. Spontaneous bacterial peritonitis (SBP), a complication in cirrhotic patients occurs in the absence of any intra-abdominal source of infection. Antibiotic therapy should be initiated to avoid severe complications and death. Third generation cephalosporins are the current standard treatment. The aim of this study is to compare the difference in mortality, no resolution of SBP, and side effects on different groups of antibiotics. **Material and methods.** Electronic search was performed in *The Cochrane Hepato-Biliary Group Controlled Trials Register*, the *Cochrane Central Register of Controlled Trials (CENTRAL)* in *The Cochrane Library, MEDLINE, EMBASE,* and *Science Citation Index EXPANDED* until December 2014. References of all identified studies were hand searched. Randomized studies comparing different types of antibiotics for SBP in cirrhotic patients were includ-

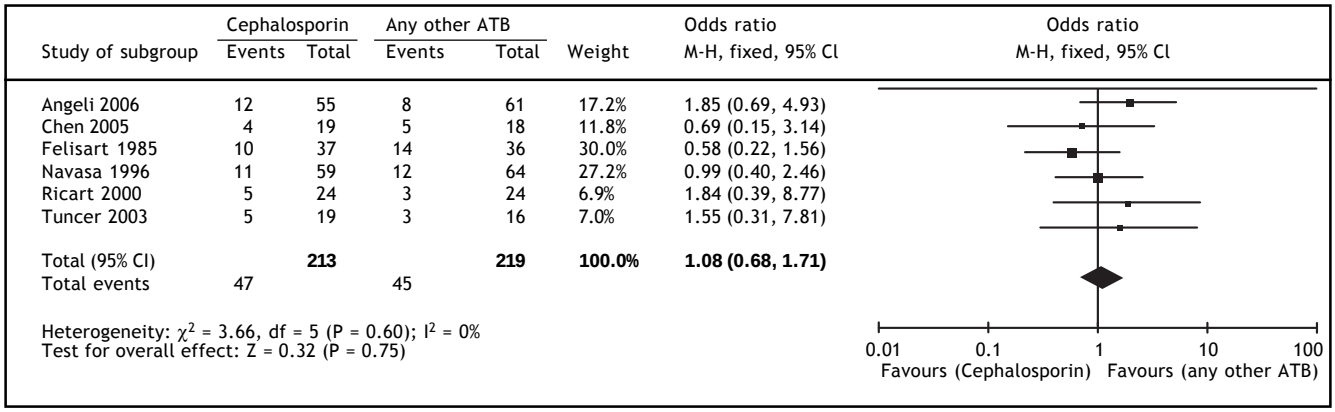

Figure 1 (002). Mortality: third generation Cephalosporin vs. any other ATB (quinolone, aminoglycoside, penicillin or carbapenem).

ed. Data were extracted by two different authors, and risk of bias was analyzed by three authors. **Results.** Fifteen studies were included, meta-analysis was performed on three groups of antibiotics comparing cephalosporin *vs.* A) quinolone, B) aminoglycoside, and C) any other antibiotic. No significant difference was observed on mortality comparing cephalosporines *vs.* any group using 274 patients in group A, 110 patients in group B, and 432 in group C. Difference on resolution of SBP was only statistical significant *vs.* aminoglycoside (Peto OR 0.33, 95% CI 0.11 to 0.94 p = 0.04) and show no difference on group A and C. No significant difference was observed on side effects in any group. **Conclusions.** Available information cannot support any specific antibiotic regimen for treatment of SBP in patients with cirrhosis.

003
SELECTIVE VASOPRESSIN TYPE 2 RECEPTOR ANTAGONIST FOR PATIENTS WITH CIRRHOSIS; SYSTEMATIC REVIEW AND META-ANALYSIS

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Background and aim. The presence of ascites indicates decompensation in cirrhotic patients, increasing mortality. Inhibitors of the selective vasopressin type-2 receptors (ARV2) represent an option for ascites refractory to standard treatment. The aim of this study is to assess the benefits and harms of ARV2 in this scenario. **Material and methods.** Electronic search was performed on the Cochrane Central Register of Controlled Trials, The Cochrane Library, MEDLINE, EMBASE, Science Citation Index EXPANDED and Cochrane Hepato-Biliary Group Controlled Trials Register until April 2014. Trials comparing ARV2 against placebo to manage ascites in cirrhotic patients were included. Two authors independently extracted data, and assess bias risk. **Results.** Eleven randomized clinical trials including 1,940 patients were included. The primary outcomes were all-cause and disease-specific mortality, liver transplantation and adverse events. Meta-analyses showed no significant difference in effect between an ARV2 and placebo on all-cause mortality 22 *vs.* 16% (OR 1.27, 95% CI 0.99 to 1.62, I^2 = 12%); disease-specific mortality 17 *vs.* 12% (OR 1.27, 95% CI 0.94 to 1.70, I^2 = 0%), liver transplantation 5.2 *vs.* 5.5% (OR 0.93, 95% CI 0.56 to 1.52, I^2 = 0%); total adverse events 83 *vs.* 80% (OR 1.19, 95% CI 0.92 to 1.53, I^2 = 36%). However, ARV2 significantly decreased body weight (MD -1.53 kg, 95% CI -1.99 to -1.07, I^2 = 0%) and significantly increase serum sodium (MD 2.52 mmol/L, 95% CI 1.94 to 3.11, I^2 = 64%). **Conclusions.** This meta-analyses showed no benefit of ARV2 in mortality or liver transplantation, and even though ARV2 improve ascites and serum sodium, this may not be clinical important.

004
PORTAL VEIN THROMBOSIS IN PATIENTS WITH LIVER CIRRHOSIS: A FINDING OR A MARKER OF WORSE PROGNOSIS?

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Introduction. The diagnosis of portal vein thrombosis (PVT) has been associated with increased gastrointestinal bleeding and bowel infarction. It is unclear whether the portal vein thrombosis unrelated to malignancy is associated with reduced survival, or is an epiphenomenon of advanced liver disease. **Objective.** The objective of this study was to assess clinical outcome in cirrhotic patients with PVT not associated with malignancy and its prevalence. **Material and methods.** Retrospective Search diagnosed with "liver fibrosis and cirrhosis" or "other cirrhosis" between June 2011-December 2014 in one center (Hospital Universitario, UANL). **Results.** 169 patients, 55 women and 114 men, mean age 54.43 ± 12.75. 13 had PVT (7.6%). It was divided into 2 groups, patients with PVT and Non-PVT. The PVT group was younger (46.7 *vs.* 55.1 years p = 0.025). The predominant etiology was alcohol. Child A patients were more frequent in PVT and Child C in Non-PVT. Mean MELD score was lower in PVT (11.54 ± 5.06 *vs.* 19.72 ± 8.26 p = < 0.001). The prothrombin time, partial thromboplastin time, INR and indirect bilirubin were also lower in PVT. Platelets was higher in patients PVT

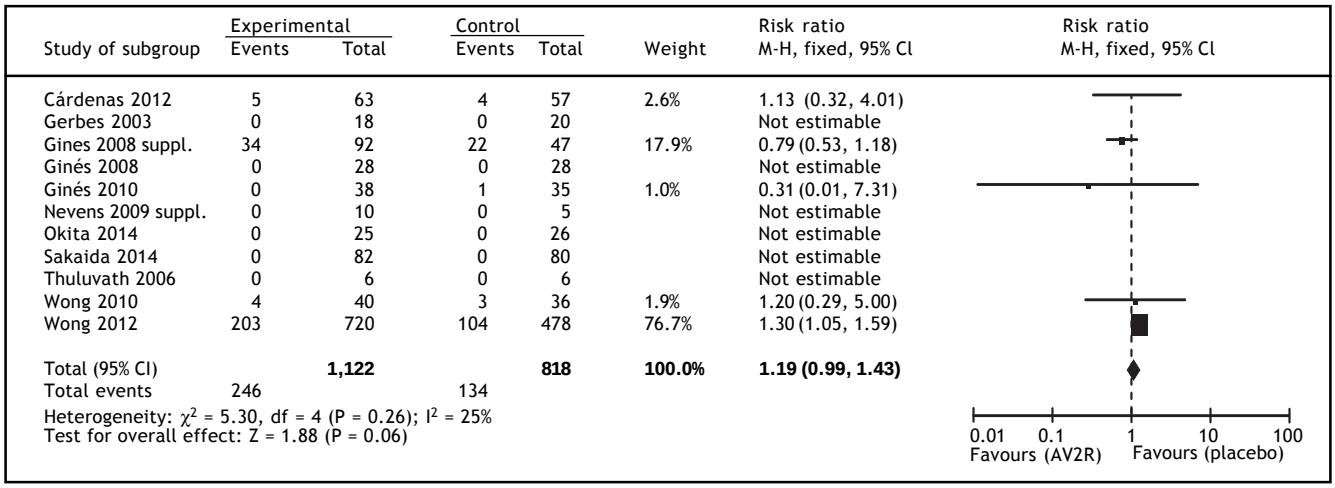

Figure 1 (003).

(182.3 ± 80.4 *vs.* 121.4 ± 75.3 p = 0.003). None of the patients received anticoagulant treatment. There was no difference between upper gastrointestinal bleeding (UGB) and spontaneous bacterial peritonitis (SBP) in the groups. Encephalopathy (grade 3-4) requiring hospital treatment (46.7 *vs.* 30.7 % p = 0.007) and large volume ascites (57 *vs.* 38.4% p = 0.012) was more common in Non-PVT. Survival was better for PVT (16.5 ± 27.9 *vs.* 4.13 ± 12.2 months p = 0.005). The only predictor of mortality after multivariate analysis was the Meld score (HR 1,155, CI-95%, 1,098-1,215, p = < 0.001). **Conclusion.** This is the first study reporting the prevalence of PVT in Mexico. We found that PVT itself does not lead to a worse prognosis. The most reliable predictor for clinical outcome remains the MELD score. The presence of PVT could be just an epiphenomenon and not a marker of advanced liver disease.

005
MANAGEMENT OF HEPATIC CIRRHOSIS SECONDARY TO STEATOHEPATITIS WITH VITAMIN E-PENTOXIFYLLINE-METFORMIN PILOT STUDY

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Background. Steatohepatitis is a public health problem in Mexico and the world, and it is an etiological factor increasingly frequent of liver cirrhosis. It is estimated that by 2025 could be the leading cause of cirrhosis in Western countries and the world. **Objective.** Assess whether the use of pentoxifylline-metformin-vitamin E is an alternative to treat these patients versus change of lifestyle and Sitagliptin. **Material and methods.** This pilot clinical trial was realized in the gastroenterology service of Valentín Gómez Farías Hospital in Zapopan, Jalisco over a period of six months. Twenty-nine patients participated and they were divided into two groups. The experimental group with a total of 14 patients received 800 mg pentoxifylline orally, every 24 h + 850 mg metformin orally, every 24 h + 400 U of vitamin E orally, every 24 h, meanwhile, the control group with 15 patients received lifestyle changes based on 150 min per week of anaerobic exercise + diet of 1,500 kilocalories + Sitagliptin 500 mg orally, every 24 h. The disgnotic was made based on serological, biochemical, molecular, endoscopic, ecosonography, and body mass index, glucose, cholesterol, and PCR. Biopsy was not realized because the obtained clinical data showed the diagnosis. **Results.** All patients were in Child A classification; the average age of the experimental group was 62 ± 11, and the control group was 64 ± 10. No significant difference was found in the progression of Child (p > 0.005). The experimental group presented INR. 1.0, cholesterol: 159 mg/dL, AST: 26 mg/dL, and ALT: 24 mg/dL, while the control group showed INR: 1.10, cholesterol: 188 mg/dL, AST: 34 mg/dL, and ALT: 26 mg/dL. There was no significant difference in adverse effects between both groups. **Conclusions.** The pilot test showed that the use of pentoxifylline-metformin-vitamin E is equally effective as the use of changing lifestyle and diet for 6 months. Therefore, studies of larger and long term are suggested to know its actual effectiveness.
The authors declares that there is no conflict of interest.

006
ENDOSCOPIC BEHAVIOR OF PATIENTS WITH SEVERE HYPERTENSIVE GASTROPATHY TREATED WITH LONG-ACTING OCTREOTIDE IN COMPARISON WITH PROPANOLOL- PILOT STUDY

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Background. Hypertensive gastropathy is a complication in cirrhotic patients resulting from the increase of pressure in porta hepatic system, is a common cause of chronic and severe bleeding. It is estimated that 70-80% of cirrhotic patients develop hypertensive gastropathy. The treatment used in these patients is propranolol. However, there have been few studies with other treatments. **Objective.** Evaluate endoscopic response in patients with severe hypertensive gastropathy treated with long-acting Octreotide against Propanolol. **Material and methods.** For this pilot clinical trial were evaluated 22 patients in six months, 11 for the control group and 11 for the study group. Which were diagnosed with liver cirrhosis by endoscopic, histological, ecosonography, biochemical, serological and molecular studies; and prior to informed consent, the study group was administered 20 mg of long-acting Octreotide intramuscular single dose, while control group with 40 mg propranolol every 12 h, adjusting for dose response were conducted begin endoscopy and at 2 months of treatment. Patients were staged by Child Pugh classification and valued by parametric tests such as T student and Mann-Whitney. **Results.** It was observed that in the group treated with Octreotide was a change of severe gastropathy to moderate Gastropathy in 100% of patients, with a significant decrease in the size of esophageal varices. While in the propranolol-treated group there was a decrease in 37% of patients with moderate to severe gastropathy. **Conclusions.** Given the improvement with long-acting octreotide , which was well tolerated by patients and observed the changes of severe Gastropathy to moderate Gastropathy in all patients with a decreased in the size of esophageal varices two months after the treatment, consider the Octreotide as an alternative treatment for severe hypertensive gastropathy in patients with contraindications to beta-blockers. Therefore we suggest multicenter randomized studies to know its real effectiveness.
The authors declares that there is no conflict of interest.

007
MAIN CAUSES OF HOSPITAL READMISSIONS AMONG DECOMPENSATED CIRRHOTIC PATIENTS AT HGZ NO. 1 IMSS

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Background. Cirrhotic patients are a vulnerable group to several comorbidities that decompensate their medical condition. There is no substantial evidence in our country to establish the main causes of hospital readmission among decompensated cirrhotic patients. **Objective.** To establish the main causes of hospital readmission among decompensated cirrhotic patients at our Center and compare them versus the main causes stated in literature. **Material and methods.**

Observational, cross-sectional, descriptive and retrospective study. Realized at Internal Medicine and Gastroenterology services of HGZMF No. 1 IMSS Pachuca, Hidalgo, Mexico from January 2012 to August 2014. We applied a data collection card to gather patient's information and to evaluate their causes of hospital readmission within the first month and six months after discharge. We used SPSS for descriptive statistics. **Results.** We studied 77 decompensated cirrhotic patients readmitted at our Center. Of all of patients, 20 of them were Child-Pugh A (25.97%), 33 were Child-Pugh B (42.85%) and 24 were Child-Pugh C (31.16%). The main causes of hospital readmission within the first month after discharge were hepatic encephalopathy (56.25%) and variceal bleeding (43.75%). Hepatic encephalopathy still led hospital readmissions after six months of discharge (42.85%), followed by variceal bleeding (22.07%), infections (11.68%), ascites (11.68%) and jaundice (11.68%). **Conclusions.** Hepatic encephalopathy is the main cause of hospital readmission among decompensated cirrhotic patients at our Center, both within the first month and six months after discharge. Other causes are as followed: variceal bleeding, infections, ascites and jaundice. We suggest to be performed other studies in Centers of our country to validate our findings.

008
PORTAL HYPERTENSION WITH DEVELOPMENT OF DUODENAL VARICES AND SUCCESSFUL ENDOSCOPIC TREATMENT WITH INJECTION OF CYANOACRYLATE

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Introduction. Duodenal varices have a mortality rate as high as 40% in the first episode of bleeding. The studies that exist until today include small series of cases, without clinical trials that allow to sustain which is the best therapy. Cyanoacrylate is a monomeric tissue adhesive that immediately forms a solid polymer in contact with blood. In previous series of cases, 100% of the patients with duodenal variceal bleeding that were treated with cyanoacrylate injection had a good response. **Aim.** To describe the experience about the endoscopical management of patients with duodenal varices in the Mexico's General Hospital. **Material and methods.** Series of cases that describes the characteristics of hospitalized patients in the last 3 years because of acute duodenal variceal bleeding, who were successful treated with cyanoacrylate injection. **Results.** A total of 4 patients, 3 men and 1 woman; of them, 2 with alcoholic liver cirrhosis, one case of portal hypertension due to portal thrombosis secondary to proteins C and S deficit, and one case of splenic vein thrombosis due to pancreatitis. The cirrhotic patients with history of endoscopic band ligation of esophageal varices with erradication. All of them treated with cyaoacrylate injection into duodenal varices at a dose of 0.5 mL mixed with polyglycanol 0.8 mL without complications. Only 1 patient had bleeeding recurrence and need a second cyanoacrylate injection 2 months and 6 months later. **Conclusions.** The endoscopic treatment with cyanoacrylate injection is technically feasible and effective.

009
SARCOPENIA IN PATIENTS WITH LIVER CIRRHOSIS AND PORTAL HYPERTENSION OF THE INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN

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Background. Loss of skeletal muscle mass (SMM) is an adverse event that affects prognosis, and Quality of Life of Patients with liver cirrhosis (LC). Sarcopenia is the syndrome characterized by gradual and widespread loss of SMM, strength and functional capacity. Series of patients published about this syndrome in LC are still limited in Mexican population. **Objetive.** To asses the prevalence of sarcopenia in patients with LC and portal hypertension at the INCMNSZ. **Material and methods.** Cross-sectional study in 105 patients with LC was conducted from February 2012 to November 2013. SMM was estimated by bioelectrical impedance (BIA), bicipital and tricipital skinfold, BMI, and measurement of muscle strength (MS), it was classified as diminished when MS < 30 kg/f in men and < 20 kg/f in women. The SMM was calculated with Rangel, *et al*. equation for Mexican population (2014), the grade of depletion was classified as severe, moderate and normal. Sarcopenia diagnosis was made considering both MS and SMM according to The European Working Group on Sarcopenia on Characters in the Elderly. **Results.** 60% were women. Main etiologies were HCV, idiopathic LC, alcohol and PBC. Mean age was 57.03 ± 12.82 years old and major comorbidities were: DM2, hypertension, hypothyroidism and obesity. Average BMI was 27.83 ± 5.26 kg/m^2. Mean percentage of fat mass for men and women was 30.44% ± 6.1 *vs*. 37.6 ± 6.9% and 69.55% ± 6.1 *vs*. 62.3 ± 6.9% for fat free mass, respectively. The average MS was 23.71 ± 7.26 kg/f for men and 12.56 ± 5.46 kg/f for women. 40.4% of men and 50% of women presented diminished MS. The depletion in SMM was severe in 62.9% of patients, moderate in 25.7% and normal in 11.4%. Considering both, the SMM and the MS, the prevalence of sarcopenia was 74.6% (50.7% was severe) and 25.4% pre-sarcopenia. **Conclusions.** Sarcopenia in LC is highly prevalent (74.6% in this population) and is often underestimated. It is important to make an early assessment and treatment, due this entity is related with a decrease of the quality of life, comorbidities and complications.
The authors declare that there is not conflict of interest.

Table 1 (008).

Patient	Age (years)	Sex	Etiology of portal hypertension	Previous esophageal or gastric varices	Re-bleeding before 3 months	Re-bleeding at 6 months
1	46	Female	Portal vein thrombosis	No	No	No
2	74	Male	Liver cirrhosis	Yes, esophageal	No	No
3	53	Male	Liver cirrhosis	Yes, esophageal	No	No
4	59	Male	Splenic vein thrombosis/pancreatitis	Yes, gastric	Yes	No

010
AUDITORY P3B, P3A, CRITICAL FLICKER FREQUENCY AND PSYCHOMETRIC TESTS TO DETECT MINIMAL ENCEPHALOPATHY

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Introduction. Minimal hepatic encephalopathy (MHE) impairs quality of life, the ability to carry out daily activities and produces an increased risk of traffic accidents. Diagnostic tools for MHE in the clinical routine must be easy to use, with high sensitivity, valid, objective, and reliable. Psychometric and electrophysiological tests are currently used to detect MHE. Critical flicker frequency (CFF) has been used for the diagnosis of MHE but neurophysiological tests provide more objective results. **Objective.** Compare the psychometric hepatic encephalopathy score (PHES) test, the critical flicker frequency test auditory P3b and P3a event-related potentials to detect minimal encephalopathy. **Material and methods.** Fifty consecutive patients with liver cirrhosis were recruited at the Liver Clinic of General Hospital of Mexico City. Patients with alcoholic cirrhosis were discarded. All patients completed Psychometric battery PHES, auditory P3b and P3a and, CFF. Stimuli to elicit ERPs were standard 1000Hz, target 2000Hz pure tones and white noise as distractor. Stimuli lasted 100 ms and were presented in semirandom sequences of 400 stimulus 2:8 (target: standard) for P3b and 600 stimulus 1:1:8 (target:distractor:standard) for P3a. Dicothomic values were assigned and submitted to contingent table analysis. Significance was set at alpha below 0.05. **Results.** Eighteen patients did not met inclusion criteria. Comparisons were performed in the rest of the patients (mean age = 56.84, sd = 9.38, 26 female) Child Pugh A: 21, B: 10, C: 2. Etiology: Cryptogenic: 10, HVC: 9 NASH: 8 Autoimmune: 3 HVB: 2, CBP 1. McNemar tests showed no significance to PHES *vs.* CFF ($p = 0.26$), PHES *vs.* P3b ($P = 0.06$), and PHES *vs.* P3a ($p = 0.35$). No differences in distributions were found between CFF and P3b or P3a, neither for P3b and P3a. **Conclusions.** Differences in distributions between PHES, CFF and auditory P3b and P3a suggest inconsistencies in detecting MHE. P3a ERPs showed better accuracy in detecting MHE. No differences between CFF and ERP where found, we propose a more reliable set of test to detect MHE.

011
SERUM FERRITIN LEVELS AS A PREDICTOR OF DECOMPENSATION IN PATIENTS WITH LIVER CIRRHOSIS

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Background and aim. Iron induces liver damage and fibrosis, which has been considered as a marker of necro-inflammation. This study was conducted to determinate relative levels of ferritin and decompensation in patients with liver cirrhosis. **Material and methods.** Cross-sectional descriptive retrospective study on 63 patients diagnosed with liver cirrhosis from January 2014 to January 2015 obtained ferritin levels and monitoring of decompensation. Variables of age, gender, serum ferritin, scales Child-Pugh and MELD-Na were analyzed. Average percentages and analysis were applied. **Results.** 63 patients, 30 males (47.6%), female (52.3%) were analyzed. Were classified by Child-Pugh A 34.9% B 49.2% and 15.8% C. Scale MeldNa on average according to Child-Pugh A 9.5 B 13.8 Child, Child C 22.5. According alcoholic etiology in 39.6% of patients, nonalcoholic steatohepatitis 7.4%, 14.2% hepatitis C virus, alcohol overlap with 4.7% hepatitis C virus, autoimmune 22.2% and 1.5% cryptogenic. Ferritin average was 201. The complications observed were variceal upper gastrointestinal bleeding in 32 (50.7%) patients, hepatic encephalopathy, 20 (31.7%) and spontaneous bacterial peritonitis 11 (7.9%). **Conclusions.** According to the results, the serum ferritin level correlates with MeldNa and Child Pugh, as the higher level of the ferritin is the probability of decompensated patients, so it is not excluded as a marker of prediction to develop them.

012
BONE MINERAL DENSITY ALTERATION AND VITAMIN D DEFICIENCY IN PATIENTS WITH LIVER CIRRHOSIS

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Background. Bone disease is a major complication of liver cirrhosis (hepatic osteodystrophy). The occurrence of osteoporosis goes as high as 50% it can appear with spontaneous or low impact fractures, producing morbility which affects life quality and patient survival. **Objective.** Determine the occurrence of osteoporosis, vitamin D deficiency and relationship with the liver cirrhosis severity. **Material and methods.** Mineral bone density evaluation and the vitamin D serum levels, has a direct relationship with the liver cirrhosis severity and bone fractures. Liver cirrhosis patients were analyzed at any stage of the desease, etiology and gender. **Results.** Fifty-four patients were included in which, 61 were men, the average age was 53. Osteoporosis was found mildly increased in women in a 42% were 39.9% in men. Osteopenia was increased in a higher frequency of 36% against 23% in women. The etiology of cirrhosis was due to alcohol in a 46% followed up by 27.8% with hepatitis C. 85.2% of patients were B and C Child-Pugh stages. 72% had a decompensated liver disease. Hepatitis C patients had a bigger rate (53%) of osteoporosis, alcoholic cirrhotic patients 48%. Osteoporosis was more common in patients above 51 years old. Vitamin D deficiency was found in 94% of patients. 11.1% had a lumbar fracture. Pearsons correlation coefficient was calculated with Child-Pugh, MELD and vitamin D with osteoporosis, without finding significant evidence that proves these factors are independent: $p = -0.2$, $p = -0.15$, $p = -023$ respectively. A weak relationship was found between decompensated LC and osteoporosis, $p = 0.56$. Vitamin D insufficiency showed a significant correlation with decompensated LC, B and C Child-Pugh stages and MELD above 15, $p = 0.047$, $p = 0.009$, $p = 0.49$, respectively. **Conclusions.** Osteoporosis is a common LC complication and vitamin D deficiency was found in most patients, this correlates directly with the severity of the liver disease. Screening of BMD and serum levels of vitamin D is recommended as a routine test in cirrhotic patients.

Table 1 (013). Area under the curve for grade 3-4 liver fibrosis in biopsy with and mmHg of hepatic venous pressure gradient.

mmHg	AUC	IC-95%	P	Sensibility	Specificity	PPV	NPV	LR +	LR -
11.4	0.910	0.807-1.000	<0.001	95%	75%	92%	81%	3.8	0.06

013
HEPATIC VENOUS PRESSURE GRADIENT AS A PREDICTOR OF ADVANCED LIVER FIBROSIS

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Introduction. Hepatic venous pressure gradient (HVPG) correlates with liver fibrosis of viral etiology and with complications of advanced disease. Liver biopsy is considered the gold standard for diagnosis of liver fibrosis; nevertheless, interobserver variability, sample viability and associated complications limit its use. A non-invasive study such as Fibrotest has been used as predictor of liver fibrosis with inconstant results. **Objectives.** To evaluate HVPG as a predictor of liver fibrosis. **Material and methods.** Retrospective study (June 2011-December 2014). Patients with diagnosis of chronic liver disease submitted to hepatic hemodynamic studies with biopsy. **Results.** Sixty-four patients were evaluated, 11 were eliminated because inadequate liver tissue sample. A total of 53 subjects, 29 male (54.7%) 24 female (45.3%) with an average age of 54.11 ± 12.3. Child A 24 (45.3%), B 23 (43.4%), C 6 (11.6%). MELD 8 (4-19). Etiology: alcoholic 19 (35.8%), hepatitis C virus 7 (13.2%), autoimmune 11 (20.8%), drug associated 2 (3.8%), primary biliary cirrhosis 1 (1.9%), non-alcoholic fatty liver disease 3 (5.7%), cryptogenic 10 (18.9%). With regard to HVPG, 6 (11.4%) patients had normal HVPG (≤ 5 mmHg), 3 (5.6%) patients had 5.1-9.9 mmHg, 3 (5.6%) patients had clinically significant portal hypertension and 41 (77.4%) had severe portal hypertension. The Receiver Operating Characteristic (ROC) curve of HVPG for prediction of severe fibrosis (3-4) had an area under the curve (AUC) of 0.91 with a HVPG value of 11.4 mmHg, with a sensibility of 95% and specificity of 75%. ROC curve of HVPG for severe liver fibrosis for Fibrotest was of 0.727, with a HVPG value of 11.9 mmHg, with a sensibility of 90% and specificity of 40%. **Conclusions.** HVPG correlates with degree of liver fibrosis. A HVPG greater than 11.4 mmHg is a predictor of advanced liver fibrosis. This cutoff can be used to predict liver fibrosis grade in patients with inadequate liver biopsy.
The author declares that there is no conflict of interest.

014
FIBROSCAN AS PREDICTOR OF DESCOMPENSATION IN CIRRHOSIS

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Background. Portal hypertension common complication of cirrhosis, contributes to the development of ascites, esophageal varices (EV) and hepatic encephalopathy (HE). There noninvasive methods for predicting stage of portal hypertension to help identify complications and optimize diagnosis and management of cirrhosis. Elastography may reflect progressive increase in portal pressure. Publications have established cutoff 21kpa as a predictor of significative portal hypertension, predicting descompensation. O**bjetives.** Assess the first event of the usefulness of fibroscan events as predictor of decompensated cirrhosis. **Material and methods.** Included 54 patients with liver cirrhosis, making elastography. Con track six months. Results included 44 patients. Statistical analysis with SPSS version 19 package, descriptive analysis of quantitative variables. To detect the presence correlation between the value of kilopascals in Fibroscan and presence of bleeding events, VE, ascites and encephalopathy employment Pearson correlation test. 43.2% female, 56.8% male principal alcohol etiology (38.6%). 59% larger and 41%. The small varices hemorrhage 36.3%; ascites 52.2% grade 2 and 25% grado1; EH 9%. The Pearson correlation test was not statistically significant for any of the variables measured, though showing a tendency to greater number of kilopascals, manifestations of more severe portal hypertension. **Conclusions.** The Fibroscan could be a useful noninvasive predictor decompensation, easy to perform test. In our study as it is reported in the literature, we note that values above 21 are associated with portal hypertension and decompensation. However a larger sample and long term is needed to determine its usefulness.

015
PREVALENCE OF INFECTIOUS COMPLICATIONS AMONG HOSPITALIZED DECOMPENSATED CIRRHOTIC PATIENTS *VS.* COMPENSATED CIRRHOTIC OUTPATIENTS

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Background. Cirrhosis is a cause of immunodeficiency. Hospitalized decompensated cirrhotic patients are at high risk of developing infectious complications due to their immune status, bacterial translocation and hemodynamic alterations. **Objective.** To establish the prevalence of infectious complications among hospitalized decompensated cirrhotic patients *vs.* compensated cirrhotic outpatients. **Material and methods.** Prospective cohort study. Realized at Internal Medicine and Gastroenterology services of Hospital General SSA Pachuca, Hidalgo, Mexico from December 2012 to January 2014. Compensated cirrhotic patients managed as outpatients were included in one cohort; hospitalized decompensated cirrhotic patients were included in another cohort. We applied a data collection card to gather patient's information, and it was processed using relative risk. **Results.** We studied 64 patients in each cohort, for a total of 128. 44 of the hospitalized patients (68.75%) developed infectious complication *vs.* 22 outpatients (34.37%). The relative risk of developing infections in hospitalized decompensated cirrhotic patients was two times higher than a compensated cirrhotic outpatient (RR 2.0) IC 95% (1.37-2.91) p 0.00001. Urinary tract infection was the most common infectious complication, with prevalence of 35.93% in hospitalized patients *vs.* 18.75% in outpatients. Other causes of infectious complications, in hospitalized and outpatient respectively, were: spontaneous bacterial peritonitis

Table 1 (014).

Results	Kpa	Kpa
Esophageal varices	Large 40.8	Small 38.6
Gastrointestinal bleeding	1 event 38.2	2 event 44.7
Ascites	Grade 1 25.8	Grade 281.3
Encephalopathy	1 event 61.8	3 event 75

(20.31 *vs*. 6.25%), soft-tissues infections (6.25 *vs*. 3.12%), pneumonia (3.12 *vs*. 3.12%) and bacteremia (3.12 *vs*. 0.0%).**Conclusions.** The relative risk of developing infections in hospitalized decompensated cirrhotic patients is two times higher than a compensated cirrhotic outpatient (RR 2.0); urinary tract infection is the most common cause. We suggest other studies to be performed in order to validate our results.

016

AUDITORY P300 EVENT RELATED POTENTIALS TO DETECT MINIMAL ENCEPHALOPATHY

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Introduction. Minimal hepatic encephalopathy (MHE) is related to cognitive impairment in several domains affecting abilities to perform daily living activities and decreasing quality of life. Psychometric and perceptual tests are currently used for detecting MHE. Psychometric test over-diagnose MHE while Critical flicker frequency (CFF) is a better test but availability is difficult. CFF had proved superior sensitivity and specificity than psychometric test in MHE diagnosis, but new and more available tools are required. Recently electrophysiological test such as P300 event related potentials (ERP) have been proposed as an alternative to assess cognitive impairment in MHE, but literature is poor to this respect and more supporting evidence is required. **Objective.** To compare the psychometric hepatic encephalopathy score (PHES) test, the critical flicker frequency test auditory P300 event-related potentials to detect minimal encephalopathy. **Material and methods.** Twenty-five consecutive patients with nonalcoholic liver cirrhosis and 25 controls were recruited at the Liver Clinic of General Hospital of Mexico City. All participants completed Psychometric battery PHES, auditory P300, and CFF in separated sessions. Stimuli to elicit ERPs were standard 1000 Hz, target 2000 Hz pure tones presented in semi-random sequences of 400 stimulus 2:8 (target:standard). Dicothomic values were assigned to detection of MHE and submited to contingent table analysis while P300 were analyzed with *t* Student test. Significance alpha level was set below or equal to 0.05. **Results.** McNemar tests showed no significance to PHES ($p = 0.28$), CFF test were sensitive ($p = 0.050$), and P300 distinguished between controls and MHE patients ($p = 0.50$). **Conclusions.** PHES failed to detect MHE. Distributions between CFF and auditory P300 suggest similar power for detecting MHE. P300 is more available than CFF in current clinical practice and results provide evidence of suitability for assess MHE diagnosis.
Interest conflict: authors declare absence of interest conflict for the present research.

CLINICAL RESEARCH-HEPATOCELLULAR CARCINOMA

001

HEPATOCELLULAR CARCINOMA IN NON-CIRRHOTIC LIVER WITH IMAGING ATYPICAL PATTERN IN A PATIENT WITH HEMOPHILIA A AND VIRUS INFECTION OF HEPATITIS C

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Background and aim. Primary liver cancer accounts for 4% of all new cancers diagnosed worldwide. Hepatocellular carcinoma accounts for 90% of all hepatic neoplasm and only 10 to 30% of tumors occur in non-cirrhotic livers. **Case report.** A 51 years old man, with type A mild hemophilia 45.4%, multiple transfusions of factor VIII, social alcoholism, suspended six months ago, infection with hepatitis C virus genotype 1 a newly diagnosed, a viral load of 2,260.000 IU/mL, negative serologies for hepatitis B. Referred right upper quadrant abdominal pain, decreased appetite, jaundice and weight loss 10 kg 4 months duration. Physical examination: jaundice, hepatomegaly of 5 cm, right upper quadrant pain, no stigmata of chronic liver disease. Laboratory alpha-fetoprotein 712 ng/mL, hemoglobin 10.7 g/dL, platelets 336,000, creatinine 4.78 mg/dL, prothrombin time (PT) 16/11.7 sec, total bilirubin 8.8 mg/dL, directly 7.8 mg/dL, albumin 2.6 g/dL, ALT 162 U/L, AST 523 U/L, liver ultrasound with hyperechoic tumor of 9 per 10 cm in segment VI, peripheral vasculature, during the hepatic arterial phase, angiography demonstrates a tumor of 9 by 10 cm in the right hepatic lobe, hypodense heterogeneous without enhancement to intravenous contrast, with enhancement of the pseudocapsule, but without washing late phase or portal vein thrombosis with pulmonary metastases. It was scheduled for liver biopsy by laparotomy; however, the patient had worsening of renal failure and died. The autopsy revealed multifocal conventional moderately differentiated hepatocellular carcinoma, mass subtype with multiple satellite nodules smaller in the rest of the hepatic parenchyma without fibrosis or cirrhosis and pulmonary metastasis. **Conclusions.** Search for hepatitis B and C is recommended in patients with hemophilia A. Confirmation is required histopathological hepatic carcinoma in atypical tumors by imaging study in non-cirrhotic livers as in this case which were in stage C of the classification of Barcelona, being a candidate for treatment with Sorafenib according to clinical stage and have no contraindication to their hematologic disease.
The authors declare no conflict of interest.

002
GENETICS VARIANTS OF ADH1B, ADH1C AND CYP2E1 IN COLOMBIAN PATIENTS WITH CIRRHOSIS AND/OR HEPATOCELLULAR CARCINOMA

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Background. Studies in some populations provide evidence for the genetic variants in genes related to alcohol metabolism, such as alcohol dehydrogenase (ADH1) and cytochrome P450 (CYP2E1) genes related to enzymatic activity. Some studies suggest a protective effect of these genetic variants, but in other cases has been associated with an increased risk of liver disease development. **Aim.** To describe genetic variation of ADH1 (ADH1B*1/*2, ADH1B*2/*2, ADH1C*1/*1, ADH1C*2/*2) and CYP2E1 (CYP2E1 C1/C1, CYP2E1 C2/C2) genes in Colombian patients diagnosed with cirrhosis and/or hepatocellular carcinoma (CHC) assisted in a hospital of Medellín, Colombia. **Material and methods.** Patients with cirrhosis and/or CHC who voluntarily agreed were included in the study and were recruited in a Hepatology Unit in Medellin city, Colombia. Blood sample or hepatic tissue was collected and preserved at -70 °C. Liver tissue DNA extraction was performed using the chloroform-trizol method and peripheral blood sample was extracted with a commercial kit method. PCR-RFLP was performed to determine the gene polymorphism of interest. A 107pb region of exon 3 of ADH1B gene was amplified, a 146pb of exon 8 of ADH1C was amplified and a fragment of 413pb of promoter region of CYP2E1 was amplified. The restriction was performed with MaeIII, SspI and RsaI enzyme, respectively. The polymorphism observed in the patient's samples was compared with genotype reported data 1,000 genomes (http://www.1000genomes.org/index.html) for general population of Medellin, Colombia. **Results.** We have identified the genotype of ADH1B*1*1, ADH1B*2*2 and heterozygote in 65.5% (19/29), 3.45% (1/29) and 31.03% (9/29) samples, respectively. In ADH1C, the ADH1C*1 genotype and heterozygous (ADH1C*1/*2) was detected in 73.68% (14/19) and 26.32% (5/19) samples, respectively. And the CYP2E1/C1 genotype in 88.46% (46/52) samples and heterozygous genotype in 11.54% (6/52) samples (CYP2E1/C1/C2). **Conclusions.** According to preliminary results, there are not differences between the study population and the reference population (1,000 genomes) for ADH1B*1, CYP2E1/C1 and ADH1C*1. It should be noted that genotype ADH1C*1 encodes an enzyme with increased metabolic activity, which could represent risk for developing liver disease; however, studies are controversial according to population.
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CLINICAL RESEARCH - AUTOIMMUNE AND CHOLESTATIC LIVER DISEASE

001
FREQUENCY OF PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS DETECTED BY IMMUNOHISTOCHEMISTRY BY EXPRESSION OF BSEP AND MDR3 IN LIVER BIOPSY OF CHILDREN WITH IDIOPATHIC NEONATAL HEPATITIS

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Background. Progressive familial intrahepatic cholestasis (PFIC) are genetic alterations that result in mutations in aminophospholipid transporter proteins (PFIC1), bile salts (PFIC2) and class III multidrug resistant glycoprotein (MDR3) which mediates translocation of the phosphatidylcholine through the hepatocyte canalicular membrane. In our environment PFIC frequency is not known, its identification in children diagnosed with idiopathic neonatal hepatitis could orientate towards the prevention and treatment of complications of biliary cirrhosis, improvement in nutritional status and early inclusion in liver transplant programs. **Objective.** Determine the frequency of PFIC detected by immunohistochemistry expression of BSEP and MDR3 in liver biopsy of children diagnosed with idiopathic neonatal hepatitis. **Material and methods.** Observational, descriptive, transversal study. Clinical features and liver biopsies from patients diagnosed with idiopathic neonatal hepatitis were reviewed. Immunohistochemistry was performed to detect the absence of BSEP and MDR3 to confirm or rule PFIC. Statistical analysis. Results are expressed as mean ± standard deviation, ranges and percentages. **Results.** 21/35 cases are included; 8 (38%) were females and 13 patients (62%) were males. 4 for BSEP, 1 for MDR3 and 2 patients with absence of staining for both BSEP and MDR3: 7 patients with no response to IHC were detected. They had history of consanguinity, 4/7, and 1 family history of cholestasis. When comparing the clinical, biochemical and histopathological findings among cases with negative *vs.* positive IHC, no significant differences were found. **Conclusion.** In this study 33% of cases with idiopathic neonatal hepatitis, absence of immunohistochemical staining for BSEP and MDR3 was found; to corroborate definitive diagnosis by genetic testing; apparently by immunohistochemistry, frequency OF PFIC in our environment is higher than that reported in literature.

002
CORRELATION BETWEEN THE DEGREE OF FATIGUE AND BIOCHEMICAL ALTERATIONS IN PATIENTS WITH PRIMARY BILIARY CIRRHOSIS

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Background. Primary biliary cirrhosis is an autoimmune disease that develops chronic cholestasis, which most common symptom is fatigue. There is no evidence in our country to correlate the degree of fatigue against the biochemical alterations in liver tests. **Objective.** To correlate the degree of

fatigue against the biochemical alterations in liver tests of patients with primary biliary cirrhosis. **Material and methods.** Observational, cross-sectional, descriptive and retrospective study. Realized at Gastroenterology outpatient clinic of HGZ-MF No. 1 IMSS Pachuca, Hidalgo, Mexico from January 2008 to December 2013. We applied the Borg Rating of Perceived Exertion Scale and liver tests were performed among patients. We used Excel for descriptive statistical measures and Pearson product-moment correlation coefficient to measure the dependence between the degree of fatigue and biochemical alterations. **Results.** We studied 19 patients with Primary biliary cirrhosis. Ten patients (52.63%) had some degree of fatigue, while 9 (47.36%) were asymptomatic. Of all of patients with fatigue, 8 of them (80%) had mild fatigue and 2 patients (20%) had moderate fatigue. As regard of the values of alkaline phosphatase, 12 patients (63.15%) presented elevated values, of which 7 (58.33%) had mild fatigue, 2 (16.66%) had moderate fatigue, 3 (25%) were asymptomatic, and there were no patients with severe fatigue. A determination of 0.601 between the degree of fatigue and alteration of alkaline phosphatase level was obtained, which indicates a positive correlation. **Conclusions.** There appear to be a positive correlation between the degree of fatigue and alkaline phosphatase values in patients with primary biliary cirrhosis. We suggest to be performed other studies in Centers of our country to validate our findings.

003
PREVALENCE OF AUTOIMMUNE LIVER DISEASES: DATA FROM A THIRD-LEVEL HOSPITAL IN MEXICO CITY DURING A SIX-YEAR PERIOD

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Background and aim. The prevalence of autoimmune liver diseases and histopathological findings in Mexican population are variable. In studies from Northern Europe, the prevalence is calculated to be 11 to 25 per 100,000 populations, however epidemiological studies in Mexico are sparse. **Objective.** The aim of this study is to determine the prevalence of autoimmune liver disease in a group of Mexican patients. **Material and methods.** We retrospectively examined seven hundred eighty five liver biopsy specimens between the years 2008 and 2013; of these, 67 patients showed compatible characteristics with autoimmune liver disease. Medical records were analyzed in order to recollect data of demographic characteristics and associated risk factors. **Results.** Sixty-seven patients had the following diagnosis: autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC), primary sclerosing cholangitis (PSC) and overlap syndrome (OS); 56 were women (83.6%) and 11 men (16.4%). The average age in the female group was 49.5 years (19-73 years); in the male group, 52 years (28-72 years). The results showed that the prevalence of autoimmune liver diseases in liver biopsies during this period was 8.5% (Figure 1). The distribution of place of birth was as follow: 32 patients were born in Mexico City (47.76%), 16 patients in Estado de Mexico (23.88%) the rest were distributed along different states. The most frequent associated comorbidity were other autoimmune diseases (20.89%), mainly systemic lupus erythematosus, ankylosing spondylitis and Sjögren syndrome. Smoking was present in 28 patients (41.79%) and alcohol consumption in 32 (47.7%). The main cause of cirrhosis in the female group with the established diagnosis of autoimmune liver disease was AIH (100%); and in the male group PBC (42%). **Conclusions.** This study shows a probable increasing tendency in the prevalence of autoimmune liver disease detected by biopsies; however it is important to collect more epidemiological information in order to create large national prospective cohorts that could generate future hyphoteses and adress key questions.

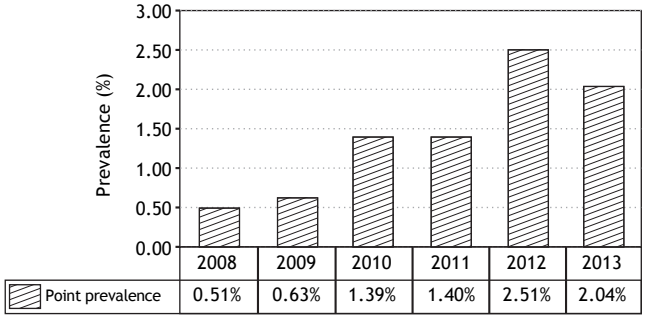

Figure 1 (003). Point prevalence distribution.

The authors declare that there are no conflicts of interest.

004
AUTOIMMUNE HEPATITIS-PRIMARY BILIARY CIRRHOSIS OVERLAP SYNDROME INTERNATIONAL CLASSIFICATIONS AND LONG TERM FOLLOW-UP IN NORTHEAST MEXICAN PATIENTS

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Background. Primary biliary cirrhosis (PBC)/autoimmune hepatitis(AIH) is the most commonly seen overlap syndrome (OS). Although there are no diagnostic criteria established for OS; Paris criteria (PC), the revised score of the international autoimmune hepatitis group (RIAIHG) and simplified criteria (SC) have been used for diagnosis. The aim of this study was to apply RIAIHG, SC and PC and to evaluate long term follow-up in northeast Mexican patients. **Material and methods.** Thirty-six patients were seen at the Liver Unit diagnosed as OS according to clinical, biochemical and histological parameters, with a follow-up of 60 ± 74 (1-404) months (m). Thirty-five PBC and 73 AIH patients were included as controls, with a follow-up of 60 ± 60(3-278 m) and 65 ± 63 (2-324 m), respectively. RIAIHG, SC and PC were applied. Ursodeoxycholic acid (UDCA) and UDCA + prednisone (PRED) and/or azathioprine (AZA) were used as a treatment in 15 and 21 patients, respectively. Statistics: SPSS 22.0. **Results.** Probable and definite diagnosis according to RIAIHG and SC was seen in 72% and 47% of patients, respectively. Meanwhile, 33% were confirmed as OS using PC. Compared Sensitivity (S), Specificity (E) and positive predictive value (PPV) and negative (NPV) between classifications, RIAIHG had the highest S (72%) even though, E and PPV was high in all them (100% for RIAHG and SC, 97% for PC). NPV was 100% in RIAIHG and SC. Complications on admission and follow-up were: cirrhosis 19 (53%) and 23 (64%); portal hypertension 11 (31%) and 17 (47%); gastrointestinal bleeding 4 (11%) and 8 (22%); spontaneous bacterial peritonitis 1 (3%) and 6 (17%); encephalopathy 2 (6%) and 4 (11%), respectively. Seven (19%) patients died or received a liver transplant. Survival by Kaplan Meier analysis was 58% for OS, 76% for CBP and 78% for

AIH. During follow-up 15 patients treated with UDCA showed an improvement in ALT (p = 0.047), whereas patients treated with UDCA + PRED and/or AZA showed an improvent in GGT (p = 0.017). **Conclusions.** The three international classifications can be complementary for OS diagnosis. RIAIHG diagnosed a larger number of cases. PC diagnosed 33%. The majority of patients showed cirrhosis on admission (53%). Overall long term survival was lower in patients with OS, compared with PBC and AIH, regardless which treatment was used.

005
HERBALIFE AS A PREDISPOSING AUTOIMMUNE HEPATITIS, A CASE REPORT

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Background and aim. Autoimmune hepatitis has a prevalence of 10-17 per 100,000 in Europe, affecting women 3-4 times more often than in men. Most have no identifiable precipitating cause, has been associated with viral infections, drug use and even the subsequent use of herbal drugs. Drugs and herbal products can cause autoimmune hepatitis. Using Herbalife as a medicinal product and weight reduction has been controversial in the past 10 years and has caused liver failure in more than 70 cases. **Case report.** Female 34 years old with no medical history, which has intermittent jaundice boxes Itching refers Herbalife diet intake, being impaired liver function, study protocol begins with mitochondrial antibodies (-), neutrophil cytoplasmic antibodies (-), anti-LKM (-) ASMA: negative, antinuclear antibody (+), MRI scans are performed finding probable data diffuse hepatocellular inflammatory disease liver disease and / or nonspecific cholangitis. Liver biopsy is done by finding incipient liver cirrhosis with moderate activity, presence of granuloma and eosinophils suggests drug damage, posterior two-year suspension supplements the patient reported onset of fatigue, weakness, headache, jaundice, pruritus generalized predominantly nocturnal, right upper quadrant pain resulting immunological studies are repeated negative, negative viral panel to HBV, HCV, CMV immunoglobulin G but with 4999, ALT and AST increased 5 normal value, autoimmune hepatitis score is calculated at 11, is management starts with prednisone 30 mg dose reduction and azathioprine 50 mg, with partial response to treatment with reduction ALT and AST to normal. **Conclusion.** The diagnosis of hepatitis caused by drugs and herbal consumption is rare and poorly documented described that some drugs can cause hepatocellular damage that mimics autoimmune hepatitis and this possibility has been suggested for herbal products.

006
CHOLANGIOPATHY ASSOCIATED WITH IGG4, A CASE REPORT

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Introduction. IgG4-related cholangiopathy, a different type of cholangitis of unknown origin, by increased serum levels of IgG4, infiltration of IgG4-positive plasma cells, fibrosis and obliterative phlebitis. Storiform fibrosis with thickening of the bile duct wall is characterized. It is associated with autoimmune pancreatitis. Is recognized as a manifestation of biliary IgG4 related diseases. It is diagnosed by a combination of imaging, serology, histopathology and responsiveness to steroids. Its cholangiographic features are difficult to differentiate from primary sclerosing cholangitis, pancreatic cancer or cholangiocarcinoma. **Objective.** Diagnosis of IgG4-associated cholangitis in patients with chronic pancreatitis of unknown origin. **Case report.** Male 34 years old, history of nephropathy of unknown origin at birth steroid treated with appropriate response. Starts with jaundice, dark urine, acolia associated with acute HAV hepatitis. Persists hiporexia, jaundice, dark urine, acholia, lost weight 10 kg, generalized pruritus, intermittent abdominal pain in epigastric region, cholestatic pattern, function normal hepatic synthesis, MRI of the abdomen suggests probably autoimmune sclerosing cholangitis, cystic image in pancreas, pancreatic duct is not observed in their proximal course, dilated, tortuous, irregularly contoured distal. Then ERCP and Endoscopic Ultrasound is performed with needle aspiration cytology inconclusive so exploratory laparotomy with biopsy of the head and body of pancreas plus liver biopsy was necessary, then reported Immunohistochemistry positive for IgG4 in plasma cells. **Discussion.** We must suspect of IgG4-related in patients with one or more characteristic patterns in tissues or in those with pancreatitis of unknown origin, sclerosing cholangitis, 30% had normal concentrations of IgG4 disease. **Conclusions.** IgG4-related cholangiopathy is difficult to differentiate from primary sclerosing cholangitis, requires a high index of suspicion. While IgG4-associated cholangitis responds favorably to steroids no primary sclerosing cholangitis.

CLINICAL RESEARCH - LIVER TRANSPLANTION

001
RENAL FUNCTION PRESERVATION WITH SHORT TERM CONVERSION TO SIROLIMUS IN ORTHOTOPIC LIVER TRANSPLANT

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Introduction. Conversion to Sirolimus (SRL) has been used in patients with calcineurin inhibitor (CNI) nephrotoxicity in orthotopic liver transplant (OLT). Objective: Compare renal and metabolic outcomes in long-term OLT in patients under CNI vs CNI to SRL conversion (CNI/SRL). **Material and methods.** Retrospective study with 64p post-OLT. CNI group (n = 31) *vs.* CNI/SRL (n = 33). Conversion to SRL: early < 12 months (M) or late > 12M. MRDR-6 equation was used to evaluate glomerular filtration rate (GFR). Metabolic outcomes: glucose (GLU), cholesterol (CHOL) and triglycerides (TG). Data was registered at 6M, 12M and cumulative follow-up (Acum), post-OLT in CNI group and post-conversion in CNI/SRL group. **Results.** Pre-OLT characteristics CNI *vs.* CNI/SRL: x age 45y *vs.* 55y (p = 0.003); x follow-up 58 ± 48 *vs.* 68 ± 40 M; diabetes mellitus type 2: 32 *vs.* 36% (p = 0.80); GLU: 99 ± 33 *vs.* 123 ± 72 (p = 0.02); GFR: 109 ± 53 *vs.* 76 ± 53 (p = 0.02). Etiology CNI *vs.* CNI/SRL: HCV (23 *vs.* 34%), ALD (0 *vs.* 27%), NASH (19 *vs.* 12%), AIH (32 *vs.* 18%) and others (26 *vs.* 9%). Conversion to SRL was due to renal

dysfunction (n = 27), neuropsychiatric symptoms (n = 3), acute cellular rejection (n = 1) and other causes (n = 2). GFR-MDRD (mL/min) at follow-up CNI *vs*. CNI/SRL 6M: 74 ± 41 *vs*. 65 ± 19 (p = 0.02); 12M: 79 ± 46 *vs*. 65 ± 21 (p = 0.009) and Acum: 65 ± 34 *vs*. 64 ± 27 (p = 0.44), respectively. Patients with renal dysfunction (n = 27): 17p early conversion and 10p late conversion. GFR pre-OLT *vs*. pre-SRL *vs*. Acum in early conversion group: 62 ± 24 *vs*. 38 ± 15 *vs*. 63 ± 22 (p < 0.05); late conversion group: 72 ± 32 *vs*. 46 ± 15 *vs*. 49 ± 26 (p = 0.09), showing renal function recovery in patients with early conversion to SRL. CNI *vs*. CNI/SRL GLU 6M: 119 *vs*. 129 (p = 0.35); 12M: 124 *vs*. 130 (p = 0.50) and Acum: 118 *vs*. 108 (p = 0.05); COL 6M: 168 *vs*. 220 (p = 0.03); 12M: 197 *vs*. 198 (p = 0.20) and Acum: 205 *vs*. 198 (p = 0.19); TG 6M: 143 *vs*. 258 (p = 0.05); 12M: 133 *vs*. 206 (p = 0.05) and Acum: 163 *vs*. 213 (p = 0.34), respectively. Biopsy proven acute rejections: CNI n = 5(16%) *vs*. CNI/SRL n = 2(6%). **Conclusions.** SRL demonstrated a significant improvement in renal function in patients that discontinued CNI < 12 months post-OLT, reverting CNI nephrotoxicity. Higher levels of CHOL and TG in CNI/SRL group at 6M and 12M were seen but with no significant difference at cumulative follow-up. Significantly lower levels of GLU were seen in CNI/SRL group at cumulative follow-up.

002
LAL-D IN LIVER TRANSPLANT PATIENTS FOR LIVER CRYPTOGENIC CIRRHOSIS AND NON-ALCOHOLIC STEATOHEPATITIS

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Background. Ester Storage Disease Cholesterol is produced by null or deficient activity of the Lysosomal Acid Lipase (LAL < 40 pmol/h/spt) for LIPA gene mutation. The prevalence in Caucasians and Hispanics (1:90,000/170,000). Adults may have transaminasemia, dyslipidemia (HDL-c levels < 45 mg/dL and LDL-c levels > 130 mg/dL), microvesicular steatosis, fibrosis and cirrhosis may have been diagnosed as cryptogenic (LCC). **Objectives.** To find the prevalence of lysosomal acid lipase deficiency (LAL-D) in post liver transplant patients (PTHO) cryptogenic liver cirrhosis and NASH and compare levels of LAL with a group of HCV patients PTHO. **Material and methods.** Retrolective, transversal and descriptive study of patients PTHO by CHC and NASH with a control group PTHO HCV. Detection samples LAL-D (Lysososmal Acid Lipase Deficiency Whatman 903 Specimen Collection Paper) were taken and analyzed at the Seattle Children's Hospital. Statistical analysis with SPSS 22.0, P significant < 0.05. **Results.** Twenty patients were included PTHO by CHC and NASH (2005-2014). Average age (55 ± 11 years), 10 men and 10 women. CHC 10 patients (50%) and NASH 10 (50%). 7 patients (35%) with HDL-c < 45 mg/dL, 2 (10%) LDL-c > 130 mg/dL (no results were related). Acid lipase average LCC and NASH (120 pmol/h/spt). In LCC lipase mediates 98 pmol/h/spt (40-120 pmol/h/spt) NASH lipase mediates 128 pmol/h/spt (70-142 pmol/h/spt) 3 LCC (15%) had < 45 pmol/h/spt (2 with 43 pmol/h/spt and 1 with 40 pmol/h/spt). These genetically sequenced were sent to rule LIPA gene mutation, if treatment will be positive. 65% of LCC and NASH had < 150 pmol/h/spt PTHO control group patients were tested for HCV. The average level of greater LAL 186 pmol/h/spt, (75-428 pmol/h/spt). **Conclusions.** The search for Disease Cholesterol Esters deposit for Lysosomal Acid Lipase deficiency cause of LCC should be considered. We found lower levels of LAL in LCC than in NASH and HCV.

003
REMOTE ISCHEMIC PRECONDITIONING IN LIVER TRANSPLANTATION

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Background. Liver transplantation (LT) is considered as the only treatment option for diverse end-stage liver disease. Ischemia reperfusion injury (IRI) occurs in the LT and is a complex and multifactorial process, many mediators, and a variety of cells interact, leading to extensive tissue damage. A variety of inflammatory mediators have been implicated, among them are the reactive oxygen species (ROS), TNF-α, IL-6, IL-1, TGF-β, a-interferon, endothelin-1 and various growth factors and adhesion molecules such as ICAM-1. The IRI is the damage to the liver graft during the transplant

Table 1 (003). Cytokines levels.

pg/mL	PT	PR	12 H	24 H	48 H	72 H	7° D	15° D	30° D
IL-6									
C	327 ± 219	465 ± 179	421 ± 210	425 ± 230	442 ± 236	331 ± 203	356 ± 129	417 ± 184	306 ± 71
PIR	210 ± 91	350 ± 401	457 ± 301	396 ± 279	259 ± 127	280 ± 153	337 ± 96	254 ± 106	227 ± 139
TNF-α									
C	140 ± 116	159 ± 247	199 ± 342	245 ± 331	123 ± 174	38 ± 5	104 ± 129	83 ± 92	125 ± 155
PIR	378 ± 400*	459 ± 335	319 ± 373	244 ± 167	351 ± 386	400 ± 135*	31 ± 16	243 ± 296*	342 ± 440*
ICAM-1									
C	1,689 ± 229	1,508 ± 401	1,676 ±266	1,702 ± 364	1,872 ± 397	1,613 ± 315	1,811 ± 350	1,588 ± 100	1,839 ± 496
PIR	1,793 ± 657	1,711 ± 396	2,201 ± 371	1,712 ± 319	1,225 ± 324	1,643 ± 624	1,931 ± 166	1,975 ± 224	1,668 ± 523
VEGF									
C	297 ± 250	241 ± 276	335 ± 560	287 ± 451	409 ± 358*	169 ± 156	258 ± 197	219 ± 154*	206 ± 232
PIR	148 ± 133	244 ± 210	313 ± 157	349 ± 214	163 ± 134	211 ± 92	145 ± 82	63 ± 19	126 ± 81

* p = < 0.05.

process, to remedy the IRI have adopted different strategies, such as remote ischemic preconditioning (RIP). **Objective.** Determine whether the RIP modulates the mechanisms involved in the IRI in liver transplant recipients by cytokines (TNFα, IL-6), intracellular adhesion molecules (ICAM-1) and factor of vascular epithelial growth factor (VEGF). **Material and methods.** Eight patients, 4 controls (C) and 4 under PIR were evaluated in phases, pre-transplant (PT), 90 min. Post-reperfusion (PR), 12, 24, 48.72 h (H) and 7, 15, 30 days (D). **Results.** The results are shown in the table 1. Significant difference ($p < 0.05$) was found between the groups for the following variables: TNFα in the PT phase ($p = 0.040$), in the 72 H phase ($p = 0.028$), in phase 15 D ($p = 0.016$) in the phase 30 D ($p = 0.016$); 48H VEGF in phase ($p = 0.011$), in phase 15 D ($p = 0.014$). **Conclusions.** TNF was observed with a significant elevation in PIR group *vs.* C group in phases 72 H, 15 D and 30 D. In C Group VEGF was found significantly higher than the PIR group in phases 15 D and 48H. IL6 and ICAM-1 show no changes in any of the phases between groups. We need to increase the number of patients to infer the involvement of these mediators of inflammatory response in the LT.
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004
PHYSICAL ACTIVITY AND INTAKE OF MACRO AND MICRO NUTRIENTS IN POST OLT PATIENTS

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Background. After orthotopic liver transplant (OLT), the sedentary lifestyle and return to dietary habits advantage high calorie intake and development of such as metabolic syndrome. **Aim.** Determinate the level of physical activity and intake of macro and micro nutrients in post OLT. **Material and methods.** In these study were evaluated 65 patients post OLT, whit the International Physical Activity Questionnaire (IPAQ) to evaluated the physical activity (low < 600 MET-minutes/week, moderate > 600 MET-minutes/week and high > 1,500 MET-minutes/week), and the Cuestionario de Frecuencia de Consumo of the Instituto Nacional de Salud Pública, was analyzed whit the SNUT program. The data were analyzed with SPSS statistics program version 21. **Results.** Of the 65 patients evaluated 36 (55%) male and 29 (45%) female with a middle age of 53 years, 1.65 height, weight 68.6 Kg, BMI 25 kg/m^2 and middle calories intake of 2,200kcal; 15% proteins, 51% carbohydrates and 34% fat. The 62% of male and 53% of female have intake more than 2,000 kcal, being higher fat intake (> 30%) in the female (78%). The 55% have overweight or obese. Insufficient intake of calcium was found in 71%, iron in 77%, vitamin D in 91%, and adequate or high intake of magnesium in 86%, zinc in 78%, with intake < 3 gr of sodium in the 95% of patients. The 34% have a low physical activity, 52% moderate and 14% high, predominantly low and moderate physical activity in men. The 45% have a intake more than 2,000 kcal with a low or moderate physical activity 19 and 29% receptively. **Conclusions.** There is a high intake of calories, fat, moderate in sodium and deficient in micro nutrients, with a low or moderate physical activity, contributing to weigh gain post OLT, for these reasons it is important to perform a nutritional intervention and monitoring.
The authors declare that there is no conflict of interest.

005
EFFICACY AND SAFETY OF TREATMENT WITH PEG-IFN + RBV + PROTEASE INHIBITOR IN LIVER TRANSPLANT PATIENTS WITH HCV

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Background. Cirrhosis hepatitis C virus (HCV) is the most common indication for Orthotopic Liver Transplantation (OLT). HCV immediately and universally recurs after OLT in patients with detectable RNA when THO; of these, 30% develop cirrhosis within 5 years. The treatment post THO INFpeg is indicated in severe recurrence (SR). The INFpeg/Ribavirin is effective in 30%, and triple therapy (TT) adding protease inhibitor (PI) Boceprevir (BCP), Simeprevir (SMP) or Telaprevir (TLP) with sustained viral response (SVR) to 70%. **Objectives.** To describe the efficacy and safety of treatment with peg-IFN+RBV+PI (BCP or SMP) for 48 weeks in SR in liver transplant patients with HCV. **Material and methods.** Retrolective and Descriptive study THO and HCV patients treated with peg-INF+RBV+PI in the INCMNSZ (January 2005-April 2015) were included. Were analyzed: gender, age, and SR transplant patients who were treated with peg-+RBV+PI safety and efficacy. The SR is defined as cholestatic hepatitis, fibrosing cholestatic hepatitis, acute hepatitis with significant necrosis or presence of moderate fibrosis by liver biopsy 1 year or more after OLT. **Results.** Of 40 patients THO HCV, 6 (15%) received TT with PI, for SR (F2-F4). Five (83%) males, 1 (17%) female; mean age 55 years. Genotypes 1b (83%). IL-28b polymorphism CT 4 (67%), TT 2 (33%). Average time for SR was 6 months. Tacrolimus immunosuppression 4 (67%), sirolimus immunosuppression 2 (33%). Two naive patients received peg-IFN/RBV/BCP with 100% SVR (12 weeks). Three non-responders to previous treatment also had 100% SVR. One patient is receiving pwg-IFN+RBV+SMP, has genotype 1a (Q80K Neg) with undetectable viral load at week 4. None had serious adverse events. The adverse event was presented more frequently anemia responded with decreased Ribavirin. Renal failure occurred in 2 patients who improved with calcineurin setting. **Conclusions.** SVR in patients with post THO peg-IFN+RBV+BOC was 100% and fast response with peg-IFN+RBV+SMP continuous treatment. Association between polymorphism IL-28b CT, and severe recurrence was found.

006
ETIOLOGY OF CIRRHOSIS AND ITS RELATION TO THE INCIDENCE OF METABOLIC SYNDROME, OLT

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Background. Metabolic alterations are frequently found in patients with Orthotopic Liver Transplantation (OLT). The Metabolic Syndrome prevalence (MS) reported goes from 43 to 58%. MS is related to insulin resistance (RI), predisposes to DM and cardiovascular disease with decreased survival in this

population. HCV is related to RI that regardless of blood glucose levels is associated to twice hypertension (HAS), cardiovascular disease three times and 8 times more DM. **Objective.** To describe the incidence of MS in patients OLT and etiologies most frequently associated. **Materials and methods.** Retrolective, cross-sectional and descriptive study which included post OLT patients. All clinical charts were reviewed to obtain the demographic and clinical characteristics, and the following variables were analyzed: gender, age at the time of transplantation, body weight (kg), size (cm), body mass index (BMI), lipid profile, fasting glucose, and blood pressure; as well as the pharmacological treatment for diabetes mellitus (DM), arterial hypertension (AHT) or dyslipidemia (DLP), pre and post-transplantation. For MS diagnosis, the NCEP-ATPIII were used, frequencies and correlations of etiologies leading to OLT analyzed. The statistical analysis with a SPSS v20.0 (< 0.05) p-value was considered statistically significant. **Results.** Ninety-two patients transplanted between year 2005-2014, 53% men with a median age of 47 years (16-67), the main causes were HCV (38%), NASH (11%) , cryptogenic (9%), CHAN (8%) and others. Of the total, 30% developed SM to post transplant year. According to the etiology, HCV (39%) developed SM, NASH (25%), cryptogenic (11%), CHAN (7%), CBP (7%) and (3.6%) HAI, overlaying syndrome and other respectively. In the binary logistic regression analysis adjusted for gender, pre transplant BMI and age, etiology with increased risk of developing SM year was NASH (OR: 2.16, 95% CI 0.12-37.9) followed by Cryptogenic, CBP, HCV and CHAN and were identified as significant covariates to higher risk of MS; gender (Being male OR: 3.5, CI: 1.03-12.2) and pre transplant BMI (OR 1.22, CI 1.03-1.45). **Conclusions.** MS is a common complication in OLT, etiology most frequently encountered SM was NASH. Man and BMI pre transplant also influenced.
The authors declare that there is no conflict of interest.

007
BODY COMPOSITION AND QUALITY OF LIFE WITH NIGHT BCAA SUPPLEMENTATION IN PATIENTS VALUED FOR OLT

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Background. Protein-energy malnutrition (PEM) is associated with complications pre and post OLT (infections, hospital stay and mortality). It is suggested calorie-protein supplementation in patients with PEM overnight with carbohydrates and branched chain amino acids (BCAA) to improve nutritional status and reduce muscle loss. **Objective.** Evaluate the effects of BCAA supplementation night for one month and impact on body composition, quality of life and dynamometry hand. **Material and methods.** Twenty-one patients evaluated for (OLT) received a nutritional supplement with BCAA and calories (Enterex Hepatic®, 110 g). Inclusion criteria were: phase angle < 5.4° mesuared by biolectrical impedance, grade B or C in the subjective global nutritional assessment or handgrip strength < 30 in men and < 20 in women (measured by no dominant dynamometry). Body composition were analyzed using body plethysmography (fat and free mass) and by anthropometric parameters [weight, height, body mass index (BMI), mean arm circumference (MAC), muscle arm area (MAA) and tricipital skinfold]. Quality of life using the questionnaire SF36v.2 at the beginning and after 30 days of supplementation night. Adherence to treatment was measured by a 24-h recall and sheet attachment to supplement. Statistical analysis was made using SPSS v.20. Changes were considered as significant $p < 0.05$. **Results.** 10 women and 8 men were enrolled in a non-controlled clinical trial, the mean age was (42 ± 11 years). Daily supplementation with BCAA and calories significantly tricipital skinfold (14.6 to 15.4mm $p < 0.05$) and the handgrip strength (18-20 kg/F $p < 0.05$). The questionnaire SF-36 quality of life total (1,590-1,849 $p < 0.05$), physical role (85-169 $p < 0.05$) and improved vitality all (158-178 $p < 0.05$). The main adverse effects reported were satiety and nausea. **Conclusions.** Supplementation with BCAA and calories improves muscle strength and quality of life in patients referred for evaluation of OLT. As may be an option in the treatment of these patients.
The authors declare that there is no conflict of interest.

008
DEFICIENCY AND INSUFFICIENCY OF MAGNESIUM AND VITAMIN D AND THEIR CORRELATION WITH THE METABOLIC PROFILE AFTER LIVER TRANSPLANTATION

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Introduction. In patients who received liver transplant the prevalence of metabolic alterations and development of metabolic syndrome is high. Recent studies have been focused on levels of 25 hidroxy vitamin D (25-OH-D) and serum magnesium in this event. There are not studies on this relation in patients after liver transplantation. **Objetives.** Asses the prevalence of deficiency and insufficiency of vitamin D and magnesium and its correlation with the lipid profile of patients after liver transplantation. **Material and methods.** A Nested-cross sectional study was performed in patients who received liver transplantation in the INCMNSZ. Prevalence of deficiency and insufficiency of vitamin D was assessed using the serum levels of 25-OH-D according to the USA Endocrine Society. Magnesium status was defined as deficiency when serum levels were < 1.85 mg/dL, insufficiency 1.85-1.92 and normal 1.93-2.5 mg/dL. Metabolic profile was assessed using fasting glucose and lipid profile (triglycerides, total, LDL and HDL cholesterol). The variables were described as mean and standard deviation, correlation was determined using Spearman's test. **Results.** Data of 71 patients were analyzed, where 37 were females and 34 males. The mean age was 51.72 ± 11.45 years old; the main causes of liver transplant were HCV (47.7%), autoimmune hepatitis (15.49%) and non alcoholic fatty liver disease (12.68%); the most frequent comorbilities were DM2 (27%) and hypertension (19.35%). 81.7% used tacrolimus as an immunosuppressive. The deficiency of vitamin D was 59.2%, insufficiency 28.2%, normal 11.3% and elevated 1.4%. In the analysis by gender the deficiency of vitamin D was higher in males than females (63.3 *vs.* 54.1%). The magnesium status was deficiency 52.94%, insufficiency 17.65%, and normal 29.4%. The statistically significant correlations were: 25-OH-D levels were directly correlated with serum magnesium, and inversely correlated with total cholesterol and triglycerides; the serum magnesium levels did not correlated with metabolic profile. **Conclusions.** The prevalence of deficiency and insufficiency of vitamin D and magnesium in this

population is high. Low levels of 25-OH-D are associated with increased total cholesterol and triglycerides as well as lower levels of serum magnesium.

CLINICAL RESEARCH - DRUG INDUCED LIVER INJURY

001
RISK FACTORS FOR DEVELOP ACUTE LIVER FAILURE AND DEATH IN PATIENTS WITH IDIOSYNCRATIC DRUG INDUCED LIVER INJURY

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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. Our aim was 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.** Retrospective study. We collected data from medical records of 69 patients diagnosed with DILI, treated between January 2006 and June 2014 at "Hospital General de México". **Results.** The following drugs were identified as causal agents of DILI: Herbal 28 cases (40.6%); quinolones 9 (13%); ceftriaxone, amoxicillin/clavulanate, ketoconazole 6 (8.7%) each one; antituberculosis drugs, carbamazepine 3 (4.3%) each one; diclofenac, oral contraceptives 2 (2.9%) each one; valproic acid, dapsone, tamoxifen 1 (1.4%) each one. The mean age was 38.8 ± 11.3 years; 52 (75.4%) were female; according to *R-value* 34 (49.3%) had hepatocellular injury, 24 (34.8%) mixed, 11 (15.9%) cholestasis; 27 (39.1%) were obese; ALF occurred in 32 (46.4%) cases, and 10 (14.5%) died. Risk factors for develop ALF were obesity (66.7 *vs.* 33.3%, P = 0.01; OR 4.0, 95% CI = 1.4-11.1); hepatocellular injury (61.8 *vs.* 31.4%, P = 0.01; OR 3.5, 95%CI = 1.3-9.5); and herbal (64.3 *vs.* 34.1%, P = 0.01; OR 3.4, 95%CI = 1.3-9.5). Risk factors for death were obesity (37 *vs.* 0%, P < 0.0001; OR 51.0, 95% CI = 2.8-918.7); hepatocellular injury (29.4 *vs.* 0%; P = 0.003; OR 30.4, 95%CI = 1.7-543.9); herbal (32.1 *vs.* 2.5%, P = 0.003; OR 13.2, 95%CI = 2.2-79.9); female gender (19.2 *vs.* 0%, P = 0.003; OR 30.4, 95%CI = 1.7-543.9). **Conclusions.** Obesity, herbal, hepatocellular injury are risk factors for ALF, besides them, female gender is a risk factor for death.
All authors declare no conflict of interest.

002
IMPACT OF DRUG-INDUCED LIVER DAMAGE IN JUAREZ HOSPITAL OF MEXICO

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Introduction. Drug-induced liver injury is one of the most difficult diagnoses face gastroenterologists. Different types of presentations and various causative agents make the diagnosis and management particularly difficult. In the United States an annual incidence of 14 cases per 100,000 inhabitants documented. **Objective.** To determine the incidence of liver damage from drugs in the Juárez Hospital of Mexico. **Material and methods.** Patients admitted with abnormal liver function tests and liver damage suspected drug of January 1 to December 31, 2014. Type of study: descriptive cross-sectional and retrospective. Variables analyzed: age, gender, type of induced damage, and MELD score, type of agent involved, ultrasonographic findings. The results were analyzed with relative frequency measures center to obtain percentages, median and average. **Results.** Eight cases were found. The average age was 34.5 years (range 29-43 years), with predominance of males (6 cases), the factors involved are 2 drugs (amoxicillin/clavulanate and antiretroviral) and 6 cases per herbology (blue stick 3 cases, Herbalife 1 case, 4life 1 case, Beto Ramon 1 case), 7 patients developed jaundice like symptoms for which they were consulted, as to the type of damage 4 found with hepatocellular pattern, 1 mixed and 3 cholestatic, average MELD was 23.23 (range 7-48), by hepatic ultrasound 4 patients with hepatomegaly, none of the patients met criteria required of Kings College Hospital, categories of suspicion as CIOMS scale all patients were possible, everyone is underwent liver biopsy which was consistent with liver damage from drugs. **Conclusions.** Liver damage from drugs is difficult to diagnose, interesting that most patients had intake of herbal, posing a new diagnostic challenge due to increased intake of these products and the lack of control over the sales, distribution and consumption, so it should take into account when we are faced with a patient with abnormal liver function tests.

CLINICAL RESEARCH - PEDIATRICS

001
ACUTE LIVER FAILURE. EXPERIENCE IN A THIRD LEVEL PEDIATRIC HOSPITAL

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Background. Acute liver failures (ALF) is a severe condition in a previous healthy child that develop hepatic dysfunction with coagulopathy with or without encephalopathy, with a high mortality rate. There are multiple causes related to the age of the child. **Objective.** Describe the causes and outcome of children with ALF in a third level Pediatric Hospital. **Material and methods.** All children with ALF from January 2010 to March 2015 who meet the criteria for the diagnosis were studied: hepatic dysfunction with coagulopathy without correction with Vit K (PT > 15 sec or INR 1.5) with encephalopathy or (PT > 20 sec or INR > 2) without encephalopathy within 8 weeks of the initial symptoms, without previous liver disease. **Results.** Nineteen children were included; the mean age was 36 ± 35 months (between 10 y 132 months), mean weight was 14 ± 11 kg and mean height 85 ± 33 cm. Male gender 11 and female 9. Six cases (32%) were of autoimmune origin: autoimmune hepatitis in 4 (21%) cases, hemolytic anemia associated to autoimmune hepatitis in 1 (5.2%), and primary sclerosing cholangitis in 1 (5.2%); metabolic disease 2 (10.5%); viral 4 (21%): Epstein Barr 2 (10.5%), cytomegalovirus 1 (5.2%) and viral hepatitis A in 1 (5.2%); hepatocellular carcinoma in 1 (5.2%) and undetermined in 6 (32%) cases. Survived 7 (39%) patients and 11 (61%) died within 38 ± 34 days after the onset of symptoms. Eight cases were listed for

liver transplantation (LT). Survival was 100% in the autoimmune hepatitis cases and 50% in metabolic diseases. One undetermined case and one with CMV Hepatitis survived. One no determined cause case is alive one year after living related LT. **Conclusions.** In this study autoimmune hepatitis diseases was the most frequent cause of ALF. Survival was related to the cause and the possibility of treatment. All autoimmune hepatitis cases survive in contrast with those with metabolic, viral and undetermined diseases. Organ supply is the limiting factor and a significant number of patient die while waiting LT.

The authors declare that there is no conflict of interest.

002
IMPACT ON THE TIMELY DETECTION OF BILIARY TRACT ATRESIA THROUGH IMPLEMENTATION OF STOOL COLOR CARD

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Introduction. Biliary atresia (AVB) is a process obstructive bile ducts leading to fibrosis, obliteration of the biliary tract and cirrhosis. Has 60% of restoration of bile flow to make portoenterostomy < 90 days old. In our setting > 50% of cases are referred after 3 months so that from January 2013 the Program for Early Detection of AVB was implemented by colorimetric card into the National Vaccination (CNV). **Aim.** To know the process of using the card as well as the reference time to our hospital for children with AVB from the first level for diagnosis and treatment. **Material and methods.** We included all children with AVB treated between 2010 and 2015. Data for shipping time, age at diagnosis and surgery were the clinical record. For analysis were divided into Group 1: period 2010-2012, and Group 2: period from 2013 to 2015. He questioned the family about the reporting process color card. **Results.** Forty-five children, 29 (64.4%) were females; were 27 (60%) in Group 1 and 18 (40%) Group 2. Was performed portoenteroanastomosis 14 (51.9%) and 13 (72.2%) patients, respectively (p = 0.1). The age in days to surgery: 85 ± 38 *vs.* 121 ± 41 (p = 0.2); tertiary sent age: 93 ± 44 *vs.* 116 ± 65 (p = 0.1) and age at diagnosis: 130 ± 85 *vs.* 137 ± 60 (p = 0.7), respectively. In Group 2 color card no information was given in 50%, 40% CNV gave no color card. Reasons for delay in shipment to third level: conducting studies for hepatitis, prolonged treatment for CMV and administrative problems. **Conclusions.** Our results show that there has been no change in the diagnosis and treatment for AVB. It is necessary to strengthen the information and maintain close surveillance program at all levels.

The authors declare that no conflict of interest.

003
BILE DUCT PAUCITY EXPERIENCE IN A THIRD LEVEL PEDIATRIC HOSPITAL

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Background. Bile duct paucity (BDP) is a cause of neonatal cholestasis. There are two types: syndromatic (Alagille syndrome) and non-syndromatic associated to genetic, metabolic, infectious and immunological causes. **Aim.** To describe the presentation and outcome of children with BDP. **Material and methods.** A retrospective and descriptive review of clinical, biochemical data and outcome in children with histologic diagnosis of BPD in the last 10 years was done. **Results.** Twelve cases were found, 7 syndromic type and 5 the non-syndromic. Mean age at diagnosis was 3.5 months, 7 females. Jaundice presentation was present at birth in 8/12. Gestational age and birth weight was lower in the non-syndromic than syndromatic (mean 2.4 *vs*. 3.5 kg). Syndromic children had facial dysmorphia (5), heart disease (7), embryotoxon (4) and vertebral malformations (3). AP and GGT values were higher in the syndromatic type. During follow up (6 months to 12 yr) the syndromic developed portal hypertension (2), intractable pruritus (3), xanthomatosis (2); one liver transplant was performed and 3 remain on the waiting list; one patient admitted with Kasai developed recurrent cholangitis. Non-syndromic associated causes were CMV infection in 2, multifactorial in 2 and not determined in 1; all cases had improvement outcome. **Conclusion.** Our results show that biochemical and clinical data of children with BDP differentiate between the two types of BDP. Syndromatic children underwent complications and listed for liver transplant in contrast with non-syndromatic type who had good outcome. BDP can resemble other causes of neonatal cholestasis and liver biopsy is important to avoid unnecessary surgery.

Table 1 (003). Initial and follow up biochemical data in 12 cases with BDP.

Variables	Initial		Follow-up	
Direct bilirubin (mg/dL)	6.58	0.2-16.5	2.2	0.1-7.6
Total bilirubin (mg/dL)	10.0	0.3-14.5	4.4	0.2 to 26
AST (UI)	183.5	63-528	114	27-303
ALT (IU)	209	74- 698	142.3	22- 224
Alkaline phosphatase (UI)	613	150-982	277.6	70-840
GGT (IU)	467.4	101-1262	264	12.9-890

004
CONGENITAL HEPATIC FIBROSIS, A CASE REPORT

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Introduction. Congenital hepatic fibrosis is an autosomal recessive disorder characterized histologically by fibrosis periportal and perilobular, with thick bands containing distorted structures that resemble bile ducts, structures that can expand and form microcysts not communicate with the biliary tract, this derivative lack of ductal plate remodeling resulting persistent embryonic bile ducts. It is associated with Caroli disease, choledochal cyst, renal dysplasia and autosomal recessive polycystic kidney disease and risk of cholangiocarcinoma. Usually diagnosed between 3-10 years of age, affects both sexes equally. With normal laboratory or fluctuating elevated serum transaminase levels with elevated alkaline phosphatase. USG: areas of increased echogenicity, splenomegaly and hepatomegaly. Liver biopsy is a very important diagnostic tool. Treatment is through control of the manifestations of portal hypertension, if suspected cholangitis antibiotics; liver transplantation. **Case report.** Female 2 years 8 months, mother of 18, regular prenatal care, adequate intake of folic acid, iron and calcium, risk of abortion at 3 months of gestation, born by cesarean premature as consecuence of rupture of membranes with 30.4 sdg APGAR 8/9, weight 1,700 gr size

50 cm, remained hospitalized for 20 days with headbox without requiring mechanical ventilation. At month old she had been hospitalized 10 times for respiratory infections. During these hospitalizations, she was diagnosed polycystic kidney disease, splenomegaly and hepatomegaly, which was performed AMO is reported without abnormalities. Liver biopsy was performed her which reports changes characteristic of ductal plate malformation with extensive fibrosis. **Conclusions.** Diagnosis of Congenital Hepatic Fibrosis should be suspected in children with persistent hepatomegaly to begin the study and proper handling. The general pediatrician should know this disease to derive timely specialist and not delay its management.

005
SMALL INTESTINAL BACTERIAL OVERGROWTH FREQUENCY IN PEDIATRIC PATIENTS WITH CHRONIC LIVER DISEASE

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Background. The child with chronic liver disease (CLD) may experience complications with some similarities to adult, such as metabolic abnormalities, cholestasis and infections. Small intestinal bacterial overgrowth (SIBO) occurs when bacterial counts are abnormally high in the small intestine (> 10^5 CFU/mL). From the noninvasive methods, lactulose breath test is often used for the diagnosis. It is known that the SBI is common in adult patients with CLD, but the frequency is unknown in pediatric patients. **Objective.** To determine the frequency of intestinal bacterial overgrowth syndrome in pediatric patients with CLD. Transversal, prospective study. **Material and methods.** Patients with CLD were included during 2 years. Data was collected from the clinical evaluation, liver function tests, Child-Pugh score. SIBO was considered positive with a lactulose breath test value ≥ 20 parts per million (ppm). Statistical analysis: 28 patients were studied, with ages ranging from 3m-15 years (mean age 6 years); 12 male (43%) and 16 female (57%), 16 had ascites (57%). A positive lactulose breath test was obtained in 19 cases (68%); according to Child Pugh score test was positive: 9/16 with Child A (56%), 6/8 (75%) B and 4/4 (100%) Child C. Patients with serum albumin low (< 3.2 g/dL) and ascites showed a high frequency of SIBO in 16/16 patients (100%). **Conclusion.** This study showed that children with CLD has a high frequency of SIBO, which increases directly proportional to the severity of liver disease. Hypoalbuminemia and ascites are parameters to explore as predictors of SIBO in prospective study with more patients.

CLINICAL RESEARCH - MISCELLANEOUS

001
INTRAHEPATIC CHOLANGIOCARCINOMA MUCINOUS MULTICENTER AS SECOND PRIMARY

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Introduction. Cholangiocarcinoma is a rare malignant tumor that originates in the epithelium of the intra or extra hepatic bile conducts. 3% of malignant tumors. Histologically most of cholangiocarcinoma are principally ductal adenomas but there are other types in which the incidence is very rare as the papillary, the mucinous, the mucoepidermoid, the adenosquamous, the squamous or cystadenocarcinoma, with less than 10% of cases. **Case report.** Female 57 years old with the following importance antecedents genetic load for hypertension and pancreatic cancer. In 2010 it was diagnosed left breast cancer IIB T2N1M0 with infiltrating ductal carcinoma biopsy lymph node invasion HER2 +. Treated with chemotherapy (paclitaxel and trastuzumab) and radiotherapy. Mastectomy and plastic reconstruction in 2013. Laparotomy 15 years ago. Glaucoma in both eyes treated with Timolol. She starts her condition four prior months with abdominal pain, type oppressive in right upper quadrant, it was intermittent no mitigating or aggravating, in addition to bloating, nausea and sometimes vomiting, a week before her admission jaundice in sclerae is added, she was assessed by particularly physician and sent to this medical unit. On admission she is generalized jaundice, neurologically complete, hydrated, without cardiopulmonary alterations, abdomen with hepatomegaly 2-2-3 cm below the costal margin. Leu 6700 Hb 16.3 Hto 46 Plat 173,000 TGO 321 TGP 209 FA 1,926 DHL 1150 pt 6.6 Alb 4.1 Glu 233 U 20 Cr 0.7 BT 6.04 BD 3.6 BI 2.4. Chest radiograph without suggestive image of pathology. TAC Abdominal hepatic metastases, simply left renal cyst. Liver biopsy: mucinous cholangiocarcinoma. **Conclusion.** The mucinous variant of intraductal papillary bile duct tumors is a rare variant of presentation of injuries cholangiocarcinoma type. They are characterized by increased mucin production (like pancreatic). They are slow growing and low infiltration rate. Knowing it is important because it has a better prognosis than other forms for cholangiocarcinoma.

002
DETECTION OF LIVER FIBROSIS BY NONINVASIVE METHODS IN PATIENTS WITH PSORIASIS

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Background and aim. Liver fibrosis is considered one of the major adverse effects secondary to therapeutic agents used in the treatment of psoriasis. Currently, the prevalence of liver fibrosis in this patient is unknown. The aim of this study was to describe the prevalence of liver fibrosis in patients diagnosed with psoriasis. **Material and methods.** We evaluated 127 patients with psoriasis under treatment with one or more medications. Demographic and biochemical data were recollected; liver fibrosis was determined by four noninvasive methods: NAFLD Score, APRI, Fib4 and FibroScan®. **Results.** The sample included 46 women (36.2%). The prevalence of liver fibrosis by each noninvasive method was: NAFLD Score 4.6% (n = 6); APRI 4.6% (n = 6); Fib4 3.9% (n = 6); FibroScan® > 9 kPa 15% (n = 9) and FibroScan® > 12 kPa 8.7% (n = 11). In logistic regression analysis treatment with Adalimumab was associated with presence of advanced liver fibrosis (> 12 kPa) (OR 12.4; 95%CI 1.8-84.0, p < 0.05). **Conclusions.** The prevalence of liver fibrosis in patients with psoriasis is high. In clinical practice screening of liver fibrosis is important to establish adequate treatment schemes.

003
BANTI SYNDROME INCIDENCE IN A TERTIARY CENTRE

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Introduction. Banti syndrome or idiopathic portal fibrosis is a disorder of unknown etiology characterized by portal hypertension, splenomegaly with or without hypersplenism and preserved liver function. In the West it is more frequent in females and in the fifth decade of life. Its pathogenesis is still under investigation, have been implicated prothrombotic states and infections. **Objective.** To determine the frequency and epidemiological characteristics of Banti syndrome in Juarez Hospital of Mexico. **Material and methods.** A retrospective cross-sectional study was conducted, statistics are expressed in percentages and averages. I included were patients who underwent liver Doppler ultrasound in the period March 1, 2012 to February 28, 2015 with reports of portal hypertension without cirrhosis data Doppler ultrasound or by laboratory tests. **Results.** Four cases were found. The average age was 37 years (range 28-45), female gender predominance (ratio 3: 1), average body mass index 26.67 (range 23.43-27.6) one case diagnosed with type 2 diabetes mellitus. Banti syndrome occurred in 2.35% of patients with portal hypertension by Doppler ultrasound liver. The etiology of one of the cases was Evans syndrome, the remaining three cases, no etiology remains. 75% cases presented ascites. In lab tests, mean hemoglobin was 9.02g/dL (range 7.6-11g/dL), thrombocytopenia with an average of 135,000 platelets (range from 59,000 to 200,000), leukocytes average 5792 (range 3,510-7,860), average neutrophil 3990 (range 2,870-5,240), lymphocytes average 1,222.5 (range 320-2,120), total bilirubin 1.1 mg/dL (range 0.8-1.6), albumin 4 g (range 3.5-4.3). Average spleen volume Doppler ultrasound liver was 650.75 cc (range 376-1,044). Only 25% (1 case) presented variceal bleeding secondary to large esophageal varices Baveno. **Conclusion.** The predominant sex and etiology of one case coincide with those reported in the literature. It is a disease underdiagnosed in our country, although not the most common cause of portal hypertension, it is important to identify for proper handling.
The authors have no conflicts of interest.

004
GIANT LIVER CYST TREATED WITH PERCUTANEOUS DRAINAGE AND SCLEROTHERAPY. CASE REPORT

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Background. Hepatic cysts are congenital malformations occur in 4 to 5% of the adult population, being more frequent in women with a 5: 1 in most cases are asymptomatic and require no treatment, reserving for the producing symptoms caused by the growth of the cyst with compression neighboring organs usually when it reaches a size of 5-10 cm. Complementary diagnostic imaging such as ultrasound and CT scan are required and can be treated expectantly, percutaneous or surgical drainage. **Case report.** Male 70 years old with no history major, begins with progressive increase in abdominal girth, right upper quadrant pain, and weight loss unquantified. The physical examination with increased in the waist circumference from epigastric predominance was observed in the mesogastrio a tumor of approximately 10 x 10 cm, involving the right upper quadrant and epigastric, mesogastrio. Study protocol was started evidencing: altered liver function tests, abdominal USG: enlarged liver, by intraparenchymal cyst, abdominal CT: homogeneous liver, hypodense in liquid range, ovoid morphology, smooth edges, thin, without internal septa of 20.2 x 20.1 x 14.8 cm, is sent to interventional radiology for percutaneous drainage quantified at 4,800 cc, later sclerotherapy performed with Polidocanol in 4 sessions, and 40 days after ultrasonographic screening hepatic cysts are observed septate so we proceeded to retreat drainage tube with normal liver tests controls. **Conclusions.** Aspiration alone has not been effective in preventing recurrence, surgical intervention has so far been the only effective treatment available however this involves considerable morbidity. Has been recently reported that extraction by puncture, aspiration + alcohol injection is a simple procedure, inexpensive, low morbidity and mortality as well as low recurrence, and could be the treatment of choice for symptomatic congenital cysts.

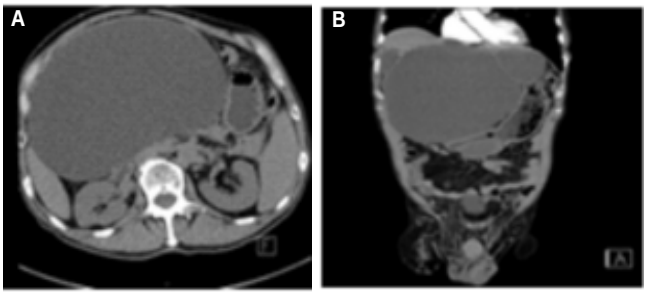

Figure 1 (004).

005
FLUOROSCOPY GUIDED PERCUTANEOUS LIVER BIOPSY. HOSPITAL JUAREZ DE MEXICO EXPERIENCE

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Background. Histological evaluation of the liver tissue remains essential part of the diagnosis, assessing prognosis and in tailoring treatment of multiple liver diseases. The technique originally described in 1958 by Menghini percussion based hepatic parenchyma, has now fallen into disuse due to its high rate of complications and has been replaced by image guided mainly tomography and ultrasound techniques. Fluoroscopy give us an image similar to an X-ray in real time to easily identify the hepatic parenchyma and facilitates accurate biopsy with needle visualization. In our center this technique is used for taking liver biopsy, in cases where parenchymal disease is suspected, and CT-guided biopsy for the case of single hepatic lesion or neoplasia. **Material and methods.** Liver biopsies performed between January and December 2014 were reviewed, the technique used, the requesting service, indications for liver biopsy, complications and the influence of hepatic histology on subsequent patient management was assessed. **Results.** A total of 62 percutaneous biopsies, of which 46 (74%) were guided by fluoroscopy, and 16 (26%) were guided by CT. There were no complications reported in 38 patients (61%), the main complication was pain at the

puncture site which occurred in 24 patients, only 1 patient had 1 wall hematoma with secondary anemia, one week after the procedure, which required hospitalization. There were no differences in complications between the two groups. The main indication for liver biopsy was metastatic liver, in 18 patients, followed by chronic liver disease under study in 14 patients, fatty liver, hepatic neoplasia, acute liver failure, acute hepatitis and hepatocellular carcinoma suspected. The biopsy has useful confirmation in 31 cases, change in treatment in 14 not influenced in 10 and was confusing in 3 cases. **Conclusions.** According to this experience percutaneous liver biopsy guided by real-time fluoroscopy appears to be effective and minimally invasive, yet to justify their safety follow up with a greater number of cases is necessary.