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A. TRANSPLANT/LIVER SURGERY

001

THE MELD SCORE HAS A NEGATIVE IMPACT IN PATIENT SURVIVAL ALTER LIVER TRANSPLANTATION

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Introduction. The MELD score has been approved by many countries due to its easy applicability and reproducibility. Its still debatable weather it has influenced post transplant survival. **Objective.** Evaluate the MELD score and risk factors associated to mortality in patients after LT. **Material and methods.** A retrospective analysis was carried on a prospectively maintained database on all transplants carried out between July 1999 and April 2012. Univariate and multivariate analysis were carried out to establish risk factors in the first month after liver transplantation. Cox regression and Kaplan Meier curves were used to establish long term results. **Results.** There were 57 transplants in 56 patients. One year graft and patient survival was 83 and 82% and 76 and 74% at 5 years. Hepatitis C virus and alcohol were the most common causes for transplantation with 52% of cases. Mean age was for donor and receptor was 29 and 52 years. Mean surgical time was 420 min and cold isquemia time never exceeded 8 h. When evaluating one month survival, significant variables on univariate analysis with a p value < 0.1 were MELD and CHILD scores, preoperative creatinine. RBC units used during surgery. These were included in the multivariate analysis and only the MELD score remained statistically significant [p = 0.011, RR (CI) of 1.196 (1.04-1.37)]. The COX regression also showed the impact of the MELD score on overall survival [p = 0.009, RR (CI) of 1.132 (1.034-1.240)]. The subgroup analysis with Kaplan-Meier curves showed a lower survival in relation to an increase in MELD score. (Log Rank 0.023 test) with a cutoff point of 17 and the majority of cases occurring during the first year. **Conclusion.** MELD score adversely impacts patient survival after LT and a system needs to be created to reduce waiting list mortality after LT without compromising post transplant results.
The authors declares that there is no conflict of interest.

002

LIVER TRANSPLANTATION AT THE HSJ-TEC DE MONTERREY

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Summary. Hepatic Transplantation is an excelent curative treatment option for patients with advanced liver disease and cute liver faliure. **Material and methods.** 57 liver transplants at a private center between 1999 and 2102 were analyzed. Al patients recieved cadaver from brain dead donors. The surgical technique, demographic caracteristics for donors and hosts were recorded, as were surgical and medical complications as well as causes of death and survival. Results were expressed as means, ranges, percetages and a Kaplan-Meier curve was used to estimate survival. **Results.** The main cause was hepatitis C, followed by alcohol abuse. 16% developed biliary complications, none leading to graft loss. Vascular complications ocurred in 19%. **Conclusion.** Results are comparable to those obtained at US and European centers.
The authors declares that there is no conflict of interest.

003

LAPAROSCOPIC LIVER RESECTION FOR BENIGN AND MALIGNANT TUMORS: FIVE CASES

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Since the first laparoscopic liver surgery in 1992, indications have grown, techniques improved and experience gained. Among the most common types of liver resection, segmentectomy represents 45% of all procedures, left side seccionectomy 20%, right hepatectomy 9% and left hepatectomy 7%. There are reported malignant lesions in a half of the patients, benign lesions in 45% and 1.7% are liver transplant harvests. The benefits of the laparoscopic approach are less blood loss, minor postoperative pain, fewer days of administration of narcotics used as analgesics and shorter hospital stay. We present five cases of laparoscopic liver resections performed for benign and malignant tumors. **Case 1.** A 31 year old man with medical history of acute pancreatitis 2 years prior to admission. The patient presented with a 1-year history of right upper quadrant pain associated during the last 48 h with anorexia, nausea, and vomit. A normal CBC and liver enzyme tests were reported, HCV and HBV tests were negative. Imaging studies US and CT scan showed a 19 x 16 mm lesion in segment II in a normal liver and cholecystitis. A left lateral laparoscopic segmentectomy and cholecystectomy was performed. Patient presented an uneventful recovery with a 5 day hospital stay. Final pathologic diagnosis was nodular hyperplasia. Six months after surgery he remains asymptomatic. **Case 2.** A 52 year old woman with medical history of diabetes, hypertension and hysterectomy due to uterinemiomatosis.

She presented with asymptomatic elevated trasaminases. An ultrasound was performed and a 33 x 26 mm tumor was found on segment VI suggesting HCC. CT scan confirmed the lesion and biopsy was inconclusive. A laparoscopic liver resection of segment VI was performed. Patient left the hospital asymptomatic on the sixth day. Final hystopathological diagnosis was a non malignant lesion. **Case 3.** A 51 year old man with a colonic adenocarcinoma 2 years prior treated with a laparoscopic left hemicolectomy. During follow up a 32 x 23 mm lesion was found in segment V with a CAE of 8.1. A laparoscopic resection was carried out and the patient made an uneventful recovery with discharge at day 5 post op. Pathology confimed a metastatic lesion. At three months follow up the patient remains disease free. **Case 4.** A 48 year old woman with colethiasis and a prior sleeve gastrectomy has a left lobe mass found incidentally during surgery in segment II. A left hepatectmy is carried out. Pathology found nodular tissue without malignancy. Asymptomatic at 5 years of follow up with normal LFTs. **Case 5.** A 56 year old woman presents with a 2 year history of RUQ pain and intermittent fever. US and CT reveal a lesion 25 x 38 mm in segment VI, with normal bloodwork. A laparoscopic resection is carried out without complications with a 4 day hospital stay. Pathology reports necrotic tissue without malignancy. Asymptomatic at at 3 months of follow up. In conclusion minimally invasive liver surgery is a safe alternative for malignant and benign pathology in our experience. Combining the proven benefits of laparoscopy without compromising oncologic principles in properly selected patients.

The authors declares that there is no conflict of interest.

004

INTERVENTIONISM RADIOLOGICAL IN POST-TRANSPLANT COMPLICATIONS

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Hepatic transplantation is the treatment of choice for patients with end stage liver disease due to acute or chronic disease. The original technique described by Starzal includes the resection of the retrohepatic vena cava, a veno-venous bypass with an extracorporeal pump. In 1989 Tzakis published the so called "piggyback" or caval preservation technique, that is now used by the majority of transplant groups. Leaving few indications for the classic technique. The resection of the retro hepatic vena cava implies an additional vascular anastomosis win the inherent increased risk. Vascular complications contribute significantly to the morbidity of liver transplantation. Interventional radiology has become the first line of treatment of vascular complications after liver transplantation and has become a fundamental part of orthotopic liver transplantation. A 39 year old man with sclerosing cholangitis underwent a LT with caval resection as the liver encircled the retro hepatic vena cava. A veno-venous bypass with an extracorporeal pump was carried out and the receptor cava was rejected en block with the liver. After the anastomosis there was difuse bleeding requiring packing. The patient stabilized and the 48 h portal and arterial Doppler showed a lack of flow at the level of the arterial anastomosis. A 6mm ringed Gore-Tex stent bypass is carried out from the aorta to common hepatic artery obtaining adequate flow. A repeat Doppler scan is carried out 24 h later showing thrombosis of the graft. Angiography is carried out and farmacologic thrombolysis is carried out restoring adecuate flow. A day later a repeat angiography is carried out showing a stenosis at the level of the anastomosis and it was stented with a subsecuent angiography 24 h later showing adequate flow and partial obstruction of the left hepatic artery with perfusion thru collaterals. The patient subsecuently developed lower extremity edema and 10 days later ivc obstruction was suspected. Venography was carried out with stenosis at the level of the anastomosis, resolved thru the use of a self expanding stent, thus restablishing flow and with rapid symptomatic improvement. At three months follow up the patient is asymptomatic with normal liver function. **Conclusion.** The advances in endovascular procedures have greatly increased the importance of interventional radiology in the managemente of vascular complications in liver transplantation. Reducing morbidity and possibly mortality, thus increasing patient and graft survival and salvage, thus avoiding some reoperative procedures.

The authors declares that there is no conflict of interest.

005

BY-PASS IN VENO-VENOUS ORTHOTOPIC LIVER TRANSPLANTATION

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The first liver transplant was carried out by Starzal in 1963 and is the treatment of choice for both acute and chronic liver failure. The original technique described by Starzal included the resection of the IVC with the recipient liver during the hepatectomy with portal and caval clamping and end to end cavo-caval anastomosis, with consequent hemodynamic instability due to the reduction in preload and splachnic congestion. This required an extracorporeal bypass to reduce intestinal congestion. Among the indications for the use of the classic technique are: hemodynamic instability during ivc clamping, cardiac failure, renal failure, fulminant liver failure, severe portal hypertension and massive bleeding during hepatectomy. We present the case of a 39 year old man with sclerosing cholangitis in whom the piggyback tecknique proved impossible as the native liver completely surrounded the vena cava. Thus an extracorporeal bypass was carried out and the cava was resected en block during the hepatectomy. A canula was introduced in the left femoral vein and right subclavian vein and systemic heparinization was used an extracorporeal bypass pump (as in CABG) was used to maintain flow. This permitted clamping of the IVC and suprahepatic vena cava. This permitted the completion of the hepatectomy and the transplant was completed with the corresponding anastomosis. After the anastomosis was completed there was diffuse oozing so the patient was packed. Cold isquemia time was 440 min and warm isquemia time was 2 h. The patient remained stable and at 48 h post OLT a Doppler US suggested arterial thrombosis. A laparotomy was carried out requiring an aorto hepatic bypass with a 6 mm ringed gore-tex graft, which required thrombolysis 24 h later by interventional radiology. Ten days later the patient developed IVC syndrome and the inferior anastomosis was found to be stenotic and was mana-

ged with a self expanding stent with adequate flow after placement. The patient made a satisfactory recovery and has normal liver function at three months follow up. **Conclusion.** There are still some situations when the classic technique may become necessary and the equipment to carry it out must be available at the time of transplant in spite of the popularity of the piggyback technique and can be chosen primarily in selected cases.
The authors declares that there is no conflict of interest.

006

IgG4 DISEASE EXPRESSED BY TYPE 1 AUTOIMMUNE PANCREATITIS, SCLEROSING CHOLANGITIS AND SIALADENITIS IN A WOMAN OF 41 YEARS IN NATIONAL MEDICAL CENTER "LA RAZA" DR. ANTONIO FRAGA MOURET: APROPOS OF A CASE

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Introduction. IgG4 disease has its own elevated serum, positive infiltration, fibrosis and responding to steroids. Affects to pancreas (11%), glands (salivary, lacrimal 9.4%), biliary tract (sclerosing cholangitis 9.9%) and retroperitoneal fibrosis (7.3%), among others. Clinically there painless obstructive jaundice (80%), hyperglycemia (50%), vomiting and steatorrhea. HISORt criteria are the gold standard for diagnosis. Treatment is prednisone 40 mg per day for 4 weeks with a remission rate of symptoms of 100%, with relapse of 40% and after immunosuppressive therapy option. The disease syndromes have been described in eastern countries, in Western countries, reports are rare or not detected. **Objective.** To promote the suspected diagnosis of this disease that will lead to early treatment. **Material and methods.** Female, 41 years, 8 months ago diagnosed diabetic, uncomplicated laparoscopic cholecystectomy. After surgery (1 month) have vomiting, abdominal pain and jaundice. Were performed sequentially blood chemistry, liver function tests (LFT), viral profile (PV), amylase, lipase, abdominal ultrasound, abdominal tomography (TC), endoscopic ultrasound, serum immunoglobulins, IgG subtypes, antimitochondrial antibodies (AMAs) and antibodies (ANAs), Ca 19-9, endoscopic retrograde cholangiopancreatography (ERCP), liver biopsy and salivary gland. **Results.** Laboratory. Glucose 398 mg/dL (normal [nl] < 100 mg/dL), alkaline phosphatase 1,030 U/L (nl 240 U/L), gamma glutamyl transpeptidase 1,225 U/L (nl 40 U/L), total bilirubin 3.1 mg/dL (nl 1 mg/dL), direct bilirubin 2.56 mg/dL (nl 0.4 mg/dL), negative PV, amylase 280 U/L (nl 60 U/L), IgG 1,870 mg/dL (nl 1,800 mg/dL), IgG4 326 mg/dL (nl 1-291 mg/dL), ANAs1:640, AMAs negative, CA 19-9 41 U/mL (nl < 37 U/mL). Cabinet. a) Abdominal ultrasound: pancreatic pseudocyst, biliary sclerosis. b) Abdomen CT: enlarged pancreas, heterogeneous, dilated Wirsung, retroperitoneal nodes 6 to 14 mm. c) Endoscopic ultrasound: hypoechoic pancreas, dilated Wirsung with two segmental thickened, bile duct of 7 mm, whitout lithos, thin intrahepatic bile duct. d) ERCP: stenosis and segmental dilatation of intrahepatic bile duct, bile duct disease. e) Liver biopsy: ductopenia, colangiolos proliferation and fibrosis. f) Salivary gland biopsy: lifoplasmocitario infiltrate, destruction of acini. Were discarded pathologies associated with primary sclerosing cholangitis (PSC). **Conclusions.** The suspected diagnosis was made by pancreatic tomographic data and endoscopic findings of ultrasound; was corroborated with serum levels of IgG4, salivary gland biopsy and ERCP findings. After treatment with steroids the patient with significant improvement of the disease and currently free of relapse. This entity is underdiagnosed by a wide variety of differential diagnoses, common at all levels of involvement. The clinical suspicion, elevated serum IgG4 and imaging findings, would be far more definitive guidelines for diagnosis.
The authors declares that there is no conflict of interest.

B. CIRRHOSIS AND COMPLICATIONS

001

ORAL ZINC SUPPLEMENTATION FOR HEPATIC ENCEPHALOPATHY: SYSTEMATIC REVIEW AND META-ANALYSIS

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Background. Has been postulated low serum zinc levels as precipitating for hepatic encephalopathy. Therefore zinc supplementation is considered to be a therapeutic option. **Objectives.** To assess the effects of oral zinc supplementation in the treatment of hepatic encephalopathy. **Material and methods.** Data sources. Electronic databases (The Cochrane Library, MEDLINE, EMBASE) and handsearch (the references of all identified studies). Study eligibility criteria. Prospective randomized clinical trials. Participants and interventions. Adult patients diagnosed with liver cirrhosis and hepatic encephalopathy. Types of interventions. Any oral zinc supplementation versus no intervention, placebo, or other interventions for management of hepatic encephalopathy. Study appraisal and synthesis methods. Data was analyzed calculating the relative risk (RR) for each trial, expressing the uncertainty with 95% confidence intervals (CI). Continuous data were analyzed calculating standard mean differences (SMD) between groups of each trial and its 95%CI. Statistical heterogeneity was defined as a P-value > 0.10 (χ^2) or I^2 > 25%. **Results.** Were included four trials (233 patients). A significant improvement in number connection test was observed with oral zinc supplementation (SMD -0.54; 95%CI -0.90 to -0.19), without reduction in the rate of encephalopathy recurrence (RR 0.64; 95%CI 0.26 to 1.59). Limitations. There is heterogeneity in the outcomes reported in the included trials. Precluding evidence based analysis of significant outcomes on hepatic encephalopathy. **Conclusions.** Oral zinc supplementation improve number connection test. However there is no evidence-based information regarding other clinical or biochemical outcomes.
The authors declares that there is no conflict of interest.

002

CIRRHOSIS OF CARDIAC ORIGIN IN A PATIENT AT PROTOCOL FOR RENAL TRANSPLANT

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Introduction and objectives. Cirrhosis due to a cardiac pathology is poorly documented in our environment and even

the reviews regarding this issue are not extensive. It has been described as a chronic, silent disorder due to passive congestion, characterized by a spectrum of morphologic changes from mild sinusoidal collagen deposit to the emergence of broad fibrous septa. While it is associated predominantly with ischemic heart disease (31%), it has all been associated with cardiomyopathy (23%). The purpose of this case report is to describe this uncommon pathology, especially in a patient with multiple comorbidities. **Material and methods.** We performed a review of a clinical record from a patient who attended the Fundación Clínica Médica Sur. It is a male patient of 43 years with history of chronic renal failure (CRF), (KDOQI V) (TFG 7.12 MDRD), diagnosed in 2008 due to a nephritic syndrome on a base of a focal and segmental glomerulonephritis of unknown etiology. Due to a worsening in the renal function, he is a candidate for kidney transplantation, and while performing his extension studies, a systemic hypertension and a congestive heart failure by dilated cardiomyopathy are diagnosed. He required peritoneal dialysis that hasn't been maintained regularly, and he continues with production of ascitic fluid by a Tenchkoff catheter, almost 8 to 10 liters per day. At the extension studies, an advanced chronic liver disease was documented and fibrosis by fibroscan. **Results.** A suprahepatic vein catheterization was made, and a free pressure of 24 mmHg was recorded along with a wedge pressure of 28 mmHg, a gradient of 4 mmHg and an atrial pressure of 22 mmHg. These findings are consistent with the diagnosis of cirrhosis of cardiac origin. Transjugular liver biopsy was taken and it reported changes consistent with hepatic congestion and fibrosis.
The authors declares that there is no conflict of interest.

003

TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS): ANALYSIS OF SURVIVAL IN THE NATIONAL INSTITUTE OF MEDICAL SCIENCES AND NUTRITION "SALVADOR ZUBIRÁN"

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Introduction. Transjugular intrahepatic portosystemic shunt (TIPS) is a secure procedure for the treatment of cirrosis complications. The procedure implies the creation of a bridge between the hepatic vein and the intra-hepatic portal vein by a transjugular approach in patients with decompensated cirrhosis. **Objective.** a) To describe the survival after TIPS placed in patients of the institute who had a history of refractory ascites, variceal bleeding or recurrent hepatic hydrothorax. b) To identify predictors of survival after TIPS. **Material and methods.** We studied 20 patients in which TIPS were placed from 2006 to April 2012 in our Institute, they were follow retrolectively. These patients had liver cirrhosis of diverse etiology (primary biliary cirrhosis, HCV, alcoholic cirrhosis, cryptogenic and autoimmune). TIPS was performed for the treatment of refractory ascites, refractory bleeding, and hydrothorax. A clinical aproach, a biochemical evaluation, and ultrasound Doppler were performed in each patient at 24 h after TIPS placement initially. The same evaluation was repeated a month, three months, six months or until death. If clinical or radiological dysfunction was found, they underwent angioplasty and/or placement of new stent. Demographic, radiological and biochemical variables were obtained. These variables were analyzed with SPSS v.15 data and compared using χ^2, Fisher exact test, Student t test, u Mann Whitney and log rank for survival analysis. **Results.** In the serie described twenty patients were studied, 65% were men (n = 13), 35% female (n = 7). With an average age of (50 ± 12). The most frequent etiology of cirrhosis was alcoholic which was found in 35% (n = 7), followed by hepatitis C virus 36% (n = 6), and 25% primary biliary cirrhosis (n = 5). Child Pugh classification prior TIPS was A in 15% (n = 3), B in 35% (n = 7), C in 50% (n = 10). The mean MELD scale was 15.1 (± 6.26). TIPS indication was: ascites in 55% (n = 11), variceal bleeding in 35% (n = 7), hydrothorax in 10% (n = 2). There were two kinds of prosthesis placed: a) A coated with polytetrafluoroethylene in 30% (n = 6) and b) The not covered in 70% (n = 14). Higher mortality was observed after TIPS placement in patients with HCV (p = 0.02) and Child C (p = 0.04), the laboratory mean values associated with higher mortality were: a) Albumin (2.35 ± 0.85) (p = 0.03), b) INR (1.55 ± 0.51) (p = 0.05). Patients with primary biliary cirrhosis had an overall better survival after TIPS placement (42.9% alive) (n = 3) (p = 0.02). In the first month there were three deaths; and 6 more in the third month, representing a mortality of 45% in the first 3 months after TIPS placement, at six months 2 more patients died, at 6 months only 7 patients survived. **Conclusions.** In our series there was a high mortality following TIPS placement which was associated with liver function deterioration based on the basal pre TIPS measures: surprisingly hepatitis c virus had higher mortality *vs.* primary biliary cirrosis patients which had an associated increase in survival, data from our series show that the transplant should be performed immediately after placement of TIPS since mortality is about 50% in the first three months.
The authors declares that there is no conflict of interest.

004

COMPARISON BETWEEN WEST HAVEN CRITERIA, CHESS, GLASGOW COMA SCALE, AND AMMONIUM LEVELS IN THE ESTIMATION OF SEVERITY OF ACUTE HEPATIC ENCEPHALOPATHY GRADES III AND IV

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Background. Hepatic encephalopathy (EH) is a set of neurological manifestations present in liver disease. The diagnosis is clinical, but currently there is not a gold standard test for identification. The scale of West Haven is the most widely used, but presents inter-observer variation and lacks objectivity. It is important to characterize the severity of the EH to reduce the morbidity and mortality associated and to quantify the effect of therapeutic interventions in a reliable and reproducible manner. The CHESS scale assesses alert, orientation, verbal and commands response, is easy and reproducible. **Aim.** Comparison between West Haven criteria, CHESS, the Glasgow coma scale, and the levels of ammonium in the estimation of severity of acute hepatic encephalopathy grades III and IV. **Material and methods.** Prospective study of cirrhotic patients hospitalized for acute hepatic encephalopathy grades III and IV and serum ammonia > 35 μmol/L, which were assessed every 24 h until discharge or death with the clinical

Table 1. (004).

Clinical Hepatic Encephalopathy Staging Scale (CHESS)	0 points	1 point
1. Does the patient know which month he/she is in (i.e., January, February)?	Yes	No, or he/she does not talk
2. Does the patient know which day of the week he/she is in (i.e., Thursday, Friday, Sunday, etc.)?	Yes	No, or he/she does not talk
3. Can he/she count backward from 10 to 1 without making mistakes or stopping?	Yes	No, or he/she does not talk
4. If asked to do so, does he/she raise his/her arms?	Yes	No
5. Does he/she understand what you are saying to him/her? (Based on the answers to questions 1 to 4)	Yes	No, or he/she does not talk
6. Is the patient awake and alert?	Yes	No, he/she is sleepy or fast asleep
7. Is the patient fast asleep, and is it difficult to wake him/her up?	No	Yes
8. Can he/she talk?	Yes	He/she does not talk
9. Can he/she talk correctly? In other words, can you understand everything he/she says, and he/she doesn't stammer?	Yes	No, he/she does Not talk or does not talk correctly

scales of West Haven, CHESS and Glasgow; and determination of serum ammonia using the technique of dry chemistry. We included 32 subjects, and a total of 128 clinical assessments with their respective determinations of ammonium were obtained. Continuous variables were established as average and dispersion coefficient was used the standard deviation. The correlation between clinical scales and levels of ammonium was determined by the Pearson correlation coefficient. The tests were performed in two directions and values of $p < 0.01$ were defined as statistically significant. **Results.** The median age was 55.23 ± 10.72; 61.3% where men and 38.7% women. The median MELD was 21; 29 ± 7.57; 93.5% belonged to Child-Pugh C classification and 6.5% to the Child-Pugh B. The etiology of cirrhosis was alcohol in 51.6%, cryptogenic in 29%, hepatitis C virus in 16.1% and autoimmune in 3.2%. The main precipitating factor identified was constipation in 38.7% and the second cause was upper gastrointestinal bleeding in 25.8%. There were 6 deaths, of which 3 were attributed to not controlled upper gastrointestinal bleeding, and 3 to sepsis. The CHESS scale properly correlated with the West Haven criteria (Pearson correlation coefficient $r = 0.901$). On the other hand, the scale of Glasgow had a negative correlation with the West Haven ($r = -0.166$). Ammonium levels properly correlated with the degree of severity measured with CHESS and West Haven scales but not the Glasgow (Pearson correlation coefficient $r = 0.388$ $r = 0.401$y, $r = -0.116$ respectively with a $p < 0.01$). **Conclusions.** CHESS scale properly correlate with the West Haven criteria and ammonia levels. There is not previous validation cohort to the use of this clinical scale, which is simple, reproducible and particularly useful in patients with acute hepatic encephalopathy. In conclusion, although West Haven criteria are considered the "standard" for diagnosis of EH, this scale lacks objectivity and new scores are needed to improve diagnostic accuracy.

The authors declares that there is no conflict of interest.

005

INCIDENCE OF BACTERIAL INFECTIONS IN A GROUP OF CIRRHOTIC PATIENTS ACCORDING TO CLASS CHILD PUGH AND MELD SCORE IN NATIONAL MEDICAL CENTER LA RAZA "ANTONIO FRAGA MOURET"

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Introduction. Cirrhosis causes acquired immunodeficiency state. The number of infection is from 40 to 50% in hospitalized cirrhotic with an increase of the morbid-mortality. The hepatic insufficiency and portal hypertension are the principal determining factors of the evolutions to these patients, however, a percentage are susceptible of mortal infections from 7 to 40% in some different studies. The spontaneous bacterial peritonitis (SBP) is considered a major risk factor in those patients, nevertheless, other infection process are vaguely described. The pathophysiology is related to bacterial colonization, loss of immune response in bowel and a harsh inflammatory process mainly controlled by citokines. There are not any preventative strategies, diagnostics and control well formulated. **Aims.** We not only determinate the incidence of these infections in cirrhotic patients in our medical center but also we identified the principal infectious process and their relation with hepatic insufficiency. **Material and methods.** Retrospective, transverse. We included cirrhotic patients evaluated in the outpatient or inpatient from January 2011 to December 2011 at Gastroenterology Service from National Medical Center (NMC) La Raza "Antonio Fraga Mouret". The diagnosis of cirrhosis was based on the clinical, biochemist and ultrasonographic parameters already defined. Some of

them had endoscopy and hepatic biopsy. We excluded those with immunosuppressive management and high-dose steroids. Other important information was: age, gender, immunosuppression (DM2, etc.). The damage caused by cirrhosis was evaluated by Child Pugh (CP) and MELD score. Fever, tachycardia, tachypnea and alterations of the blood pressure were the first suspicion of infection; it was completed by physical exploration, imaging (depending of infection side) and cultures (ultimately). All the values are reported as means ± standard deviations; P values < 0.05 were considered significant. **Results.** 41 patients were included, 49 women and 20 men, with a mean age of 54 ± 13.3 years. The origin of cirrhosis was hepatitis C (HCV) 34.78%, cryptogenic 20.28%, overlap syndrome 13.07%, autoimmune hepatitis 13.06%, primary biliary cirrhosis 10.14%, alcoholic 5.79%, non-alcoholic steatohepatitis 1.44%, other 1.44%. The CP A class was determinated in 28.99%, CP B 55.09% y CP C 15.94%. The mean MELD score at admission were 13 (rank 6-34). Were documented 43 episodes infectious in 31 patients (urinary tract infections 41.86%, periodontal 16.27%, SBP 13.95%, pneumonia 10.09%, gastro intestinal 8.53, skin 4.65%, bile 4.65%), 6 patients presented more than one episodes; 20.93% were CP A, 37.21% CP B and 41.86% CP C; 58.14% with MELD > 13, 41.86% con MELD ≤ 13. Low level of albumin (p = 0.006) and high levels of creatinine (p = 0.009) were related to risk of infection. High level of bilirrubin without significant value (p = 0.09). Hyponatremia with mean of 132 ± 3 meq/l in patients infected, it was not significant (p = 0.54). **Conclusion.** The incidence of infections was higher in patients with advanced liver failure. The most frequent etiology of cirrhosis in our hospital is HCV. The condition of the urinary tract is one of the most common causes of infection in cirrhotic patients. Hypoalbuminemia and elevated creatinine are predictors of risk of infection.
The authors declares that there is no conflict of interest.

006

CORRELATION BETWEEN ELASTOGRAPHY (FIBROSCAN) AND THE FORNS INDEX AND THE APRI IN THE ASSESSMENT OF LIVER CIRRHOSIS

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Background. Fibrosis is the result of a chronic liver wound. Since it can develop into cirrhosis or revert itself to restore the normal liver structure, it must be assessed to determine the approach to be taken and prognosis. There is a need for a non-invasive fibrosis indicator as alternative to a biopsy, which would ideally be liver-specific, reproducible and have a fast methodology. The APRI and the Forns Index, and more recently elastography, have been used to correlate it with the METAVIR scale. **Objective.** To correlate the elastography result (FibroScan) with the APRI and the Forns Index. **Material and methods.** In this cross-sectional study, clinical histories were reviewed and laboratory tests were performed in order to calculate the Forns Index using the following formula:

[7.811-3.131* ln (N of platelets) + 0.781 * ln(GGT) + 3.467 * ln(age) - 0.014 * (cholesterol)].

Patients were classified into three groups according with their score: below 4.2 points (mild fibrosis), between 4.2 and 6.9 points, and over 6.9 points (severe fibrosis). The APRI was calculated as the number of times AST exceeded the normal amount/number of platelets:

[N of times normal AST value/platelets * 109 * 100];

following these results, patients were divided into three groups: APRI below 0.50 (ruling out relevant fibrosis), APRI between 0.5 and 1.5, and APRI over 1.5 (progression to cirrhosis). And the FibroScan report (kPA). Data was analyzed using descriptive statistics, non-parametric tests (Kendall's tau-b) for the discontinuous variables and three-group ANOVA. ROC curves were used for sensitivity, specificity, positive and negative predictive value. **Results.** A total of 59 patients were included in the study, of which 15 had alcoholic liver disease, 14 had non-alcoholic fatty liver disease, 11 had cholestasis, 9 had VHC infection, 4 of cryptogenic etiology, 3 had autoimmune hepatitis and 2 had portal hypertension. Patients were mostly women (67%). Average age was 50 years (±14.9 SD) and average BMI was 28 ± 5.9 kg/m^2. The APRI value was below 0.5 in 12 patients (20.7%), between 0.5-1.5 in 24 (41.4%), and over 1.5 in 17 (29.3%). The value of the Forns Index, was below 4.2 in 11 patients (19%), between 4.2 and 6.9 in 13 (22.4%), and over 6.9 in 29 (50%). Following the elastography results, 6 patients (10.5%) were classified as F0, 8 (14%) as F1, 6 (10.5%) as F2, 5 (8.8%) as F2- F3, 3 (5.3%) as F3, and 28 as F4 (49.1%). The Spearman correlation coefficients for the APRI and the Forns Index compared to the elastography were 0.53 and 0.46, respectively (p < 0.0001), and the correlation coefficient between the APRI and the Forns Index was 0.71 (p < 0.0001). Furthermore, a correlation between elastography (F4) and the size of varices (Baveno) (r = 0.3, p < 0.034), Child Pugh scale (r = 0.658, p < 0.001), albumin (r = 0.87, p < 0.006), and TP (r = 0.37, p < 0.008) was found. Finally, the sensitivity and specificity values of the APRI were 48% and 17%, respectively, with PPV 70%, NPV 63%, based on the elastography as reference. However, the sensitivity and specificity values of the Forns Index were 76% and 35%, PPV 65%, and NPV 75%. **Conclusions.** Our results confirm the utility of elastography, the APRI, and the Forns Index for predicting advanced fibrosis and cirrhosis in chronic liver diseases of different etiologies. The fibrosis degree from the elastography correlated with the Child-Pugh scale, the size of esophageal varices, albumin, and prothrombin time.
The authors declares that there is no conflict of interest.

007

INDEX PLATELET COUNT/SPLENIC DIAMETER OF NON-INVASIVE PREDICTOR LARGER ESOPHAGEAL VARICES IN HEPATIC INSUFFICIENCY

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Introduction and objective. The data show that clinical predictors in addition to laboratory and imaging studies can be used to stratify cirrhotic patients according to risk of large esophageal varices and such stratification could be used to improve the cost effectiveness for endoscopic screening. The rate of platelet count / spleen diameter about 909 has a 100% negative predictive value for the presence of esophageal varices. Can help reduce the number of endoscopy to detect esophageal varices. The optimal cutoff index platelet count / spleen size was 909 according to by Giannini *et al.*, who found a sim-

ple clinical predictor based on the highest value of this index on platelet count and spleen size. The aim of our study determine whether the platelet count Index / spleen diameter can be an effective noninvasive predictor of the presence of large esophageal varices is liver failure patients. **Material and methods**. We performed a retrospective, observational, longitudinal study including 100 medical records of patients diagnosed with liver failure who have performing platelet count, USG Doppler (diameter of the spleen) and Panendoscopy (determining the degree of esophageal varices), to which determine the rate of platelet count / spleen diameter as a cohort using a value <909 and correlated with the degree of esophageal varices. It is calculated sensitivity, specificity, and negative predictive value of the index positive studied. **Results**. 100 patients included 55 men and 45 women. The mean age of patients was 55.5 years (range 34-82). The etiology of liver failure were mainly alcoholic with a total of 58 patients (45 men and 13 women), 23 patients with autoimmune etiology (19 women, 4 men), for hepatitis C virus (11 women and 5 men), hepatitis B 3 patients (2 women and 1 man). Were classified with Child-Pugh A 24% 24 patients (12 women and 12 men), Child B 67, 67% (37 men and 30 women), Child C 9 patients, 9% (5 men and 4 women). As for upper gastrointestinal endoscopy, we measured the degree of esophageal varices by classifying Dagradi (IV) of the 100 patients 6 had esophageal varices grade I, grade II (7), grade III (26), grade IV (20), grade V (41). Splenic Doppler ultrasound was performed in which measured the diameter of the spleen, was revised in hematology platelet count. We measured the rate of platelet count/spleen diameter per 100 patient cohort taking as <909, as a noninvasive predictor of esophageal varices. Resulting test sensitivity 88.6% and a specificity of 66.6. 95.1% positive predictive value and negative predictive value 44%. **Conclusions**. We conclude that the rate of platelet count / spleen diameter with a value smaller cohort of 909, is a noninvasive diagnostic test that predicts the presence of large esophageal varices in patients with liver cirrhosis. It has a high sensitivity (88.6%) diagnostic to helping patients with large varices, but due to its low specificity, diagnostic aids are required as is the panendoscopy to detect healthy patients, the diagnosis of patients with large varices can start in an early treatment with pharmacological therapy or prepare the patient for an invasive treatment of varicose veins, without an initial implementation of upper gastrointestinal endoscopy.

No conflict of interest by authors.

C. LIVER TUMORS

001

CASE REPORT AND REVIEW OF THE LITERATURE: CARCINOSARCOMA OF THE BILIARY TRACT, A RARE NEOPLASM

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Background. Carcinosarcoma of the gallbladder (CSG) is a rare neoplasm. It has an incidence < 1% of all neoplasms of the gallbladder. Histologically, it is characterized by malignant epithelial and mesenchymal components; the most frequent epithelial component is adenocarcinoma. Moreover, the histological development and the natural history of this tumor are uncertain. This tumor is divided into two groups "True carcinosarcomas" and so-called "Carcinosarcoma". Clinically the average age of presentation is 67 years old, predominantly seen in woman. Furthermore, the most common clinical features seen are abdominal pain, fever, jaundice and the presence of a palpable mass. The five years survival is 16%. It is not associated with specific radiological findings or tumor markers and should be considered in the differential diagnosis of gallbladder tumors, especially when is manifested with severe abdominal symptoms and/or large tumor size. **Aim.** To describe the case of a patient with a diagnosis of CSG. Should be suspected and considered as differential diagnosis when a patient shows radiological findings of hepatic infiltration. **Case report.** A 50 year old woman. The symptoms presented 3 months with decreased appetite, fatigue, weight loss of 10kg, early satiety, nausea and postprandial vomit. Last month symptoms included cramping and abdominal pain in the right upper quadrant without radiation, disabling abdominal distension with gradually and fever. Physical examination: Abdomen showing increased abdominal girth, hepatomegaly 25 cm below the costal margin, ascites grade II. Serum alkaline phosphatase; 324, gammaglutamyltranspeptidasa; 207, lactic dehydrogenase 358, alanine transaminase 28, bilirrubine direct 0.10, alb. 1.70. USG abdominal. Gallbladder lithiasis scleroatrophic and multiple nodular liver to rule out metastasis. Computed tomography (CT): Hepatic tumor; likely to be liver carcinoma. Hepatic metastases; probably originating from the same liver. Liver injury with a size of 23 cm x 16cm x 11 cm. Gallbladder was unidentified. Patient showed important clinical deterioration preceding death. Autopsy results: CSG with squamous cell carcinoma component displaying broken angiosarcoma with hepatic infiltration. Serosal extension of stomach and diaphragm and hepatic metastases. **Conclusion.** CSBT is a rare tumor. This presents high mortality and therefore a poor prognosis. A third of patients with this tumor show at the time of diagnosis, metastases or local spread which was evident in this case. The patient presented local metastases to the liver which delayed the final diagnosis as initial thoughts were of primary liver tumor (liver carcinoma). By performing clinical findings and imaging studies it is difficult to make a preoperative diagnosis. Due to its rarity a general consensus on surgical indications is still being discussed. Further studies are needed to identify biochemical or molecular markers as a prognosis aid.

The authors declares that there is no conflict of interest.

002

LARGE SOLITARY NECROTIC NODULE OF THE LIVER DETECTED BY AUTOPSY. CASE REPORT

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Solitary necrotic nodule (SNN) of the liver is a very rare lesion. It was first described by Shepherd and Lee in 1983, and few cases were reported. It is a small subcapsular nodule characterized by a necrotic core surrounded by collagenized fibrous tissue. There is a lightly male predominance affected, in the majority of cases the seventh and eighth decades of life. The pathogenetic mechanism is still unclear. SNN are usually

benign lesions, but some nodules may show the presence of cancer foci, while some may be associated with gastrointestinal malignancy. The complete natural history remains unknown. This lesion use to be small, the mean diameter is 14 mm, and the vast mayority are solitary. Most of the lesions are asymtomatic and they are detected by preoperative evaluation for another cause or incidentally during surgery. Most of SNN reported are in the right liver lobe. Diagnosis is very difficult because ultrasound and radiographic patterns are similar to those of the metastatic lesions; use to show hypoattenuation on CT and an hypoechoic nodule without contrast enhancement and with hypointense asignal in a magnetic resonance image secuencies suggest a SNN. Because of the malignant potential is recommend the surgical resection. **Case report.** A 86-years-old woman with medical history of ischemic heart disease, arterial hipertension and 2 previous bone surgery, who was admitted for right hip fracture. The patient underwent surgery the same day, had poor outcome and died. Autopsy was performed, and revealed the presence of a rounded, nonencapsulated nodule, measuring 5.0 cm, with well-defined margins and elastic consistency. The central portion of the lesion was soft and yellowish. Histological examination revealed that the lesion was composed of a central completely necrotic, acellular, eosinophilic core surrounded by a thin fibrotic capsule of collagen and elastic fibers. No malignancy or infection was founded. The hepatic tissue surrounding the lesion was normal. **Conclusion.** SNN of the liver are rare benign lesions with an uncertain etiology. It is described as solitary, small, subcapsular nodule, characterized by necrosis and fibrous tissue. Posible etiopathogeneses of the lesion include sclerosin hemangiomas, trauma, and sequelae of previous infections suchs as tuberculosis, syphilis, amoebiasis and larva migrans. Most of them are found incidentally by autopsy, surgery, and radiological examination. It is strongly recommend the surgical resection of these nodules and complete histologic examination. In this patient the size was much higher than the average previously reported and there was no association with malignancy or infection. SNN must be considered in the differential diagnosis of focal liver mases.
The authors declares that there is no conflict of interest.

003

PREVALENCE OF HEPATOCELLULAR CARCINOMA AS A FINDING IN AUTOPSIES OF PATIENTS WITH DIAGNOSIS OF CIRRHOSIS

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Introduction. Hepatocellular carcinoma (HCC) is the most frequent primary liver tumor, it accounts for the 78% of all primary liver cancers with an incidence of 2.4 per 100,000 population. It generally develops in patients with an underlying chronic liver disease. It has a worldwide distribution, occupying the fifth place of the most common tumors and represents near the 6% of all cancers. The three most important risk factors for the development of the HCC are the hepatitis C virus chronic infection, hepatitis B chronic infection and the alcoholic induced cirrhosis. Regardless of the cause, cirrhosis is considered a risk factor for the HCC development. Many studies have demonstrated that the alcohol use (> 80 g/day) and the secondary induced cirrhosis, are strongly associated with the development of HCC. Abdominal ultrasound is the study of choice in detecting HCC suspicious lesions in patients with cirrhosis, being necessary to practice a triphasic computed tomography (CT) and sometimes a lesion biopsy in order to corroborate the diagnosis. The therapy depends on the disease stage. **Aim.** To determine the HCC prevalence in autopsies of patients with cirrhosis, that passed away in the Hospital General de México, in a 9 years period. **Material and methods.** A retrolective, descriptive and cross sectional study was carried out. Reports of autopsies of the Hospital General de México from January of 1998 to December of 2007 were reviewed, and intentionally diagnosis of cirrhosis and HCC was looked up. **Results.** The total number of autopsies was 7,258, of which the total number of patients with cirrhosis was n = 362, of these 76 cases presented HCC with a prevalence of 20%. Common risk factors associated to HCC were alcohol n = 44 (57.8%), cryptogenic cirrhosis n = 15 (19.7%), hepatitis C virus n = 13 (17.1%) and hepatitis B virus n = 2 (2.6%). HCC ocurred in a similar way between gender, male n = 37 (49%) and female n = 39 (51%). **Conclusion.** HCC prevalence in patients with cirrhosis who died between 1998 and 2007 in the Hospital General de México is relatively elevated and the most common cause of cirrhosis was alcohol use, so that screening methods must be improved in order to detect *in vivo* this complication that was found in 20% of autopsies.
The authors declares that there is no conflict of interest.

004

LIVER ABSCESSES DETECTED BY AUTOPSY IN THE HOSPITAL GENERAL DE MÉXICO (HGM)

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Introduction. Liver abscess remains a frequent cause of hospital admission. The prevalence in autopsy series ranges from 0.29% to 1.47%. The most common hepatic abscesses are pyogenic, and amebic in lesser proportion. Pyogenic abscesses are located in the right lobe of the liver 75% of the time; almost 50% of patients will have more than one abscess; male and female patients are equally affected, the average age at presentation is between 50 and 60 years, while the amebic abscess are more common in men and aged between 20 and 40 years. It has been reported in patients with an immunodeficiency states. The most common organism is *Escherichia coli, Klebsiella* and *Streptococcus sp, Enterococci* and enteric gram negative organisms. The route of hepatic infection include: biliary source (60%), portal vein seeding (7%), direct extension (3%), hepatic artery seeding (10%), cryptogenic (17%) and penetrating trauma (5%). The most common presenting symptoms are fever, right upper-quadrant abdominal pain, nausea, vomiting, malaise, chills and weight loss, may be jaundice and hepatomegaly. Laboratory evaluation often reveals elevated alkaline phosphatase, aminotransferases and total bilirrubin levels, also observed are anemia, leukocytosis, prolonged and hypoalbuminemia. Computed tomography scanning is accurate in diagnosing; abscesses appear as hypodense lesions that do not enhance with intravenous contrast. Antibiotics should be started as soon as is diagnosed, delaying therapy until increase mortality. **Objective.** To describe findings and prevalence of liver abscesses found at autopsy during 5 years in the Hospital General de México (HGM). **Material and methods.** We collected data from the autopsies for 5 years, from January 2003 to December 2007 in the

HGM. We reviewed liver findings and descriptions of all autopsies, intentionally seeking the record in those with liver abscess in the final diagnoses. **Results.** We reviewed 3616 autopsies and found 32 cases (0.8%) with findings of liver abscess, 26 cases (81%) of pyogenic etiology, only 3 (9%) amebic, 17 cases were male (53%) and 15 (46%) were women; the age groups most affected were between 41 and 60, followed by those of the third and fourth decade of life, the location was more frequently found in 60% right lobe and both lobes in 36%; time evolution of the current condition recorded was 38 days and average hospital stay before death was 6.4 days; of these patients only 36% had a history of being diabetic and the same proportion of smokers; clinically only 14 had fever, 11 right upper quadrant pain and jaundice 5. In 65% of the total, the leading cause of death was sepsis in different stages. In all cases, only 12 (37%) had a previous diagnosis. **Conclusions.** The hepatic abscess is a pathology whose evolution is modified with a diagnosis and early treatment. In this review the most frequent were pyogenic etiology, found almost in the same proportion by gender, with affection at earlier ages than usual, so as few previous immunosuppressive factors. Most of these were not diagnosed during hospital stay. Hepatic abscesses can be an underestimated problem, probably because disregard diagnosed.
The authors declares that there is no conflict of interest.

005

EPIDEMIOLOGY OF HEPATOCELLULAR CARCINOMA IN NON-CIRRHOTIC LIVER

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Introduction and objectives. Hepatocellular carcinoma developed in non-cirrhotic liver (HCC-NC) occurs in < 20% of total cases. It has been described as an epidemiological and clinically different disease when compared with hepatocellular carcinoma from patients with cirrhosis (HCC-C). **Aim.** To show the epidemiological behavior of HCC-C and HCC-NC diagnosed and managed during the last 7 years in the Fundación Clínica Médica Sur. **Material and methods.** Retrospective study from January 2005 to April 2012. All the patients with diagnoses of hepatocellular carcinoma and under medical treatment in the Fundación Clínica Médica Sur were included. The clinical, demographic and histopathologic data were used to perform an epidemiological description of the cohort. **Results.** Forty-seven cases of hepatocellular carcinoma were documented in the studied period. Four patients were excluded because complete information about the state of cirrhosis could not be obtained. Nineteen percent (8/43) of hepatocellular carcinoma cases occurred in non-cirrhotic livers. The male-female ratio was similar in patients with cirrhosis, but in non-cirrhotic patients a higher tendency among the male group was found. The age of presentation was slightly lower in cases of HCC-NC. In our cohort, we did not find correlation with the presence of the major known risk factors for HCC in the group of patients without cirrhosis. In the evaluation of tumor-free tissue, it was found that one third of patients with HCC-NC showed some degree of hepatic steatosis (Table 1). **Conclusions.** In our retrospective 7 years study the prevalence of hepatocellular carcinoma in the patients with non-cirrhotic liver was 19% whereas in the cirrhotic group was 81%. In this cohort of patients with hepatocellular carcinoma, slight epidemiological differences can be noted between the groups of cirrhotic and non-cirrhotic patients.
The authors declare no conflict of interest.

Table 1. (005) Comparision of the characteristics of patients with hepatocellular carcinoma in liver cirrhosis and non-cirrhotic patients.

Characterisitcs	HCC-C	HCC-NC
• Patients (%)	35/43 (81)	8/43 (19)
• Sex (M/F)	17/18	5/3
• Age (years)	66 (43-84)	62 (39-86)
• Alcohol intake	2/35	0/8
• Etiology		
HCV (%)	16/35 (46)	-
HBV (%)	5/35 (14)	-
Alcohol (%)	1/35 (2.8)	-
PBC (%)	1/35 (2.8)	-
Hemochromatosis (%)	1/35 (2.8)	-
Cryptogenic	11/35 (31)	-
• Tumor-free tissue		
Normal (%)	-	1/8 (12.5)
Steatosis (%)	2/35* (6)	3/8 (37.5)
Hemosiderosis (%)	4/35* (11)	0/8
Not defined (%)	29/35* (83)	4/8 (50)

HCC-C: hepatocellular carcinoma in cirrhotic liver. **HCC-NC:** hepatocellular carcinoma in non-cirrhotic liver. **HCV:** hepatitis C virus. **HBV:** hepatitis B virus. **PBC:** primary biliary cirrhosis. *Another characterisitic in addition to cirrhosis.

006

LEFT ADRENAL METASTASIS OF HEPATOCELLULAR CARCINOMA AFTER LIVER TRANSPLANTATION, IN UNIVERSITY HOSPITAL "DR. JOSÉ E. GONZÁLEZ"

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Introduction. Liver transplantation has consolidated itself as a highly effective treatment modality for patients with end-stage chronic liver and hepatocellular carcinoma (HCC), in these cases the adrenal gland is a uncommun site for metastasis from HCC. **Objetive.** To describe the development and management of a patient who received LT for HCC and later development metastasis to the left adrenal gland. **Material and methods.** From 1999 to June 2008, 103 patients have undergone OLT. We reviewed the records of these cases and found three patients diagnosed with HCC underwent cadaveric OLT. **Results.** Men 53 years old with a diagnosis of cirrhosis and hepatocellular carcinoma and HCV with malignant nodules in right and left lobes, with Child A and MELD 9 points, with serum AFP 117 ng/mL. The lesions were treated with chemo-embolization and subsequently underwent cadaveric donor LT on 30/05/07, postoperative evolution was satis-

factory. The explanted liver histopathology reported a 4 cm tumor in the right lobe and 1.5 cm in left, moderately differentiated, and no angiolymphatic invasion. Immunosuppression was initated with tacrolimus, mycophenolate mofetil, steroids, the tacrolimus was switched to the second for sirolimus. Received postoperative chemotherapy with 5-fuoroacilo, adriamycin and Capecitabine. At 3 years post-LT was elevated AFP, abdominal CT was performed which showed no mass lesions in the liver graft, however showed a 8 cm tumor in the left adrenal gland. He underwent open left adrenalectomy, reporting metastases from hepatocellular carcinoma. It now has a survival of 59 months post LT and a survival of 30 months after adrenalectomy, asymptomatic and without recurrence of the tumor. **Conclusion.** In our series of 103 patients with LT, 3 have been transplanted for HCC, one of them developing adrenal metastasis. Worldwide experience of adrenalectomy for metastatic HCC treated with LT is very limited. As input we recommend a good control with imaging studies and tumor markers in patients with solid tumors of the liver. This study was supported by resources of the departments involved.
The authors declares that there is no conflict of interest.

007

ORTHOTOPIC LIVER TRANSPLANTATION IN PATIENTS WITH HEPATOCELLULAR CARCINOMA, EXPERIENCE AT HOSPITAL UNIVERSITARIO "DR. JOSÉ E. GONZÁLEZ"

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Introduction. Hepatocellular carcinoma (HCC) is the fifth most common neoplasia in the world. In patients with decompensated cirrhosis or multinodular HCC, the treatment of choice is orthotopic liver transplantation (OLT), the survival rate at 5 years is 70%. The selection of patients based on the Milan criteria, which in recent years it has spread. **Material and methods.** From 1999 to June 2008, 103 patients have undergone OLT. We reviewed the records of these cases and found three patients diagnosed with HCC underwent cadaveric OLT. **Results:** Case 1. Women 62 years with HCV cirrhosis and malignant nodule of 5 cm in the right hepatic lobe, the lesion was treated with chemo-embolization pretransplant was retransplanted on the second day by hepatic artery thrombosis, malignant pathology vein thrombosis reported portal angio lymphatic invasion and satellite nodules, the postoperative course was satisfactory, developed tumor recurrence at 8 months after OLT and subsequently received palliative chemotherapy, died 14 months after OLT. Case 2. Male, 45 years with HBV cirrhosis and malignant nodules 6 cm and 2.5 cm in the right lobe and left respectively. The right lesion was treated with chemo-embolization and radiofrequency left. Gamma globulin was administered HBV pre-and post-transplant, post-operative evolution was satisfactory and received postoperative chemotherapy, currently without evidence of recurrence by CT and AFP at 68 months of OLT. Case 3. Male, 53 years HCV cirrhosis and malignant nodules 5 to 2.5 cm in the left and right lobe, underwent chemo-embolization, the postoperative course was satisfactory and received postoperative chemotherapy. At 36 months post-OLT developing metastases to the left adrenal gland which underwent open adrenalectomy. It now has a survival of 61 months post-LT, is asymptomatic and currently without evidence of recurrence TAC and AFP at 61 months of OLT. **Discussion.** The first case was transplanted with the Milan criteria, but had negative factors related to survival, such as macroscopic vascular invasion, extensive lymph angio invasion and satellite nodules, the other two cases were transplanted with extended criteria and 68 and 61 months after OLT without evidence of tumor recurrence. We consider that the Milan criteria are restrictive in our population and the absence in Mexico priority for these patients is limited indication of OLT in HCC. This study was supported by resources of the departments involved.
The authors declares that there is no conflict of interest.

D. MOLECULAR AND CELLULAR BIOLOGY

001

PARTICIPATION OF THE SYMPATHETIC NERVOUS SYSTEM DURING CIRRHOSIS DEVELOPMENT IN AN ANIMAL MODEL IN HAMSTERS

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Cirrhosis is characterized by an uncontrolled deposition of fibrillar proteins in the hepatic parenchyma, accompanied by regenerative nodule formation and loss of the normal liver function. The liver is innervated by sympathetic and parasympathetic nerves. The sympathetic nerves are originated at the ventromedial hypothalamic nuclei and through the spinal cord, the major splanchnic nerves, and the celiac ganglions, these fibers are able to communicate the hepatic parenchyma. The parasympathetic nerves are originated at the lateral hypothalamic nuclei, connecting the liver through the vagus nucleus. It has been reported that acetylcholine and noradrenalin mediate an interaction between the autonomous nervous system and several liver cell populations through cholinergic (α7 y α9) and adrenergic (α y β) receptors. Moreover, it has been previously described that the hepatic stellate cells (HSC) expresses the α-adrenergic receptor which, in response to noradrenalin, could participate during trans-differentiation of HSC into collagen-producing myofibroblasts. Since cirrhosis is still a leading cause of death in Mexico, it is important to develop an animal model capable of reproducing most of the physiological aspects of human cirrhosis, studying the possible role of the sympathetic nervous system during HSC activation. Thus, cirrhosis was induced in male hamsters by peritoneal administration with carbon tetrachloride (CCl_4, 50 mg/kg body weight in sodium petrolate) for 12 weeks. The experimental groups were designed as followed: 1) hamsters + CCl_4 (n = 30); hamsters + sodium petrolate (n = 10); intact hamsters as controls (n = 10). A control weight was perfor-

med weekly for 12 weeks. From each group, one hamster was sacrificed every 6 and 12 weeks. Liver specimens were obtained and fixed using 2.5% p-formaldehyde and in 2.5% glutaraldehyde. After this, all of the fixed tissues were included in paraffin, and stained using a conventional Masson and Sirius red stain, following the manufacturer's instructions. A chemical sympathectomy was performed in cirrhotic and control animals, previously treated with 30 mg/kg body weight 5-hydroxidopamine (5-OHDA), twice per week for 4 weeks. A 0.01% ascorbic acid solution in 0.9% NaCl was used as vehicle. One week later corresponding animals were sacrificed. Furthermore, 3 liver samples from patients with previous diagnosis of cirrhosis were also studied. As it has been previously reported, liver specimens from patients exhibited loss of the hepatic structure, numerous fibrous septa intra and inter-lobular accompanied by regenerative nodule formation, ~3-10 cells surrounded by collagen bridges. Concomitantly, liver samples from hamsters showed micronodular cirrhosis. 12-weeks post-CCl_4 administration, a disproportionate accumulation of collagen was observed. This fibrillar protein was surrounding the regenerative micronodules (~3-10 hepatocytes), exhibiting the classic histopathological lesion observed in human patients. Interestingly, animals receiving CCl_4 and previously treated with 5-OHDA showed reduction in the collagen deposition by 60%, and reorganization of the normal liver structure as compared with cirrhotic animals. Therefore, histopathological lesions in liver tissue from hamsters are similar than those in human patients, suggesting that the hamster could be an accurate model for studying human cirrhosis. In the same sense, our data pointed out that the sympathetic nervous system could participate during liver fibrosis development, which may have possible applications as a therapeutic target.

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002

A HIGH CHOLESTEROL DIET IMPAIRS CELL CYCLE AND LIVER REGENERATION AFTER PARTIAL HEPATECTOMY IN MICE

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Nonalcoholic fatty liver disease (NAFLD) is the hepatic manifestation of metabolic syndrome, defined by the deposition of fat (fatty acids, triglycerides and cholesterol) in more than 5% of hepatocytes. It has been reported that the presence of lipids, mainly cholesterol induce sensitization cells damage. Liver regeneration after partial hepatectomy is a process of compensatory hyperplasia involving all cell types of the remnant liver and depends on the interplay of different regulatory pathways, which directly or indirectly control the successful restoration of the liver mass. HGF and its receptor c-Met regulate mitogenesis, motogenesis, survival and morphogenesis, so HGF/c-Met is a key regulator of liver regeneration. The aim of this work was to study the effect of a hypercholesterolemic diet in liver repair process. **Material and methods.** C57BL/6 mice were fed with an atherogenic diet (2% cholesterol and 0.5% sodium cholate) or normal diet (Chow diet) for two days. Subsequently, partial hepatectomy was performed and animals were sacrificed at different times. Hematoxylin and eosin, and oil red O stainings were performed; cholesterol content was measured by spectrophotometry and by immunofluorescence with philipin. Some cell cycle related proteins and markers of oval cells were analyzed by Western blot. **Results:** It was observed that the HC diet increased cholesterol levels 8-fold regarding chow fed mice, this result was confirmed by philipin, lipid droplets were increased judged by Oil red O dye. Liver/body weight ratio after partial hepatectomy increased over the time, recovering at the fifth day, however in HC fed mice continued increasing liver mass. Histology showed lost in normal liver architecture, and hypertrophy in HC cells. Western blots of cell cycle proteins such as cyclin D1, cyclin A, cdk2, cdk4, cdk6, and the proliferating cell nuclear antigen (PCNA), and inhibitors as p21 and p27 were performed. HC mice showed a decrease in cdk4, cdk6 and cyclin D1 after the third day of hepatectomy, this is also related to an increased expression of p27 on the first day after surgery, these data were related with a decreased expression of PCNA at the third day. Regarding S/G2 phase drivers it is an increase in the expression of cdk2 from day one, related to the expression of cyclin A and decreament of p21. We also found a delayed activation in c-Met receptor as a consequence of HGF treatment in primary hepatocytes isolated from treated mice. In conclusion, our data suggest that dietary cholesterol affects liver regeneration process by altering cell cycle. Aberrant c-Met activation may impact in a proper repair response. Our data may have implications in terms of initiation of an uncontrolled process that can affect proliferative diseases such as cancer.

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003

FREE FATTY ACIDS DIFFERENTIALLY AFFECT PROLIFERATION AND VIABILITY IN LIVER CANCER CELL LINES

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Non-alcoholic fatty liver disease is one of the major risk factors for hepatocellular carcinoma (HCC), however it is poor understood the effect of free fatty acids in the transformed cell. In the present work we were focused to figure out the effects of FFA (palmitic acid and oleic acid) in a relation 2:1 at different concentratios on the proliferation, survival and repair process of cancer cell lines such as HepG2 (hepatoblastoma) and Huh7 (hepatocarcinoma). **Material and methods.** Cell lines were purchased from ATCC and cultures were kept under standard conditions. Previously to experiments cells were serum starved overnight and then treated or not with 0.25, 0.5, 1 and 2 mM of FFA for different times. In wound healing assay cells were co-treated or not with fetal bovine serum 10% or hepatocyte growth factor (HGF, 50 ng/mL) as inducers of repair process. Cell proliferation was performed

using the cell counting kit 8 [CCK-(8, Dojindo)] following manufacturer's instructions, viability was performed by crystal violet staining and quantified by spectrophotometry. Wound-Healing assay was done by scraping tissue culture dish with a fine micropipette tip and images were captured every 12 h. The content of cell lipids was assayed by oil red O staining. **Results.** Cell lines increased neutral lipids content after FFA treatment, time- and concentration-dependent effects were observed, differences in intracellular distribution of lipid droplets were noticed in both cell lines. All lipid concentration affected the proliferation in HepG2 cells, showing a strong cytotoxic effect in high lipids concentration (1 and 2 mM) as early as 24 h of treatment. Huh7 cell line did not observe any change in proliferation. Similarly to proliferation assay viability was decreased in HepG2 cell line in a time and concentration dependent manner, no differences were observed in Huh7 cell line. Finally wound-healing assay showed that repair process in HepG2 was disturbed but Huh7 cell lines efficiently repaired the wound at 72 h. In conclusion FFA display different effects in cancer cell lines, HepG2 cells were severely affected by any lipid concentration used, this could be associated with the poor aggressiveness of this cell line, in contrary Huh7, a cell line highly aggressive and tumorigenic that could be getting advantage in the high lipid content fueling energy, membrane synthesis or activating some proliferation-related proteins such as Ras.

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004

CADMIUM-INDUCE STAT3 ACTIVATION AND APOPTOSIS BY A MECHANISM INVOLVING P53 AND BAX IN MOUSE HEPATOCYTES

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Cadmium (Cd), a toxic transition metal, can be released from cigarette smoking, smelting and refining of metals, and from combustion chemical fuels and municipal wastes, resulting in air, water and soil pollution. Due to the half-life of Cd in human body is about 5-20 years, Cd chronic exposure can be accumulated in various human organs, such as liver, kidney, lung, testis, bone and brain, where it can induce damage and organ dysfunction, in fact Cd has been classified by the International Agency for Research on Cancer and the U.S. National Toxicology Program as Group I human carcinogen, mainly on the basis of epidemiological studies showing a dose-response relationship between the level of Cd exposure and the incidence of cancer in human population. Recently, several reports have shown that cadmium can induce apoptosis of many tissues in both *in vivo* and *in vitro* models. Cd is taken up by the liver where it forms complexes with small peptides, including glutathione or the high affinity metal-binding protein metallotionein-II (MT-II). Although the liver is a well-known target organ, the molecular mechanisms of Cd-induce damage is not fully understood. Previous data from our group show that cell viability decreases with the increment in cadmium chloride ($CdCl_2$) concentrations, in HepG2 cells and induces the activation of Stat-3. Increased phosphorylation of STAT3 has been associated with Src and ERK1/2 activation. Some reports indicate ERK 1/2 participation in STAT3 activation and MT-II induction, but also leads to cell apoptosis by a p53-mediated mechanism **Objective.** The aim of the present work was to address the participation of Src kinase in STAT3 activation and its relationship with MT-II production and cell apoptosis in primary mouse hepatocytes treated with 5 μM $CdCl_2$. **Material and methods.** Primary mouse hepatocytes were isolated by the two-step collagenase perfusion. Hepatocytes were treated with Cd for different times and concentrations to evaluate cell viability by the crystal violet-staining assay as well as Src, STAT3, and ERK1/2 activation and MT-II, p53 and Bax content were determined by Western blot. A pretreatment for 30 min with Src inhibitor SU6656 was performed. ERK1/2 and STAT3 activation and ERK1/2 inhibidor PD98059 were studied in relation with STAT3 activation. Apoptosis was measured with Annexin-V-fluos staining kit (Roche) by flow cytometry. **Results.** Cd exposure (5 μM) at 9 h significantly reduced survival. Cd triggered Src, STAT3 and ERK1/2 activation as well as MT-II, p53 and Bax in a time-dependent manner. STAT3 and ERK1/2 activation decreased in presence of Src and ERK1/2 inhibitors. MT-II expression was inhibited with SU6656 pretreatment. Cd induced cell apoptosis at 12 h of treatment. **Conclusion.** Our results suggest that Cd activates STAT-3 by a mechanism dependent of Src and ERK1/2 pathways, resulting in metallothionein production as a response to Cd toxicity, but finally hepatocytes die by apoptosis involving p53 and Bax in the process.

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E. VIRAL HEPATITIS

001

CU/ZN-SUPEROXIDE DISMUTASE (SOD1) SILENCING REVERTS THE ANTIVIRAL EFFECT OF ASA ON HCV REPLICATION

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Introduction and objective. Hepatitis C virus (HCV) infection is one of the most important causes of chronic liver disease worldwide. It has been reported that hepatitis C can cause oxidative stress in infected cells by stimulating the generation of reactive oxygen species (ROS). Hepatic antioxidant enzymes such as superoxide dismutase (SOD), catalase and glutathione peroxidase, provide an important line of defense against oxidative damage. Previously our research group showed that acetylsalicylic acid (ASA), is able to reduce levels of HCV RNA and proteins, however, the mechanism by which this effect occur is unknown. The aim of this study was to evaluate the effect of the inhibition of Cu/Zn-SOD enzyme, on HCV RNA levels in Huh7 replicon cells in presence or absence of ASA. **Material and methods.** Replicon Huh7 cells were plated at a density of 500,000 cells/well in 6-well plates. Next day, cells were transfected using serum-free medium with siRNA directed against the mRNA of the enzyme SOD1 (siRNA-SOD1), at a concentration of 100 nM, using siPORT Lipid as

a transfectant agent; and as a negative control, we used cells exposed only to the transfectant agent. In parallel, cells were treated with ASA 4mM. Subsequently total RNA was extracted using the Trizol method, at 24, 48 and 72 h post transfection, then, the cDNA was synthesized by RT-PCR. From the cDNA, we performed qPCR to quantify the SOD1 mRNA and the HCV mRNA, specific TaqMan probes were used for each target. The relative expression of HCV was calculated using the ΔΔCt method. Actin and GAPDH were used as normalizing genes. **Results.** mRNA levels of the enzyme SOD1 decreased to approximately 50% at 48 and 72 h, in cells transfected with the siRNA-SOD1 in comparison to control without transfection at the same times. Regarding the HCV RNA levels in cells with inhibition of the enzyme SOD1, levels decreased approximately 40% at 48 and 72 h compared to controls without transfection. However, combining the inhibition of SOD1 and treatment with ASA 4 mM, we saw the opposite effect, the HCV RNA level increases compared with untreated controls and cells treated only with aspirin or inhibited with siRNA separately. **Conclusions.** It was found that inhibition of SOD1 partially reverses the negative effect of ASA on the expression of HCV. Taken together, these results suggest that the activity of the SOD1 may play a role in modulating subgenomic HCV replication in cells treated with ASA. This type of knowledge is useful for designing new antiviral drugs to improve treatment of patients with hepatitis C.

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002

USE OF A COMPLETE VIRAL PARTICLES INFECTION SYSTEM TO STUDY PATHOGENIC MECHANISMS OF HCV

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Introduction and objective. Hepatitis C virus (HCV) is one of the most important causes of chronic liver disease in the world, which is the leading cause of cirrhosis, liver failure and hepatocellular carcinoma. Current therapeutic strategies have been restricted mainly to the combination of pegylated interferon alpha and ribavirin. Efforts to study the HCV viral cycle and effective antiviral agents, had been limited by the lack of an efficient model that allowed the infection in cell culture. This is because the infectiousness is variable between the different clones of the virus. Kato (2001) isolated a clone from a case of fulminant hepatitis C JFH-1, which demonstrated a high replication of complete infectious particles of HCV in different cell lines. Wakita (2005) succeeded in replicating the complete sequence of JFH-1 RNA in Huh7 cells, while confirming infectivity in an animal model. The development of this model provides a tool for the study and understanding of antiviral therapies and the development of new therapeutic alternatives. **Objective.** The aim of this work was to implement the HCV infection system by using the complete sequence of RNA-HCV JFH-1 to infect liver cells. **Material and methods.** To reach this aim we performed several molecular techniques as cloning and characterization of plasmid pJFH-1 (containing the complete sequence of HCV-RNA), *in vitro* transcription of pJFH-1, transfection of cells Huh7.5.1 with JFH-1 RNA , infection assays and detection of viral proteins (NS3 and core) by western blot and real-time PCR. **Results.** A high production of viral particles was achieved, in cell culture of liver cells at different times. The viral particles obtained were infectious, as the particles initially generated were able to infect other cells in culture, HCV-NS3 protein was detected in infected cultures from 2 days of infection and the structural protein HCV-Core was successfully detected from 4 days. Importantly for evaluating antiviral treatments in this system, it is recommended to use cells of a post-infection period of 6 days on, to achieve evaluation of both structural and nonstructural proteins involved in the mechanisms of pathogenicity of this virus. **Conclusion.** Unlike subgenomic replicon model, which only allows the study of the mechanisms of HCV replication, the complete replicon allows the study of complete viral cycle (entry, replication, assembly and release). This is of utmost importance, since it has been reported that the presence of structural proteins play a role in the pathogenesis of the virus in the host cell. This project was accomplished to implement the model for the study of HCV infection system in liver cells.

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003

IDENTIFICATION OF CELLULAR PROTEINS INVOLVED IN THE ANTIVIRAL ACTIVITY OF ASA AGAINST THE HEPATITIS C VIRUS AND ITS RELATIONSHIP WITH THE MOLECULAR MECHANISMS OF PATOGENICITY

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Introduction. Currently, the PEG-IFN-alpha + RBV therapy is used against HCV, but it does not have high SVR against all infecting genotypes, and besides it causes severe side effects in patients. Then it is necessary to identify effective therapeutic agents with fewer side effects. Recently our team reported that acetylsalicylic acid (ASA) inhibits the HCV-RNA, however, related molecular mechanisms have been poorly elucidated. Advances in proteomic tools have allowed us to analyze the expression, function, modification, localization and interaction of proteins in biological processes. In this study we analyzed the expression of the proteome of hepatocytes expressing-HCV proteins (replicon cells) treated with ASA to identify cellular proteins involved in the molecular events underlying the inhibition of viral replication. **Material and methods.** Huh-7 hepatocarcinoma cells expressing HCV-nonstructural proteins (genotype-1b replicon) and parental Huh7 cells were treated with 4 mM ASA and harvested at 0-72h to extract total proteins, which were resolved in 2D gels to separate them by isoelectric point (pI), followed by fractionation by molecular weight (MW). The gels were revealed

with silver stain, and then scanned with GS-800 densitometer and analyzed with PDQuest software v8.0.1. Subsequently, the proteins were identified and elucidated by the pI and PM using TAGIDENT software (Uniprot consortium, 2002-2012). **Results.** Proteomic analysis allowed us to determine qualitative and quantitative changes in protein expression profile of HCV-replicon cells treated with ASA. We identified proteins up and down-regulated in the same group of cells. In addition, differentially expressed proteins were identified at 24, 48 and 72 h post-treatment with ASA. We found that most of the identified proteins that were differentially expressed at 24 h are related to cell proliferation, showing the expression of proteins as MTMR6, FAM22, HDGF and HCF-1. After 48 h, we observed the expression of angiostatin, PI4KA and STAT 1. Finally, at 72 h we identified the adenylsuccinate synthase expression, a protein involved in purine synthesis in the liver and activation of 2', 3'-di-deoxyadenosine protein, as well as ubiquitin-protein ligase E6A, adenylosuccinate lyase and Nibrin (protein related to the viral deccrease). **Discussion.** We found that HCV promotes the activation of proteins involved in cell progression and proliferation. MTMR6, FAM22, HDGF and HCF-1, have previously been associated with inhibition of apoptosis, binding oncoproteins, stimulation of cell growth and cell cycle progression. After 48 h post-treatment, the virus continues to promote the proliferation and progression in the host cell, by inducing protein PI4KA and angiostatin. Our findings showed that in the early hours of viral infection, it promotes proliferation and cell cycle deregulation in benefit of HCV, and after treatment with ASA, begins a process of defense against the HCV. The proteomic study carried out in this study allowed us to increase our outlook on the mechanisms of gene regulation and establish the possible genes involved in the modulation of HCV-RNA levels mediated by ASA. (Supported by CONACYT-SALUD-2008-01-86-996 and CB2010-01-155082 awarded to Dr. A. M. Rivas).
The authors declares that there is no conflict of interest.

004

EXPRESSION OF THE MICROFIBRILS ASSOCIATED PROTEIN 4 (MFAP-4), OBTAINED FROM EXPERIMENTAL MODELS: COMPARATIVE ANALYSIS BETWEEN SERA, FROM PATIENTS INFECTED WITH HEPATITIS C VIRUS (HCV) AND FROM PATIENTS WITH IDIOPATHIC PULMONARY FIBROSIS (IPF)

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Introduction. In hepatitis C virus (HCV) infected patients, fibrosis is a slowly progressing process to liver cirrhosis or hepatocellular carcinoma. Liver biopsy analysis has been and remains the gold standard to diagnose and classification of fibrosis. However, recent studies have suggested that it may occur up to 33% error in diagnosis. Moreover, it shows several limitations and disadvantages, between them the invasiveness character and sampling errors. In a previous study, Mölleken, *et al*., detected MFAP-4 in proteomic analysis carried on liver tissues of cirrhotic patients, and determined the increased expression of several cell structure associated proteins, among them they proposed MFAP-4 as a potential liver fibrosis biomarker, due to the protein high levels detected in cirrhotic patients sera from diverse etiologies. **Objective.** Determine that inclusion of MFAP-4 to a liver specific panel is useful to assess hepatic fibrosis levels as a non-invasive method. **Material and methods.** Analyze MFAP-4 gene expression determined by microarrays in an experimental model, then comparing the translation product presence in patients' sera with HCV infection (n = 30), liver damage established by the Knodell index, patients' sera with idiopathic pulmonary fibrosis (IPF, n = 32), and healthy individuals (n = 100). Procedure followed was: identification of MFAP4 gene by expression microarray analysis from total liver RNA of animals belonging of an experimental model (Wistar rats treated with CCl_4 biweekly injections for 20 weeks). Validate gene expression in animal model samples using qPCR with total RNA (hepatic tissue), IHC (liver tissue sections) and ELISA (serum). Similarly, by ELISA assay, human sera were exanimate (HCV, IPF and healthy subjects). The results were statistically analyzed using the Student t test and Mann-Whitney, and respective comparisons were performed. **Results.** The expression of extracellular matrix glycoprotein (MFAP-4), in different types of human serum analyzed with the ELISA test, showed an increase in all patients compared to healthy controls. Sera of patients with liver disease ranged from 3.5 (F-0, FI) to 6.5 (F-IV) fold change values. In patients with IPF, fold change value was an average of 1.5; that was lower than the shown by patients with minimal liver damage ($p < 0.001$). **Conclusions.** Use of expression microarray technology allowed the identification of MFAP-4 in our experimental model as a possible biomarker for liver fibrosis. Our data showed a significant correlation between the expression level of protein at different model stages and patients with liver damage. Furthermore, the MFAP-4 increased levels in human serum indicated that even though the protein was expressed in both individuals, hepatic and lung injury, the increase of the expression is only significant in liver fibrosis patients ($p < 0.001$).
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005

POLYMORPHISMS OF IL-28B PREDICTED THE RESPONSE TO TREATMENT OF HEPATITIS C CHRONIC IN MEXICANS

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Introduction. The hepatitis C (HC) is a complex hepatic infectious disease, caused by the hepatitis C viruses (HCV). In Mexico the prevalence is aproximatlely 1.2-1.5% of the population. Although the treatment with pegylated interferon alpha (pegIFNα) and ribavirin (RBV), the sustained virologic response (SRV) rates are lower, is expensive and with side effects. Factors related to the virus and the host influence the response treatment. In the host, polymorphisms in IL-28B gene have been identified as predictors of response to antiviral therapy

in chronic HC. Our aim was determinated the association of the SNPs (rs8099917 (G/T), rs12979860 (C/T), rs8103142 (T/C) of the IL-28B in Mexican population with chronic HC. **Material and methods.** We realized a cohort study with 83 chronic HC patients from Medica Sur Hospital of Mexico City from May 2010-May 2011, all the patients with pegINFa and RBV treatment. The participants answered a questionnaire used to collect personal data and other diseases. Viral load and viral genotype was dermined before first pegINFa and RBV doses. Anthropometric measurements were performed: weight (kg), height (cm) and we calculated BMI (kg/m^2). Data were analyzed by logistic regression, adjusting by age, gender and viral genotype to determine the association of the SNPs with the treatment response. **Results.** We found of the 83 patients, of this 27 were SVR and 56 were Non-SVR. We found a significant linear positive for the highest viral load and Non-SVR, $R^2 = 0.67$. We observed signifcant association in IL28B (rs12979860) with C/C genotype OR = 4.87 (95% CI 1.13-21.00) p = 0.033 in the codominant model. And with C/T + C/C gontype in dominant model had an OR = 4.02 (95% CI 1.11-14.54) p = 0.022. We observed a significant interaction between alle C of IL28B (rs12979860) and basal viral load < 400,000. **Conclusion.** The viral genotype is an indicator to response to treatment recognized, but we can suggest the participation of the IL-28B (rs12979860) in the response to treatment and this could had importance in the clinic management of chronic HC.

The authors declares that there is no conflict of interest.

006

ANALYSIS OF THE EFFICACY AND SAFETY OF PEG FILGRASTIM (SSA 5452) IN THE MANAGEMENT OF INDUCED NEUROPENIA PEG INTERFERON (SSA 5223) IN PATIENTS WITH HEPATITIS C

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Introduction. Hepatitis C is a growing problem in Mexico has infected a report of approximately 700,000. Although there is treatment effectiveness is not absolute and depends mainly on the attachment. A common side effect is neutropenia, which occurs in 17% of patients and requiring the lowering or withdrawal of treatment. The study aimed to analyze the safety and efficacy of pegylated filgrastim in patients with neutropenia associated with pegylated interferon. **Material and methods.** There were two groups of patients with hepatitis C and neutropenia presenting as a side effect of treatment with pegylated interferon (SSA 5223 and 5224), the control group was obtained from records and the experimental group was a prospective, pegylated filgrastim was administered (SSA 5452) subcutaneously a single dose of subcutaneous 6 mg/kg. We measured the concentration of neutrophils in peripheral blood samples a week and four weeks of the application. It took record of adverse effects such as bone pain, headache, fatigue, nausea, myalgia, insomnia, fever, anorexia, elevated levels of bilirubin, alanine aminotransferase, aspartate aminotransferase, gamaglutamiltranspeptidase, alkaline phosphatase and lactate dehydrogenase, was carried out history and physical examination led to the search for opportunistic infections, mainly respiratory, gastrointestinal and urinary tracts. **Results.** A total of 24 patients, 15 patients in the experimental group which was prospective and 9 patients in the retrospective control group at 4 weeks of administration of the drug, there was average of neutrophils numbers 964.91 ± 526.19 cells/mm^3 and the control group 3,115.55 ± 5,632 cells/mm^3, the comparison between groups was not significant difference (p = 0.26). Adverse effects most frequently reported were bone pain in 5/13 patients (38.46%), nausea in 5/13 (38.46%), fatigue in 5/13 (38.46%) and myalgia in 7/13 (53.48%) bone pain was only a significant difference at P = 0.04 when compared with the control group. **Conclusions.** The pegylated filgrastim is safe and effective in the treatment of neutropenia associated with the treatment of hepatitis C with pegylated interferon.

The authors declares that there is no conflict of interest.

007

DECLINE IN HEMOGLOBIN LEVELS AS PREDICTOR OF SUSTAINED VIROLOGICAL RESPONSE AMONG PATIENTS WITH CHRONIC HEPATITIS VIRUS C INFECTION TREATED WITH PEGINTERFERON AND RIBAVIRIN

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Introduction and aim. The treatment of choice for chronic hepatitis C infection is Peginterferon in combination with Ribavirin. It has been described anemia as frecuent adverse effect in such therapy as well as anemia may increase the likelihood of achieving a sustained virological response. The aim of this study was to determinate whether hemoglobin decline is associate with sustained virological response. **Material and methods.** We did a retrospective, observational study, eligible subjects included treatment adults aged 26-71 years with chronic HCV infection. Clinical and laboraboratory data were collected, including age, sex, genotype, dose of peginterferon and ribavirin, baseline hemoglobin levels and after 4 weeks and 12 weeks of treatment, also was necessary viral load at week 24 after treatmet to determinate sustained virological response. Data were analyzed using Probid model, with 42 subjetcs sample, χ^2 of 0.15 and R^2 of 0.14. data were verified with Logit model. **Results.** A total of 57 patients were enrolled in the study between 2005 and 201; of these, 35.1% were man (n = 20) and 64.9% female (n = 27), with mean age on 45.7 years. All patients received treatment with peginterferon and 96% received ribavirin, 2 patients were monotherapy because renal failure. Changes in hemoglobin levels where a decline of 3 or more grams in 52% (n = 3) at week 4 of treatment and 48% decreased less than 3 g of hemoglobin. None required erythropoietin. The sustained virological response achieved in 35% (n = 20). The relationship between decline in hemoglobin levels and achievement of sustained virological response is not statistically significant (p = 0.17). **Conclusions.** We have shown that it can be a realationship between decline hemoglobin levels during treatment with peginterferon and ribavirin and sustained virological response, however the limitations on sample size do not yield significant results, other studies are needed with larger sample.

The authors declares that there is no conflict of interest.

008

MOST COMMON SUBTYPE OF HCV GENOTYPE 1 AND ITS RELATION WITH VIRAL LOAD: A GROUP OF PATIENTS IN NATIONAL MEDICAL CENTER LA RAZA (CMNR) VIRAL HEPATITIS CLINIC

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Introduction. Previous studies have suggested that genotype 1 subtype 1b were the most frequent in Mexico, however a more recent study reported subtype 1a as the most prevalent, also found positive relation between higher viral load and the genotype. Studies regarding viral load and subtypes have not been performed. **Objectives.** Determine the subtype of hepatitis C virus genotype 1 most common in CMNR hepatitis clinic and if there is any correlation between this and the viral load. **Material and methods.** We included patients with genotype 1 with age range 23-68 years from January 2011 to January 2012. Quantitative viral load was determinated by RT-PCR. Data were reported as frequencies and percentages. Analysis were performed using Student's t test for independent samples to determine differences between the mean viral loads. **Results.** 36 patients where included, 22 men and 14 women, representing 61.1% and 38.9% respectively, with mean age of 44.44 years. The distribution among subtypes was 25 patients for genotype 1a (69.44%) and 11 patients for 1b (30.56%). The mean viral load for genotype 1a was 2,526 168.40 U/mL and for 1b 427.27 1,499 U/mL. The difference between two groups was not statistically significant ($p = 0.561$). **Conclusion.** Hepatitis C virus genotype 1a was the most common, being viral load higher than the 1b, however there was no statistically significant difference. Probably requires further study to determine if there is such a difference. The authors declares that there is no conflict of interest.

009

DIFFERENTIAL REGULATION OF THE EXPRESSION OF COX-2 MEDIATED BY HCV VIRAL PROTEINS IN DIFFERENT HEPATOMA CELL LINES

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Introduction. Hepatitis C is caused by infection with the hepatitis C virus (HCV). Currently there are no known mechanisms by which HCV modulates death and cell survival. It has been reported an increase in mRNA levels of cyclooxygenase-2 (COX-2) in cells expressing viral proteins, compared to cells that do not express HCV proteins, suggesting that the HCV regulates the transcription of COX-2. Therefore it is important to elucidate the mechanism of action by which reactive oxygen species generated by the viral proteins activates expression of COX-2, which in turn induces the synthesis of prostaglandin E2, which is related to cell survival and tumor. **Aim.** To evaluate the involvement of HCV viral proteins in the regulation of the expression of COX-2 in different hepatoma cell lines. **Material and methods.** We performed transient transfection assays to overexpress the non-structural viral proteins and then evaluate their effect on two hepatocarcinoma cell lines (Huh-7 and HepG2). 200,000 cells were seeded in 6-well plates, then they were subjected to a primo-infection with vaccinia virus for one hour before each transfection. The different cells were transfected with the PFK1 plasmid at different concentrations (0.5 μg/mL-1 μg/mL), using lipofectamine and then proteins were extracted at 0, 24, 36 and 48 h post-transfection. Subsequently proteins were quantified by the Bradford method and electrophoresis was performed under denaturing conditions, and COX-2 expression was measured by western blot analysis. On the other hand, we also assessed the effect of viral proteins in the expression of COX-2 transcript level, for which total RNA were extracted of transfected cells by the Trizol method and quantified by real-time PCR using specific Taqman probes to a region of the NS5A sequence, and we used β-Actin and GAPDH as normalizing genes. **Results.** The regulation of COX-2 expression was different in both cell lines. We observed an increase in the expression of COX-2 protein of about 5 times compared to non-transfected cells (negative control) in the Huh-7cell line at 24 h. Thereafter a decrease was observed at 36 h and then an increasing of about 3 times compared to negative control at 48 h. Moreover, in the HepG2 cell line we observed an earlier response, showing an increase of about 4 times the expression of the protein COX-2 with respect to the negative control at 24 h and subsequently a decrease was observed at 36 h and increasing again about 6 times compared to negative control at 48 h. We confirmed the expression of non-structural viral proteins of the PFK1 plasmid by quantifying the viral protein NS5A by real time PCR by the $\Delta\Delta$Ct method. **Conclusions.** The expression of viral proteins in both cell lines HepG2 and Huh-7 resulted in an increased expression of the enzyme COX-2 at different times, suggesting that the expression of HCV genes differentially regulate the activity of transcription of COX-2 in different cell lines.
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010

PREVALENCE OF GENETIC VARIANTS OF SNP RS8099917 OF IL28B GEN AND ITS CORRELATION WITH EARLY VIROLOGICAL RESPONSE (EVR) IN CHRONIC HEPATITIS C (HCV) MEXICAN PATIENTS TREATED WITH PEGINTERFERON AND RIBAVIRIN (PEG-IFN/RBV)

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Introduction. Last years had been characterized by the intensive search of predictive factors that could identify those HCV patients with better possibilities of obtain sustained virological response with antiviral therapy. Several genetic

markers had been explored in different populations, and its potential predictive value and applicability should be evaluated and validated in a specific media. The SNP rs8099917, is located 9.5 Kb from IL28B gen, and has been characterized in three genotypes: T/T, G/T and G/G. In several populations genotype T/T has been associated with higher rates of SVR. At present, the prevalence and potential role as predictor of response in our media is unknown. **Objective.** To determine the prevalence of genetic variants of IL28B rs8099917 in Mexican patients with HCV and its usefulness in predicting early virological response to antiviral therapy with PegIFN/RBV. **Material and methods.** 69 HCV Mexican patients were included (57 genotype 1 and 9 HCV = 1), 31 males, 38 females, mean age: 49.2 ± 11.9 years. All received Peg-INF/RBV according to genotype. Quantitative HCV-RNA by PCR (Quest Diagnostics©) was determine at baseline, week 4, 12 and 24 weeks after end of treatment. The present analysis only includes as endpoint the achievement of early virological response (EVR defined as HCV-RNA drop ≥ 2 log compared with baseline at week 12). EVR is the definitive time to consider treatment failure in genotype 1 patients. Genotype of IL28B rs8099917 SNP were determine by real time PCR and dissociation curves according to TibMolBiol GmbH-Roche© design. Statistics analysis included: descriptive statistics, Kruskal Wallis and χ^2 test, predictive positive value (PPV), predictive negative value (PNV), sensitivity, specificity and Likelihood ratio (SPSS V17). **Results.** In our cohort of HCV Mexican patients the prevalence of rs8099917 genotypes was: TT (31.8%), GT (56.6%) and GG (11.6%) with a frequency of T allele of 0.6 and 0.40 for G. The predictive values according to SNP rs8099917 genotypes are described in table 1. **Conclusions.** The prevalence of the favorable genotype of IL28 SNP rs8099917 (T/T) was 31.8%, conferring to those carriers of this variant a 3.1 likelihood of obtain EVR. By contrary, genotype G/G was strongly associated with lack of response at 12 weeks of Peg-IFN/RBV therapy. These results must be confirmed in a larger population before consider this genotypic marker as significant in Mexican HCV patients.

Table 1. (010) Virological and predictive values for EVR according to IL28 SNP rs9088817 genotype in HCV Mexican patients (n: 69).

	T/T (n: 18)	G/T (n: 37)	G/G (n: 8)
Baseline HCV-RNA (IU/L)	2,77E6 ± 3,12E^6	1,38E6 ± 2,30E^6	5,78E5 ± 1,12E^6
EVR rate (63%)	16 (88.8%)	28 (75.6%)	2 (25%)
PPV	88.8%	75.6%	25%
NPV	48.95%	30.7%	20%
Sensitivity	34.7%	60.8%	4.3%
Specificity	88.2%	47.0%	64.7%
Likelihood of EVR	3.1	1.1	0.1

The authors declares that there is no conflict of interest.

011

ON TREATMENT HCV-RNA KINETICS AND ITS RELATIONSHIP WITH IL28B SNP RS12979860 VARIANTS IN CHRONIC HEPATITIS C MEXICAN PATIENTS TREATED WITH PEGIFN/RBV

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Introduction. It has been demonstrated that patients with chronic hepatitis C (HCV) treated with PegIFN/RBV who present early and more pronounced HCV-RNA decline have higher rates of sustained virological response (SVR). Recently the genotype C/C of SNP rs12979860 of IL28B gen has been recognized as the strongest host-related predictor of SVR. In our HCV patients the prevalence of this favorable C/C variant is 22%. According to our results, those patients carriers of C/C genotype have 2.5 to 3.5 more chances of obtain RVS in comparison with the other variants. **Objective.** To determine the relationship between the SNP rs12979860 of IL28B variants and the "on treatment" viral kinetics in a cohort of HCV Mexican patients who received Peg-IFN/RBV therapy. **Material and methods.** 85 HCV patients were included (72 HCV genotype 1 and 13 HCV = 1), 36 males, 49 females, mean age: 48 ± 12.5 ys. All received Peg-INF/RBV therapy with standard dosage and duration according to genotype. Serum Quantitative HCV-RNA was determine by PCR (Quest Diagnostics©) at baseline and al weeks 4, 12, 24 and 48 of treatment. Viral response was defined as a HCV-RNA drop ≥ 2log with respect the baseline at the evaluated timepoints. IL28 SNP rs12979860 was obtained by real time PCR and dissociation curves according TibMolBiol GmbH-Roche design. Statistics analysis included: descriptive statistics, Kruskal Wallis and χ^2 test, predictive positive value (PPV), predictive negative value (PNV), sensibility, specificity and Likelihood ratio (SPSS V17).

Table 1. (011) On treatment viral response during Peg-IFN/RBV therapy according to IL28 SNP rs12979860 in HCV patients (n: 85).

IL28 genotype	4 weeks	12 weeks	24 weeks	48 weeks
T/T n=19 (22,4%)	7 (36%)	14 (73.6%)	13 (68.4%)	10 (52.6%)
C/T n=51 (60.0%)	20 (39.2%)	37 (72.5%)	39 (76.4%)	32 (62.7%)
C/C n=15 (17,6%)	13 (86.8%)	14 (93.3%)	15 (100%)	14 (86.6%)

Table 2. (011) Prognostic parameters during treatment with peg-IFN/RBV in IL28 rs12979860 genotype C/C HCV patients.

	4 weeks	12 weeks	24 weeks	48 weeks
−Δ HCV-RNA log in C/C	2.90 ± 1.13	4.43 ± 0.85	4,52 ± 0,60	4.41 ± 0.90
PPV (IC 95%)	91.6% (61.32-99.79)	91.6% (61.32-99.79)	100% (73.74-100)	91.6% (61.32-99.79)
NPV (IC 95%)	64.1% (51.5-75.5)	26.8% (16.7-39.70)	28.3% (18.01-40.69)	46.2% (20.56-43.84)
Sensitivity	31.4%	18.3%	20%	23.0%
Specificity	97.7%	94.7%	100%	96.8%
Likelihood of viral response	10.3	3.0	4.6	7.6

Results. In the present HCV cohort of PegIFN/RBV treated patients the prevalence of rs12979860 genotypes was: TT (22%), CT (60%) and CC (17.6%). Viral response during therapy at the evaluated timepoints was higher in C/C genotype patients (Table 1). The PPV, PNV, sensibility, specificity and Likelihood ratio obtained in C/C carriers are shown in table 2.

Conclusions. In HCV patients with IL28B rs12979860 genotype C/C "on treatment" viral kinetics showed a pronounced, progressive and sustained HCV-RNA reduction. Genotype C/C HCV patients achieved higher viral response rates in every evaluated timepoints in comparison with subjects carriers of other variants. The observed "on treatment" kinetics data are consistent with the higher SVR observed in this patients.
The authors declares that there is no conflict of interest.

F. CHOLESTASIS AND CHRONIC AUTOINMUNE LIVER DISEASES

001

IDIOPATHIC ADULTHOOD DUCTOPENIA: DIAGNOSIS OF EXCLUSION BETWEEN CHOLESTATIC DISEASES. REPORT OF A CASE

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Introduction. The idiopathic adult ductopenia is a disease of unknown etiology that is characterized by intrahepatic cholestasis, represents only 1% of cases of disease of small bile ducts, predominantly affecting young adults with a median age of 30 years. The diagnosis is by exclusion of other more common cholestatic diseases and requires the loss of interlobular and septal bile ducts of more than 50% of portal tracts on liver biopsy. **Objective.** To describe a case of adult idiopathic ductopenia in a patient with chronic cholestasis. **Case report.** Male of 20 years old, previously healthy, denies addictions, no history of icterus at birth or in infancy, no presence of medication or herbalists, 4 months of evolution characterized by fatigue, weakness and biochemical tests with cholestatic pattern with a TB (total bilirrubin): 0.8 mg/dl, ALP (alkaline phosphatase): 618 U/l, GGT (gamma glutamyl transpeptidase): 912U/l, AST (aspartate aminotransferase): 213 U/I, ALT (alanine aminotransferase): 433 U/I. Blood biometry and regular coagulation times. Antibodies to hepatitis A, hepatitis B surface antigen and antibody negative, and hepatitis C antibody were negative. Negative antinuclear antibodies, anti-mitochondrial and anti-smooth muscle negative, p-ANCA (anti-neutrophil-cytoplasm) negative. Abdominal USG: no dilation of intrahepatic or extrahepatic bile ducts and no parenchymal abnormalities, The MRCP (magnetic resonance cholangiopancreatography): liver decreased in size with nonspecific diffuse disease, without alterations in the bile duct. The percutaneous hepatic biopsy: preserved liver architecture, few portal tracts and some lymphocytes, interlobular duct is not identified, the liver parenchyma with regenerative nodules, the diagnosis: idiopathic adulthood ductopenia. Treatment starts with ursodeoxycholic acid (UDCA) at doses of 250 mg twice daily with an improvement of symptoms and biochemical profile. **Discussion and conclusions.** The level of ductopenia is variable when it is mild may not manifest at the histopathological study. When it is difficult to observe the residual bile ducts due to inflammation in the portal tracts it is useful to perform immunohistochemical stains anticytokeratins 7 and 19, that are antigens expressed in epithelial cells of the bile ducts. Also useful are staining with periodic acid-Schiff diastase or by immunolocalization of collagen type IV. The clinical picture is characterized by jaundice which may be episodic, pruritus and fatigue, laboratory findings with elevated bilirubin up to 26 mg/dL, levels of alkaline phosphatase and GGT from 3 to 14 times the upper limit of normal, values of aminotransferases sometimes up to 10 times its normal limit. It is believed that adult idiopathic ductopenia has a progressive and severe course toward cirrhosis, leading to an indication for liver transplantation as the only curative treatment. In mild cases ursodeoxycholic acid may be used a beneficial effect has been suggested but its impact on the progression is unknown. There is little knowledge about this disease, its pathogenesis, causes, clinical course and the best treatment remains unclear.
The authors declares that there is no conflict of interest.

002

DERANGEMENTS IN THE SERUM LIPID PATTERN AND CARDIOVASCULAR RISK ASSESSMENT IN PATIENTS WITH PRIMARY BILIARY CIRRHOSIS (PBC)

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Introduction. PBC patients may have serum lipid pattern derangements, possibly leading to increased risk of cardiovascular events. **Aim.** To investigate the difference of serum lipid pattern in patients with PBC *vs.* healthy controls and to report the frequency of dyslipidemia and cardiovascular events on this population. **Material and methods.** All patients diagnosed with PBC by liver biopsy from 2000 to 2010 at our hospital were included. The control group consisted of organ donors attended during those years. Total cholesterol, c-HDL, c-LDL and triglycerides serum concentrations were compared in both groups, and the frequency of dyslipidemias, low c-HDL (< 40 mg/dL in men, < 50 mg/dL in women), high c-LDL (> 130 mg/dL) and hypertrigliceridemia (> 200 mg/dL) were also recorded. Statistical analysis was performed using the Student's t test and χ^2 test (significant values when $p < 0.05$). **Results:** 54 patients with PBC (47 women, 7 men, age: 52.5 ±12.8 years) and 106 healthy volunteers (102 kidney donors and 4 bone marrow donors, age 56 ± 9.4 years) were included. PBC patients showed significantly higher total cholesterol, c-HDL and c-LDL concentrations, but similar triglycerides concentrations (Table 1). Thirteen patients (7%) showed low c-HDL, 30 (55%) high c-DL and 9 hypertriglyceridemia (6%). The mean time of follow-up in the PBC patients was 58 ± 36.5 months. Only one case of cerebrovascular event was reported in the PBC group.

Table 1. (002) Serum lipid profile in patients with PBC and healthy volunteers.

Variable	PBC	Healthy volunteers	P
Cholesterol (mg/dL)	259.24 ± 130.423	200.0 ±40.05	0.003
c-HDL (mg/dL)	60.9 ± 38.9	47.37 ± 12.380	0.023
c- LDL (mg/dL)	177.52 ± 126.0	127.8 ± 34.6	0.012
Triglycerides (mg/dL)	143.9 ± 66.24	126.40 ± 55.42	0.117

*Results expressed as means ± SD.

Conclusions. PBC patients show significant derangements on their lipid profile consisting mainly on c-LDL and c-HDL

increase. The cardiovascular events frequency was low in this set of patients. Dyslipidemia in PBC patients does not seem to be related to a greater risk of cardiovascular events; however, it is mandatory to assess each patient individually when other known factors for cardiovascular risk are detected.

The authors declares that there is no conflict of interest.

003

AUTOIMMUNE HEPATITIS IN HOSPITAL GENERAL DE MÉXICO

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Introduction. Autoimmune hepatitis (AIH) represents a form of chronic hepatitis of unknown origin, clinically characterized by a fluctuant course, with activity remission and exacerbation periods. Diagnosis is based in histological, clinical and biochemical abnormalities and so even an immunologic profile. Actually two types of autoimmune hepatitis are recognized, being the type I the most frequent in adult population. The treatment is based in anti-inflammatory drugs and immunomodulators. **Aims.** To report the prevalence of autoimmune hepatitis in the population of the Liver Clinic in Hospital General de México, and epidemiologic and clinical features of this entity in a sample of our population. **Material and methods.** Cases of autoimmune hepatitis were reviewed in the Liver Clinic in Hospital General de México in a period between 2009 and 2012. Diagnosis was established using the simplified scoring system of the International Autoimmune Hepatitis Group (IAIHG). Liver Biopsies were evaluated according with the typical and compatible characteristics of autoimmune hepatitis. For the Data presentation descriptive statistics was used. **Results.** 11 AIH compatible cases were found according with the IAIHG criteria. 10 of the 11 cases were women, with a median of age of 38 years with a range of 22 to 53 years. The diagnosis according the simplified criteria of the IAIHG was definitive in 46% of the cases. The 100% of the cases with complete serology were classified as type 1 AIH according with the antibodies profile. At diagnosis, elevation of transaminases was found, the median of ALT=65 and AST= 103. The mean value of the gamma globulins was 2469 (SD ± 1695). The presentation form was in the 45.5% of the cases with compatible data of liver injury. In the rest of the cases it was manifested with jaundice and systemic symptoms. The presence of other autoimmune diseases was found in three cases these being, systemic lupus erithematosus, Sjögren syndrome and rheumatoid arthritis, a case in each one. The 63.7% presented criteria for treatment, achieving remission 3 of the patients (27.3%). The treatment scheme more frequently used was the double one using prednisone and azathioprine. **Conclusions.** Autoimmune hepatitis represents an important cause of liver cirrhosis in our population. The diagnostic suspicion of this entity, can allow to improve detection so that it would be possible to initiate in an opportune way the treatment and then to prevent long time complications.
The authors declares that there is no conflict of interest.

G. PEDIATRIC HEPATOLOGY

001

CORRELATION OF SERIC LEVELS OF TOTAL GLOBULINS AND IMMUNOGLOBULIN G (IgG) IN PEDIATRIC PATIENTS WITH AUTOIMMUNE HEPATITIS (AIH)

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Background. AIH is a hepatocellular inflammation which occurs when the immune system acts to the hepatocytes and is characterized by increase of aminotransferases and hyperglobulinemia and hypergammaglobulinemia (increased IgG), autoantibodies and interface hepatitis with infiltration of plasma cells and necrosis. To know if a correlation exist between serum levels of total globulin and immunoglobulin G (IgG), could override the taking of IgG and only take the value of the total globulin in patients with suspected AIH. **Objective.** To determine the correlation and determination coefficients between serum levels of total globulin and immunoglobulin G. **Material and methods.** Observational, analytical, and retrolective study. **Results.** 30 cases were identified with HAI. The Pearson's coefficient of correlation between serum globulins and IgG levels was 0.3, with a coefficient of determination of 0.09 (P = 0.107). **Conclusions.** There is insufficient evidence to assert that exist a correlation between the serum globulins and IgG in patients with HAI.
The authors declares that there is no conflict of interest.

H. ALCOHOLIC LIVER DISEASE AND FATTY LIVER

001

RISK FACTORS ASSOCIATED IN PATIENTS WITH ULTRASONOGRAPHIC FATTY LIVER OF THE MEXICAN SOUTHEAST

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Background. Fatty liver is a condition closely linked to obesity, alcoholism, metabolic syndrome, drugs, viruses, hereditary metabolic diseases, parenteral nutrition and fatty liver associated with pregnancy. Each of the factors can be enhanced with another, as with alcohol and obesity, or obesity and diabetes mellitus, in both cases the evolution to steatohepatitis, fibrosis and cirrhosis will be faster. Identifying these patients is important in order to prevent potential complications such as liver failure, cirrhosis and hepatocellular carcinoma. **Objective.** To identify risk factors in patients with ultrasonographic diagnosis of fatty liver. **Material and methods.** We

Table 1. (001).

Male N (%)	Female N (%)	Dyslipidemia N (%)	DM N (%)	CAM N (%)	Drugs N (%)	Transfusion N (%)	Alcohol N (%)	Obesity N (%)	Glucose N (%)	Cholesterol N (%)	TGS N (%)	ALTs N (%)
65(27.8)	187(74.2)	149(59.1)	81(32.1)	93(36.9)	44(17.4)	25(9.9)	21(8.3)	113(44.8)	77(30.5)	123(48.8)	87(34.5)	152(60.3)

DM: diabetes mellitus. CAM: complementary and alternative medicine. TGS: triglycerides. ALTs: aminotransferases.

used measures of central tendency and dispersion in the statistical analysis. We included patients referred with ultrasonographic diagnosis of fatty liver who in addition to the history and physical examination that included weight, height and body mass index, those who performed liver function tests, glucose, cholesterol and triglycerides in patients referred to the gastroenterology service in the General Hospital of Zone 2 of the Instituto Mexicano del Seguro Social in Tuxtla Gutiérrez, Chiapas, at the period between March 17 and December 19, 2011, in all cases informed consent was obtained. The information obtained is part of the registration protocol: R-2011-702-3 with the local research committee. No conflicts of interest. **Results.** We evaluated 252 patients of whom 187 (74.2%) were female and 65 (27.8%) were men, history of diabetes mellitus in 81 (32.1%), disilipidemia 149 (59.1%), transfusion 25 (9.9%), consumer of alternative and complementary medicine 93 (36.9%), alcohol 21 (8.3%) and drugs 44 (17.4%). Overweight 82 (32.5%) and obesity 113 (44.8%), dyslipidemia in 210 (83.3%), predominated triglycerides in 123 (48.85%) over cholesterol in 87 (34.5%), glucose 77 (30.5%) and elevated aminotransferases in 152 (60.3) (Table 1). The ultrasound reports were performed by radiologists in family medicine and in our hospital. **Conclusions.** Our results are similar to those reported in patients from northern Mexico in relation to obesity, dyslipidemia and diabetes mellitus, the consumption of complementary and alternative medicine occupied a large percentage even higher than the alcohol, so we consider important to identify those products related to liver damage in order to notify the population to avoid consumption. While the correlation between increased echogenicity, and elevated aminotransferases was observed is within the expected parameters. Consideration should be given to each of the factors associated with liver damage in all patients with ultrasonographic diagnosis and try to correlate with the biochemical expression of injury to identify patients must be referred to a specialist for diagnostic complementation and making the decision to the realization of liver biopsy and thus prevent development of complications of liver cirrhosis.
No conflicts of interest since the data and information come from the protocol registered with the local research committee.
Expenses were covered by the researchers.
The authors declares that there is no conflict of interest.

002

RESPONSE TO PREDNISONE IN MEXICAN PATIENTS WITH ALCOHOLIC HEPATITIS IN A PERIOD OF FOUR YEARS IN THE HOSPITAL GENERAL DE MÉXICO

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Introduction. Patients with severe alcoholic hepatitis (AH) have a shortterm mortality of about 40-50%. Two established specific agents for treating severe AH are corticosteroids and pentoxifylline (PTX). The choice for treating patients with severe AH is corticosteroids, especially in those with Maddrey score ≥ 32 or MELD ≥ 21. Corticosteroids act by reducing inflammatory cytokines such as tumor necrosis factor-α (TNFα), intercelular adhesion molecule 1, interleukin (IL)-6 and IL-8. The most important contraindications are the presence of infection, active gastrointestinal bleeding, renal failure, acute pancreatitis, active tuberculosis, uncontrolled diabetes and psychosis. The Lille score must been evaluated at day 7. Patients with Lille score of ≥ 0.45 are defined as non-responders to steroids, with an accuracy of 75% in predicting death at 3-6 month. The objective was to describe the response to prednisone in Mexican patients with HA, as well as survival at six months. **Material and metods.** We performed a descriptive, cross-sectional and retrolective study from January 2008 to December 2011. We reviewed records of patients admitted to the service over a period of four years with the diagnosis of HA, intentionally selecting patients who started treatment with prednisone. Clinical, biochemical and evolution to six months are recorded. We used descriptive statistics, quantitative variables are expressed as mean and standard deviation (SD) and qualitative variables as proportions and percentages. **Results.** We reviewed 141 records of patients with HA, we excluded 110 patients of them 8 started treatment with prednisone-metadoxine, 11 were not complete the laboratory studies and 91 were treated with PTX. 31 patients were analyzed. The average age was 41 years (SD ± 9.96), with male predominance in 29 (93%). 23 (74%) were diagnosed with liver failure, 7 (23%) had clinical ascites and 14 (45%) reported hepatic encephalopathy. 29 patients (94%) had an Maddrey score ≥ 32 with an average rate of 68.96, and 28 (90%) MELD ≥ 21. The average total bilirubin at admission and seven days of initiation of steroid was 23.5 ± 7.94 and 19.9 of mg/dL ± 12.2 ($p = 0.03$) respectively. The average initial serum creatinine and potassium were 1.0 mg/dL (SD 0.38) and 3.13 mmol/L (SD 0.68) respectively. Likewise, the average AST, ALT, ALP and GGT was 228 (SD ± 239), 89 (SD ± 166), 207 (SD ± 97) and 379 U/L (SD ± 386) respectively. The Lille score was analyzed in all patients observed a higher score of 0.45 in 28 (90%) with an average of 0.80 (SD ± 0.18). Of the 31 patients, 11 (35%) had a survival less than six months, 7 (23%) more than six months and ignored the evolution in 13 patients (42%). **Conclusions:** Severe alcoholic hepatitis is a common condition in our service. Most of our patients were classified as non responders to steroid according to Lille score despite a significant reduction in bilirubin values. Mortality at six months is high so that new therapeutic options should be investigated for this disease.
The authors declare no conflict of interest.

003

EVALUATION OF NRF2'S ROLE IN THE PROCESS OF DAMAGE-REPAIR IN THE HYPERCHOLESTEROLEMIC LIVER

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Introduction. Nonalcoholic steatosis or nonalcoholic fatty liver disease (NALFD) is characterized by the accumulation of lipids in more than 5% of hepatocytes in the absence of chronic alcohol intake, viral infections or other liver damage. Currently, NALFD is considered the most common chronic liver disease in the Western world in both adults and children. This disease has a prevalence of 45% within the Hispanic population. NAFLD is often asymptomatic and reversible, however, it can result in a spectrum of liver diseases that can reach hepatocellular carcinoma. Hepatocytes are not physiologically lipid storage cells; this is why the development of steatosis is associated with cellular dysfunction and apoptosis. This phenomenon is known as lipotoxicity and causes oxidative stress. Faced with this state of oxidative stress, the liver produces hepatocyte growth factor (HGF) which induces the antioxidant response reducing oxidative stress and apoptosis. One of the key molecules involved in cellular antioxidant response is transcription factor Nrf2. **Objective.** The aim of this study was to determine the Nrf2-mediated antioxidant response of HGF in primary cultures of hepatocytes from mouse submitted to a hypercholesterolemic diet. **Material and methods.** CD1 male mice of 8 to 12 weeks of the CD1 were fed with a high cholesterol diet composed of 2% cholesterol and 0.5% sodium cholate (HC) or a standard diet balanced (Chow) for two days. Subsequently, blood tests were performed to determine the level of transaminases and bilirubin. Hepatocytes were obtained through a double perfusion with collagenase. Somes cell primary cultures were stained with oil red O and others were treated with 50 ng/mL of HGF. Proteins were isolated and Western blots were run to determine expression levels of Nrf2 and encoding enzymes. **Results.** Microscopies showed that HC fed mice for two days accumulate lipids in their hepatocytes. Liver function tests revealed that these mice had tissue damage and liver dysfunction was not found in control mice. Nrf2's Western blots showed that in control mice Nrf2's translocation to the nucleus occurred since 30 min of HGF treatment while in HC mice was up to 60 min. The expression of Nrf2's encoding antioxidant enzymes in control mice increased as treatment with HGF was longer. However, in HC fed mice, Western blots revealed that the effect of HGF on the expression of enzymes showed a delay or had no effect. **Conclusion.** The results show that HC fed mice fed accumulate lipids in their hepatocytes which generates a state of oxidative stress in the cell. Under normal conditions, HGF induces Nrf2-mediated antioxidant response. However, in HC fed mice protective response mediated by Nrf2 is late and inadequate.

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The authors declares that there is no conflict of interest.

004

SMOKING AND NON ALCOHOLIC FATTY LIVER DISEASE IN A GROUP OF MEXICAN PATIENTS. THE ROLE OF OXIDATIVE STRESS

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Background and aim. Non alcoholic fatty liver disease (NAFLD) is emerging as the most common cause of chronic liver disease worldwide, probably related to the increasing incidence of overweight and obesity. There is evidence suggesting that smokers, even showing a lower body mass index, tend to accumulate visceral fat. Furthermore, exposure to cigarette smoke causes high oxidative stress and stimulates lipid accumulation in the liver. The aim of this study is to investigate the prevalence and the factors associated with NALFD in a group of heavy smokers. **Material and methods.** We included a co-

Table 1. (004)

	With NAFLD Baseline	Fourth week	Tenth week	Without NAFLD Baseline	Fourth week	Tenth week
Weight (kg)	72.89 ± 11.10	73.16 ± 11.31	74.09 ± 11.43	72.08 ± 10.27	71.87 ± 10.26	72.81 ±9.66
Body mass index (kg/m^2)	26.88 ± 3.17	26.97 ± 3.18	27.31 ± 3.17	27.56 ± 2.93	27.92 ± 2.78	27.93 ±2.76
Body fat (%)	31.29 ± 8.23	-	31.89 ± 7.96	33.09 ± 5.79	-	31.63 ±4.92
Serum glucose (mg/dL)	90.78 ± 27.58	100.46 ± 35.88	97.88 ± 28.98	83.0 ± 32.98	90.09 ± 25.71	86.14 ±6.18
Triglycerides (mg/dL)	197.72 ± 125.05	198.4 ± 123.33	206.13 ± 200.92	285.50 ± 184.09	292.09 ± 277.56	418.0 ±43.42
Cholesterol total (mg/dL)	186.17 ± 42.57	178.03 ± 50.19	177.54 ± 39.22	214.10 ± 43.42	216.55 ± 51.95	218.17 ±46.82
HDL cholesterol (mg/dL)	35.08 ± 10.50	37.06 ± 19.08	35.5 ± 11.82	36.3 ± 8.37	36.64 ± 11.25	35.43 ±7.30
LDL cholesterol (mg/dL)	112.92 ± 39.05	109.49 ± 39.01	105.42 ± 36.18	126.4 ± 40.94	127.45 ± 41.02	117.71 ±29.84
Alanine aminotrasferase (U/L)	14.97 ± 6.35	16.51 ± 11.87	22.67 ± 19.25	15.1 ± 3.67	15.36 ± 7.28	20.71 ±9.72
Aspartate aminotransferase (U/L)	22.22 ± 12.68	22.4 ± 12.68	27.63 ± 14.88	20.9 ± 5.36	20.09 ± 8.61	23.43 ±11.96
Gammaglutamyl aminostransferase (U/L)	30.39 ± 20.83	31.46 ± 20.14	44.42 ± 51.01	27.4 ± 13.43	24.91 ± 14.43	28.0 ±21.59
Insuline (µU/mL)	8.20 ± 4.31	10.04 ± 6.38	10.01 ± 8.58	7.56 ± 3.31	12.97 ± 18.5	11.99 ±4.28
HOMA-IR	1.08 ± 0.55	1.34 ± 0.88	1.37 ± 1.15	0.97 ± 0.44	0.94 ± 0.38	1.53 ±0.52
Leptine (ng/mL)	18.12 ± 16.11	19.01 ± 15.57	21.27 ± 21.03	15.58 ± 9.39	15.76 ± 9.80	21.25 ±17.02
Ghreline (ng/mL^9)	9.58 ± 8.14	12.35 ± 8.57	19.17 ± 4.97	12.44 ± 8.25	13.41 ± 7.78	17.29 ±0.55
H2O2 (µM/mL)	4.82 ± 0.94	4.55 ± 0.98	4.80 ± 1.61	4.79 ± 1.29	5.26 ± 2.26	6.15 ±2.97
MDA (µM/mL)	6.41 ± 3.39	5.79 ± 2.75	4.8 ± 1.68	5.39 ± 1.56	6.81 ± 3.65	8.53 ±5.65
Il-10 (pg/mL)	1.82 ±0.13	1.79 ±0.07	1.77 ± 0.08	2.09 ± 0.89	1.76 ± 0.05	1.79 ±0.11
SOD (U/mL)	19.57 ±14.19	21.46 ±13.2	21.77 ± 26.1	24.26 ± 13.21	22.1 ± 14.97	28.15 ±25.16
CAT (U/mL)	0.76 ±0.11	0.78 ±0.10	0.75 ± 0.11	0.74 ± 0.05	0.76 ± 0.08	0.76 ±0.09

hort of 47 smokers who attended a tobacco cessation unit, 25 (53.19%) women and 22 (46.80%) men with a mean age of 48.55 ± 10.47 years old. They began to smoke at a mean age of 16 ± 5.62 years, the number of years smoking were 32.55 ± 10.08 and the number of cigarettes smoked per day 19.85 ± 9.2. Physical dependence obtained with the Fagerström test was 5.74 ± 2.23.The exclusion criteria for this study were a current daily alcohol ingestion ≥ 20 g, viral hepatitis (B and C), confirmed by serology, and the presence of other causes of liver disease. The diagnosis of NAFLD was made by ultrasound and by determination of CK18. Smokers were included in the tobacco cessation treatment during 10 weeks, cessation was set on week three. Blood samples were taken on week 2 (still smoking-Sample 1), week 4 (one week after cessation-Sample 2) and week 10 (7 weeks of abstinence-Sample 3). Anthropometric and biochemical variables were measured in all patients through the treatment. **Results.** We found a proportion of 0.76 NAFLD in the population studied. In table 1, we show the values found. Gender was the most important variable to predict the changes in the concentrations in the biochemical markers. By contrast, the main differences found in the variables of oxidative stress are determined by the status of NAFLD. **Conclusions.** High proportion of NAFLD in heavy smokers, probably because smoking causes a chronic state of oxidative stress. These results confirm that smoking should be considered both as a cofactor in the pathogenesis of NAFLD and its progression.
The authors declares that there is no conflict of interest.

005

EVALUATION OF OXIDATIVE STRESS THROUGH THE RATIO OF REDUCED/OXIDIZED GLUTATHIONE IN ALCOHOL LIVER DISEASE PATIENTS

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Introduction. When the liver exceeds its ability to metabolize alcohol (8-10 g/h), The Microsomal Ethanol Oxidizing System (MEOS) is activated via the cytochrome P450 (CYP2E1), which leads to the production of reactive oxygen species (ROS). Oxidative stress (OS) is associated with increased production of ROS or a significant decrease in the effectiveness of antioxidant defenses, such as glutathione, also OS is one of the main mechanisms involved in alcoholic liver disease (ALD). Glutathione is antioxidant enzyme which has the ability to oxidize peroxides. In cells and tissues over 90% of total is reduced glutathione (GSH) and < 10% is oxidized (GSSG). Although it is assumed that OS plays a role in ALD, the concentration of GSH, GSSG and their ratio haven it been studied in humans. **Objective.** To study the concentration reduced glutathione, oxidized and GSH/GSSG ratio in alcoholic patients with ALD. **Material and methods.** We included 64 patients with ALD consulting the General Hospital of Mexico with alcoholism according to WHO criteria (> 70 g/day in men, > 50 g/day in women for 5 years). We made detailed clinical history from each patient, they were classified according to the absence or presence of liver damage of alcohol. The control group (CT) consisted of 66 teetotalers or alcohol consumers of < 10 g per day and AUDIT < 5. Blood samples were taken in one occasion (3 mL) for determination of GHS and GSSG (Calbiochem, USA). We obtained written informed consent each subject. The data were expressed in mean ± standard deviation, we analyzed by T-test for statistical analysis. **Results.** We included 66 CT, average age was 39 ± 9 years and body mass index (BMI) = 28 ± 3 kg/m^2. We included 64 ALD with a mean age of 49 ± 13 years, BMI = 28 ± 4 kg/m^2. The average grams of alcohol per day for group CT = 2 ± 2 g while the group ALD = 308 ± 208 g, mean years of consumption was 28 years. GSH concentration (μM) in CT was 516 ± 133, in the case of ALD was 807 ± 170 ($p < 0.001$). The concentration of GSSG (μM) was CT = 179 ± 172 and ALD = 321 ± 386 ($p = 0.020$). The value GSH/GSSG ratio for CT was 3 ± 3 and the ALD of -9 ± 3 ($p < 0.001$). The ratio was lower in ALD when compared with CT. The GSH/GSSG ratio is an indicator of oxidative stress, the lower the ratio value greater stress. **Conclusion.** This is the first study to be performed with ALD. We found high concentrations of GSH and GSSG while the ratio was lower. This study confirms that the concentration of GSH, GSSG and GSH/GSSG ratio are markers of oxidative stress and also participate in alcoholism and ALD, the determination of these molecules could improve the diagnosis and treatment of patients with this damage.
The authors declares that there is no conflict of interest.

Table 1. (006)

Variable	Control	Risk	Abuse	Dependence	p
Gender (n)					
M	63	20	19	33	0.000*
F	83	9	4	21	0.046*
Grams of OH	2.4 ± 3.8	17 ± 15.7	18 ± 13	19 ± 31	0.000*
Hb (g/dL)	16 ± 2	17 ± 1.5	17 ± 1.4	14 ± 1.4	0.000*
Hto (%)	46 ± 6	49 ± 4	50 ± 4	49 ± 4	0.000*
VGM (μ^3)	89 ± 5	91 ± 2.5	91 ± 3.4	91 ± 3.7	0.000*
HCM (pg)	30.5 ± 1.6	31 ± 0.9	31 ± 1.3	31 ± 2	0 .046*
Erithrocytes x10^6/mm^3	5.2 ± 0.7	5.4 ± 0.5	5.5 ± 0.5	5.4 ± 0.5	0.002*
Neutrophils (%)	57 ± 11	59 ± 11	61 ± 8	61 ± 8	0.016*
Lymphocytes (%)	33 ± 9	32 ± 9	30 ± 7	30.2 ± 7	0.036*
Behavioral disinhibition	3.6 ± 1.7	4.9 ± 1.3	4.7 ± 1.5	4.9 ± 1.7	0.000*
Desire to drink	13.20 ± 1.4	23 ± 1.5	23 ± 1.4	24 ± 1.5	0.000*
Total craving	17 ± 1.3	28 ± 1.4	28.5 ± 1.3	29 ± 1.5	0.000*

Data expressed in mean ± standard deviation.

006

BIOCHEMICAL AND BEHAVIORAL DIFFERENCES IN A YOUTH, ALCOHOL-CONSUMING POPULATION

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Introduction. In Mexico the group that displays the highest level of alcohol consumption is young people between 18 and 29 years old, typically having a pattern occasional high intake. This consumption has been associated with multiple social and family problems. However, the association between alcohol consumption patterns, biochemical changes and behavior in young people hasn't been studied. **Objective.** To associate the pattern of alcohol consumption with biochemical and behavioral tests in young people. **Material and methods.** 252 university students were included through written informed consent. They were classified according to the AUDIT (Alcohol Use Disorders Identification Test) and CIDI (Composite International Diagnostic Interview) into two groups: Alcohol (OH) and Control (CT). The OH group was subdivided into Risk (R), Abuse (A) and Dependence (D). The Craving questionnaire was administered to assess desire to drink, behavioral disinhibition and total craving. In addition, a personalized survey about the subject's alcohol consumption was given. 10 mL of peripheral blood for a complete blood count and liver function tests was collected. ANOVA and orthogonal analysis were performed to find differences between groups. **Results.** Biochemical parameters were found to be within the reference values in both groups; but in the OH group the values of grams of alcohol, Hb, Hto, VGM, MCH, neutrophils and erithrocytes were higher, while lymphocytes were lower compared to the control group. With respect to behavior in the 3 evaluated factors, scores for the OH group were moderate while in the control group they were mild (Table 1). **Conclusions.** The results show that the pattern of drinking that young people display created distinct behavioral and biochemical differences. The total Craving results would indicate that youth can develop alcohol dependence. This study demonstrates the association between pattern of alcohol consumption, biochemical tests and behavioral tests in a young population.

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The authors declares that there is no conflict of interest.

007

EVALUATION OF OXIDATIVE STRESS THROUGH THE QUANTIFICATION OF CARBONYL GROUPS IN PATIENTS WITH CHRONIC ALCOHOLISM AND ALCOHOL LIVER DISEASE

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Introduction. Alcoholic liver disease (ALD) is a clinical and pathological condition there is progressive liver damage ranging from steatosis to cirrhosis. Experimental and/or *in vitro* studies have showed that chronic alcohol consumption increases the production of reactive oxygen species (ROS) and increases lipid, protein and DNA peroxidation. ROS are normally produced in the organism and antioxidant mechanisms exist to counteract their effects. Free radicals react with biomolecules, causing severe changes in their conformation. This interaction directly affects their function, thus resulting in products of degradation, such as malondialdehyde (MDA) which contains 2 protein carbonyls and are released by necrotic hepatocytes. **Objective.** Evaluate blood levels of carbonyl groups in chronic alcoholic patients and its relationship to ALD. **Material and methods.** Control group (CT) consisting of 66 subjects who consumed ≤ 10 g/day and AUDIT ≤ 5. Chronic alcoholic patients from the Liver Clinic at the Hospital General de México fitting the chronic alcoholism criteria (WHO ≥ 70 g/day in men, ≥ 50 g/day in women for the past 5 years). These participants were divided into 2 groups: group of patients with absence of damage (PAD) consisting of 10 subjects which presented no clinical and/or biochemical evidence of liver damage and group of patients with presence of damage (PPD) consisting of 54 subjects with clinical and/or biochemical evidence of liver damage. A 3 mL blood sample was collected from all three groups to determine protein carbonyl levels while their medical history was taken and informed consent given. **Results.** Are shown in table 1. The study population was a homogeneous sample of patients and controls with similar age and BMI parameters for all of the groups. Alcohol g/day consumption showed a significant difference between PAD and PPD and CT ($p = 0.000$ in both cases) whereas this was not the case between PAD and PPD ($p = 0.46$). Carbonyl concentrations showed a significant difference between PAD and PPD and CT ($p = 0.00$ in both cases) but not between PAD and PPD ($p = 0.38$).

Table 1. (007)

	CT	PAD	PPD	P
N	66	10	54	0.75
Gender M/F	66/0	9/1	48/6	
Age (years)	39 ± 10	45 ± 16	50 ± 13	0.01
BMI (kg/m^2)	28 ± 3	28 ± 2	28 ± 5	0.55
Consumption OH (g/day)	2 ± 3	284 ± 79	312 ± 225	0.00
Carbonyls (nmol/gprotein)	0.04 ± 0.03	0.51 ± 0.59	0.68 ± 1.26	0.00

Values expressed as a mean ± standard deviation.

Conclusion. Our study in human subjects concluded that patients with high levels of ethanol consumption showed significantly higher carbonyl blood levels when compared to non-drinkers, suggesting an imbalance between oxidant and anti-oxidant systems. This imbalance cause liver cell damage and therefore be involved in the physiopathology of ALD.

The authors declares that there is no conflict of interest.

008

IMMUNE RESPONSE INVOLVEMENT IN ALCOHOLISM AND ALCOHOL LIVER INJURY

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Introduction. Between different mechanisms participating in the physiopathology of alcoholism and Alcoholic liver disease (ALD), there are disturbances in the immune system that could be associated with liver injury. If the later is true, patients with alcoholism would have a different lymphocyte profile. Nowadays most of the evidence at this respect comes from animal models and in vitro assays. **Objective.** Evaluate in peripheral blood lymphocyte profile of patients with chronic alcoholism and its relation to ALD. **Material and methods.** Two groups of patients of the liver clinic in the Hospital General de México were studied; the first one integrated by subjects with alcoholism criteria without evidence of ALD, the second one for subjects with any grade of ALD and a third control group was included. The lymphocyte profile was determined (T lymphocytes, NK cells, NKT cells, B lymphocytes, TCD8 and T CD4 cells) in peripheral blood by flow citometry. For the statistic analysis ANOVA test and orthogonal analysis were used to find between groups differences. **Results.** 129 subjects were included, of which 66 were controls, 53 had alcoholic liver injury and10 were chronic alcohol consumers. The mean age: 39 years (± 10), 49 years (± 13) and 45 years (±16) respectively, only finding differences between control group and the other two groups (p = 0.014). The lymphocytic profile is shown in the table 1.

Table 1. (008)

Cellular type	Controls	Liver injury	Not injury	P
CD45	95.5 (± 11.8)	89.1 (± 17)	83 (± 15.2)	0.120
T lymphocyte	67 (± 7.4)	61.4(± 12)	53.3 (± 12.8)	0.007
NK cells	9.6 (± 5.5)	14.5 (± 9.3)	23.4 (± 9.8)	0.001
NKT cells	2.1 (± 1.2)	4.6 (± 4.5)	5.0 (± 5.3)	0.040
B lymphocyte	13.9 (± 5.1)	10.2 (± 9.8)	14.8 (± 6.9)	0.358
TCD8	22.3 (± 6.8)	19.6 (± 10)	20.9 (± 5)	0.291
CD3-CD8+	4.3 (± 3.3)	3.7 (± 3.3)	4.6 (± 2.5)	0.88
TCD4	40.5 (± 8.4)	41.7 (± 14.5)	33 (± 8.9)	0.182

Difference was found in the subpopulation values of T lymphocyte and NK cells between the control group and the group without liver injury with statistic differences (p = 0.032 and p = 0.010 respectively).

Conclusions. We found differences in T lymphocytes, NK and NKT cells between controls and alcoholics (with and without liver injury). The differences in NK cells and T lymphocytes between the control group and the group without liver injury suggest that immune alterations are present since subclinical stages and are similar to those described in condition of low grade inflammation.

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The authors declares that there is no conflict of interest.

009

DESCRIPTION OF ASSOCIATED FACTORS WITH LIVER CIRRHOSIS IN A SAMPLE OF PATIENTS WITH NON- ALCOHOLIC STEATOHEPATITIS AT THE NATIONAL INSTITUTE OF MEDICAL SCIENCES AND NUTRITION "SALVADOR ZUBIRÁN"

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Background and objective. The non-alcoholic fatty liver disease (NAFLD) is associated to lipid deposit. In these cases, if inflammation is present, could have cellular infiltration and fibrosis, to convert in non-alcoholic esteatohepatitis (NASH), wich can anticipate to liver cirrhosis (LC). Risk factors described include the metabolic syndrome (MS) components, associated to insulin resistance, together could produce steatosis and alterations in biochemical test of hepatic function. The aim of this study was to describe the associated antropometric, biochemical and clinical factors to LC due to NASH. **Materials and methods.** A retrolective and retrospective case-control study (n=8 *vs.* n=24) was developed. Clinical records of patients with clinical and histological diagnosis of NASH and/or LH were revised. Data about comorbilities, anthropometry, lipid profile, glucose, insulin and test of hepatic function. The qualitative variables were describe as percentages and compared with χ^2 or Fisher test. Continue variables were reported as means, standard deviations and compared by Student t-test using SPSS v.16 software. **Results.** Of all patients (n=32), 25% (n=8) had LC. Patients with NASH were characterized by obesity (BMI>30), hypertension, dysglucemias, hypercholesterolemia and hypertriglyceridemia. Subjects with LC, were mainly characterized by hypoalbuminemia, high levels of AST and hyperbilirrubinemia. Both groups presented alterations in ALT and low levels of HDL-cholesterol (Table 1). **Conclusions.** Factors associated to NASH were obesity, hypertension, elevated plasma glucose, cholesterol and triglycerides, all of them components of MS, which could promote the liver cirrhosis, mainly because persistence of biochemical test of hepatic function. Subsequently, the corporal weight, plasma glucose, cholesterol, triglycerides and albumin could decrease indicating protein-caloric malnutrition.

Table 1. (009).

Variables	HC due NASH (n=8) x±SD	NASH (n=24) x±SD	P value
Women	62.5%	45.8%	0.414
Age in years	59 ± 9.6	48±14.7	**0.053***
DM2	50%	45.8%	0.838
SAH	37.5%	45.8%	0.681
Obesity (BMI>30 kg/m^2)	62.5%	95.8%	**0.014***
AST (UL)	96.2±9.32	57.6±3.5	**0.095***
ALT (UL)	76.9±1.37	68.4±6.2	0.811
AF (UL)	113.3±8.0	90.72±5.07	0.280
TB (mg/dL)	2.46±2.82	0.98±0.62	**0.002***
DB (mg/dL)	1.7±3.3	0.37±0.48	**0.092***
IB (mg/dL)	1.21±0.93	0.74±0.26	**0.031***
Plasma albumin (g/dL)	2.82±1.36	3.51±0.93	**0.146***
Plasma glucose (mg/dL)	86.6±4.29	104.2±4.96	**0.299***
INR	1.2±0.63	0.98±0.48	0.112
Plasma cholesterol (mg/dL)	98.1±6.03	178.4±5.2	**0.005***
Plasma triglycerides (mg/dL)	62.2±3.59	193.2±1.25	**0.007***
HDL cholesterol (mg/dL)	32±2.71	39.2±1.9	1.00
LDL cholesterol (mg/dL)	70.7±5.88	91.5±5.07	0.342

*χ^2 and student t-test.

The authors declare no conflict of interest.

Table 1. (001).

Test	Result
ANA	1:160
A-DNA	48.3
ANTI-antimitochondrial	51
ANTI-LKM	3.3
IgA	183
IgM	81.6
IgG	867
Citomegalovirus	IgG: < 0.20, IgM: < 8.0
Ebstein Barr	Antigen of capside VIR IgM (VCAM): < 10.0 AG viral capside IgG (VCAG): 169 AG early diffuse IgG (EAD): 9.7 AG induced nuclear IgG (EBNA): 83.7
Hepatitis A	IgM negative, IgG: negative.
Hepatitis B	Ag s: Nonreactive Atc-Ag s: reagent Atc- Ag e: nonreactive Ag e: nonreactive Atc core M: nonreactive
Hepatitis C	Ac. Contra hepatitis C nonreactive

J. MISCELLANEOUS

001

CHOLESTASIS BY EPSTEIN BARR VIRUS IN A PATIENT WITH TURNER SYNDROME AND HYPOTHYROIDISM

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Introduction. Epstein-Barr virus (EBV) is a herpesvirus family (also includes herpes simplex virus and cytomegalovirus). It is the major cause of acute infectious mononucleosis, common syndrome characterized by fever, extreme fatigue and lymphadenopathy, these infections do not develop severe symptoms, and are indistinguishable from other childhood diseases in brief. **Case report.** The patient was a woman aged 17, with diagnosis of Turner syndrome by phenotypic findings (underdeveloped genitals and breasts, short neck, short stature and abnormal chest development), confirmed by karyotype (50 metaphases were analyzed with GTG banding technique we found a chromosome complement of 46,X,i(X)(q10) which corresponds to an individual female with an isochromosome of x chromosome pair). Numerical alterations were not found apparent that is to say 45 chromosomes with a pattern of 44 X, a missing sex chromosome. A pelvic ultrasound showed: uterine hypoplasia, with data relating to Turner syndrome. Thyroid function tests diagnosed hypothyroidism. History of transfusion at 3 years by severe anemia without cause. Patient debuted with skin lesions characterized by vesicles on hands, feet, ears, abdomen and legs, itchy, painless, without fever, general discomfort without. Undetected on liver function tests with cholestatic pattern, ultrasound of liver and biliary tract showed diffuse fatty infiltration likely steatosis, without dilatation of bile duct. The magnetic resonance imaging showed diffuse hepatomegaly, with areas suggesting perivascular edema and probable peribiliar, with nodules consistent with probable pericholangitical abscess. Bile duct changes consistent with primary sclerosing cholangitis, by what is requested a liver biopsy reported normal hepatic architecture, the portal spaces did not show alterations, approximately one third of the hepatocytes showed macrovesicular steatosis irregular distribution, hepatocytes were observed with degeneration balonoide and little apoptosis in some cells and nuclear vacuoles. Primary sclerosing cholangitis was discarded. The Epstein Barr panel in table 1. **Discussion.** The EBV infects most people at some point in their lives, in this way we obtain adaptive immunity through the development of antibodies against the virus, which often prevent new infections by external factors. These viruses remain latent for the rest of life (as episomes) can trigger new infections reactivate intermittently with or without symptoms.
The authors declare no conflict of interest.

002

ROLE OF THE Src-EGFR AND Erk 1/2 IN STAT-3 ACTIVATION AND ITS PARTICIPATION IN A PROTECTIVE RESPONSE IN CADMIUM TREATED HEPATOCYTES

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Introduction. Cadmium (Cd), a common food contaminant and a constituent of cigarette smoke, is one of ten chemicals considered by the World Health Organization to be of major public health concern. A correlation of Cd intakes and increased hepatocellular carcinoma mortality risk has been noted in an ecological study in cadmium-exposed mice. Hepatocytes respond to Cd aggression expressing stress proteins such as Hsp70 and also by the activation of transcription factors like signal transducer and activator of transcription (STAT), which are related to survival mechanisms. Cd is a pro-oxidant metal. STAT responds to oxidative stress. **Objective.** The aim of the study was to evaluate signaling pathway activation of factor Stat-3 in a cell line from normal liver mice (AML-12) treated with Cd and its relation with Hsp70 production. **Material and methods.** Hepatocytes were treated with different $CdCl_2$ concentrations (0.5 to 50 μM) for 6 h. Cell viability was determined by crystal violet assay. Activation of Stat-3, Erk 1/2, epidermal growth factor receptor (EGFR) and Hsp70 were determined by Western blot. Pretreatment with some inhibitors to evaluate the participation of some molecules in the STAT-3 signaling cascade were used: Su6656 (Su) for the Src kinase, AG1478 (Ag) for the EGFR, PD98059 (Pd) for Erk 1/2, and chelerythrine (Ch) for PKC. **Results.** AML-12 showed a dose and time dependent response to Cd. A 90% cell viability was found in presence 5 μM $CdCl_2$, so this concentration was used for the following experiments. STAT-3 phosphorylation in tyrosine and in serine were increased in response to Cd. Activation of Erk 1/2 and EGFR was also increased. Hsp70 protein content was twice in AML-12 cells exposed to Cd. Moreover, when hepatocytes were pretreated with kinase Src inhibitor, EGFR activation was diminished while in presence of Ch, the PKC inhibitor, activation of ERK 1/2 decreased. Finally, pretreatment with Su, or Ag, or Pd inhibitors of Src, EGFR and ERK 1/2 respectively, decreased

STAT-3 activation and Hsp70 production. **Conclusion.** Our results showed that Cd induces the activation of the transcription factor STAT-3 by phosphorylation in tyrosine and serine sites in AML-12 cell line. STAT-3 signaling pathway involves transactivation of EGFR via kinase Src which can trigger the activation of Erk 1/2. Moreover, PKC also activates Erk 1/2 that contributes to STAT-3 activation. The signaling pathway Src/EGFR/Erk 1/2 contributes in Hsp70 production that could confer cellular protection against Cd aggression.
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The authors declare no conflict of interest.

003

BUDD-CHIARI SYNDROME IN ASSOCIATION WITH BEHÇET'S DISEASE: CASE REPORT

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Introduction. Budd-Chiari syndrome (BCS) is defined as the hepatic venous outflow tract obstruction, independent of the mechanism of obstruction. Behçet's disease (BD) is a multisystem disorder whose diagnosis is clinical and requires the presence of recurrent oral ulceration and two of the following: genital ulceration, eye lesions, skin lesions and/or a pathergy test. **Case report.** A 20 year-old previously healthy man was admitted for right upper quadrant pain and fatigue that had existed for 4 months. On examination dilation of subcutaneous veins on the trunk and hepatomegaly. Aminotransferases, albumin and bilirubin within normal range. Alkaline phosphatase and GGT where slightly elevated. **Results.** Hepatic angiotomography showed inferior vena cava thrombosis (IVCT), collateral circulation and right portal vein occluded. Echocardiogram documented inferior vena cava's obstruction since 16 mm from its outlet. Endoscopy showed medium esophageal varices. Protein S, C and antithrombin III where normal. Anticardiolipin, antibeta2 glycoprotein, and Lupus anticoagulant antibodies' where negative. Factor V Leiden and Factor II PT20210A mutation's where negative. MTHFR's polymorphism gen C677T and A1298C: homozygous normal. He lately had conjunctival redness and pain in his left eye with diagnosis of anterior uveitis. We asked the patient about recurrent oral ulceration which he confirmed and then we performed the pathergy test resulting positive and the diagnosis of BD was made. We prescribed Propranolol 20 mg bid, Enoxaparin 60 mg subcutaneous q12 h and vitamin K antagonists till INR 2 to 3. For BD he was treated with Infliximab. The prevalence of BD as a thrombotic risk factors in patients with BCS is 0-33%. The diagnosis of BCS in patients with BD is responsible for 3% of the cases of BCS and the risk that patients with BD will develop thrombosis is higher. In a study of 493 patients with EB 1.6% developed IVCT. **Conclusion.** Even though in patients with BD, BCS is not common, once BCS is diagnosed, the search about the etiology (in this case BD) must be part of the spectrum of thrombotic risk factors and a possible etiology for this vascular disorder of the liver.
The authors declare no conflict of interest.

004

SPECTRUM OF HIPOXIC HEPATITIS OF PATIENTS IN THE CORONARY CARE UNIT

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Background. Hypoxic hepatitis (HH) is described in patients with cardiac failure, respiratory failure and septic shock. It has been reported a mortality from 45% to 72%. It is unknown the statistics and clinical course in Mexico, as well as the prognosis of those patients who do not meet criteria for HH but does have significant disturbances in the liver function tests (LFT). **Objective.** Analyze the mortality and clinical course of the patients with HH, and those patients who do not meet criteria for HH but does have significant disturbances in the LFT. **Material and methods.** It has been made a retrospective cohort of patients admitted to the coronary care unit in a period of 5 years. The patients were classified in three groups: 1) HH, those with a rise in LFT $\geq$ 20 times the upper normal limit (UNL); 2) those with a rise in LFT between 5 to < 20 times the UNL (undetermined group): and 3) patients with LFT < 5 times the UNL (control group). There were evaluated demographic variables, hospital length stay and mortality. It has been made a comparative analysis between the groups. The variables are described using median, standard deviation and proportions. The comparisons were made with Fisher exact test and student t test, and logistic regression analysis. **Results.** There were identified 18 cases of HH, 17 of the undetermined group and 13 controls. The median age was 61 ± 17 years, with a male predominance (n = 33, 69%), and the BMI was 27 ± 5 kg/m^2, without significant differences between the groups. There were not significant differences in the hospital lenght stay (8 ± 5, 8 ± 5, and 8 ± 6 days), neither in the coronary care unit length stay (4 ± 2, 5 ± 3, and 4 ± 5 days) between HH, undetermined and control groups, respectively. The mortality was 56%, 38% and 15%, with a significant difference between the HH and the control group (Table 1). **Conclusions.** The mortality for HH in Mexico is similar other reports over the world, the group of patients who do not meet criteria for HH but does have significant disturbances in the LFT have a trend to increased mortality.

Table 1. (004).

Group	Mortality, n (%)	OR	(95 CI%)	P
Control	2 (15)			
Undetermined	6 (38)	3	(0.4-18.2)	0.4
HH	10 (56)	6.8	(1.1-40)	0.03

The authors declare no conflict of interest.

005

THE PROTECTIVE EFFECT OF THE HEPATOCYTE GROWTH FACTOR (HGF) AGAINST THE ISONIAZID/ RIFAMPICIN- INDUCED HEPATOTOXICITY, TWO MAJOR ANTITUBERCULOSIS DRUGS

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The *Mycobacterium tuberculosis* infection is a public health problem, according with WHO, 9 million of treatments were

administrated in 2011. The emerging resistant strains have led to increase doses and/or time of treatment. The biotransformation of the main drugs against this infection, isoniazid (INH) and rifampicin (RMP) is done in the liver by the CYT2E1generating reactive oxygen species (ROS) inducing hepatocellular damage. The HGF triggers a protective and regenerative response against xenobiotics for cellular homeostasis reestablishment. The aim of this study is to address the protective effect of HGF in mice treated with INH and RMP. **Material and methods.** 8-10 weeks-old CD1 mice were divided in six different groups and were treated as follows: 1) intragastric (IG) saline solution; 2) INH (75 mg/kg) and RMP (150 mg/kg); 3) HGF (10 mg/kg) iv + INH (75 mg/kg) and RMP (150 mg/kg) (IG); 4) anti-HGF (5 ng/kg) (iv) plus INH (75 mg/kg) and RMP (150 mg/kg) (IG); 5) HGF (10 mg/kg) (iv) and 6) anti-HGF (5 ng/kg) (iv) for 7 days each 24 h. To determine the hepatotoxic effect of the drugs and the protective effect of the HGF ALT and AST were measured, and routine H&E were performed in liver tissue. TUNEL assay and active caspase 3 were determined by immunofluorescence and confocal microscopy. To determine the antioxidant effect of the HGF, ROS were measured (superoxide and peroxides) *in situ* using 5 μM dihydroethidium and 10 μM 5-(6) carboxy-2-7- diclorofluorescein respectively. **Results.** Drugs induced apoptosis as well as steatosis according to the H&E histology, apoptosis was confirmed by confocal microscopy and TUNEL assay; the active caspase 3 was found increased. AST was also increased regarding HGF treated animals. A significant increase in ROS by drug treatment was detected and HGF treatment diminished to control values. All damage markers were taken down to control values when HGF was given. The control group E showed an enhanced drug-induced damage, demonstrating that the endogenous HGF confers hepatic protection. In conclusion the HGF protected controlling the oxidative stress and preventing the hepatocellular damage.
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006

SUBMASSIVE HEPATIC NECROSIS AS A CAUSE OF FULMINANT HEPATIC FAILURE

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Introduction. Acute liver failure is rare. The main causes are toxic, viral, autoimmune and shock however up to 15% are of unknown cause. It is more common in young people. It has very high mortality and morbidity. This disease is characterized by coagulopathy, INR > 1.5 accompanied by encephalopathy or neurological impairment in patients without previous liver disease. According to the time of evolution is classified into hyperacute: less than 7 days; acute: 7-21 days and subacute from 21 days to 26 weeks. The study protocol is guided by history to determine the cause. The pathologic finding of massive or submassive hepatic necrosis is common in poisoning by acetaminophen or carbon tetrachloride, however there are many cases where the origin is unknown even after the pathology report, as the following case report: female, 27, office worker. With previous cesarean section 7 years ago because of cephalo pelvic disproportion without complications. Chronic degenerative, transfusions, infectious, smoking, alcoholism, drug abuse and COOMBE negative. Start 2 months before admission, with had a general malaise, nausea and epigastric abdominal pain, colic, radiating to right upper quadrant. after 15 days is added jaundice, dark urine, acholia and generalized pruritus. At 20 days is added ascites and edema of lower limbs, one week prior to admission with inversion of the sleep wakefulness, drowsiness and bradilalia. She denies fever, drug or drug intake, and bleeding data at any level. On admission with grade II encephalopathy, jaundice, generalized + +, without cardiopulmonary compromise, abdomen with ascites grade II, with collateral venous pattern, not palpable hepatomegaly or splenomegaly, edema + + limbs, bilateral purpura, digital rectal examination unchanged. Laboratory tests on admission with leukocytes 9500, hemoglobin 15.00, platelets 353.000. Total bilirubin 12.9 mg/dL Direct 9.2 mg/dl, albumin 3.3 mg/dL, GPT 614 mg/dL GOT 576 mg/dL, alkaline phosphatase 161 mg/dL, GGT 176 mg/dL, DHL 383 mg/dL. TP 15 TTP 33 to 37%. Ultrasound of liver and biliary tract without alterations the liver and spleen, gall bladder with biliary sludge, pancreas unchanged. Panel viral hepatitis A, B, C, HIV and TORCH negative. Normal immune panel. ERCP: no pathological data. Paracentesis diagnosed with GASA 1.8. At 3 days a torpid evolution total bilirubin 29.12 mg/dL, direct 14 mg/dL, albumin 2.8, TGO 357, TGP 473, ALP 95, GGT 62 DHL 256 and acute renal failure creatinine of 3.8 mg/dL. New ultrasound of liver and bile ducts with diffuse liver disease data, portal vein with increase in size without evidence of thrombosis, free fluid in the cavity and spleen. He moved to intensive care where he died of multiple organ failure data. Pathology report: Submassive hepatic necrosis with regenerative nodules idiopathic. **Conclusion.** There are a number of hepatotoxic drugs or substances to be investigated as a cause of acute liver failure. It reaches require liver biopsy to determine the source and administering specific treatment, without it, the worse prognosis that develops serious complications. The current forecast models determine the need for liver transplantation is the only definitive treatment for this disease.
The authors declare no conflict of interest.

007

THE HIPOXIC LIVER AS A CAUSE OF TRANSAMINASE ELEVATION OUTSIDE INTENSIVE CARE UNIT

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Introduction and objective. The hypoxic liver shows an elevation of transaminases in patients with hypoperfusion. It has been found in 1-11.9% of patients admitted to intensive care units (ICU). Our aim was to describe the epidemiology of hypoxic hepatitis (HH) in patients outside intensive care units (ICU) of The National Medical Center La Raza (CMNR) and describe the cases found. **Material and methods.** We reviewed the gastroenterological visits for assessing hypertransaminasemia in patients of different services in CMNR, from February 2011 to February 2012. We described the cases found. **Results.** Of 1106 gastroenterological visits to other services, a total 84 were found for hypertransaminasemia in the year. We found 7 cases with the diagnosis of HH. After complete paraclinicals 5 were discarded: 3 had cholestatic pattern, 1 had an acute exacerbation of chronic liver disease, and another, a process likely opportunistic infection in the liver. **Case report.** Case1. Male 73 years old with a history of diabetes mellitus, deep venous thrombosis of lower limbs, hypertension. He presented with hematemesis and melena ten days

before admission to tertiary level. Hypertransaminasemia, hyperbilirubinemia, thrombocytopenia and prolongation of coagulation time were found in his laboratory tests and therefore referred to a third level. He presented with heart failure NYHA class III. He was evaluated by the cardiologist who diagnosed cardiorenal syndrome type III and congestive heart failure NYHA class II. Presented hypernatremia, hypokalemia and hypocalcemia. The echocardiogram was performed finding anterolateral myocardial and systolic dysfunction with LVEF 30%; so considering myocardial infarction, heart failure and severe liver failure. Subsequently developed anuria. After analysis of the case was concluded severe acute liver failure because of HH. The patient died 12 days after admission. Case 2. Male 52 years old who began his condition with anterior chest pain rated at 9/10 and syncope. It was confirmed the diagnosis of myocardial infarction, therapy was initiated wiith fibrinolytics without achieving reperfusion. He entered the Coronary Unit (CU) where his evolution was satisfactory. He subsequently was discharged to Cardiology and continued rehabilitation but the patient presents with a third degree atrioventricular (AV) block and low output data. Therefore temporary transcutaneous pacemaker was placed. Assessment was requested by the gastroenterology service because of prolonged clotting time and elevated transaminases and concluded HH with liver failure. He was readmitted to the CU. He also developed acute renal failure and respiratory failure that required treatment with hemodialysis and mechanical ventilation. Finally, he developed cardiogenic shock and cardiac arrest; dying after 15 days of myocardial infarction and 8 days of AV block. **Conclusion.** Hypoxic liver is an entity that is unlikely to be found out of intensive care units, and has a bad prognosis.
The authors declare no conflict of interest.

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LIVER ELASTOGRAPHY WITH ULTRASOUND (ACOUSTIC RADIATION FORCE IMPULSE): IDENTIFICATION OF CUT-OFF VALUES TO DEFINE SIGNIFICANT FIBROSIS IN MEXICAN POPULATION. PRELIMINARY RESULTS

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Introduction. The gradification of liver fibrosis is one of the most important factors to decide the management in all patients with hepatic disease. Several non-invasive liver fibrosis markers have been develop, one of the most novel, is the liver elastography with ultrasound (LEUS), however, it is not available in many Mexican centers and at present reliable cut-off values to identify the presence of significant fibrosis have not been established in our media. **Objective.** To analize liver elastography with ultrasound (LEUS) measurements in Mexican patients and determine a potential cut-off value to define the presence of significant liver fibrosis. **Material and methods.** We included 25 healthy volunteers and 21 patients with liver disease in those a liver biopsy was performed. All signed the informed consent form. LEUS was determined using the Siemens Acuson S2000 Ultrasound equipment with Acoustic Radiation Force Impulse technology. Each participant underwent 30 LEUS measurements (10 scattered measurements of the left liver lobe (LLM), 10 scattered measurements of the right liver lobe (RLM) and 10 fixed measurements of the right liver lobe (RLFM) at the site of the biopsy). Correlation coefficients of mean measurements were obtained with the Pearson method. Mean differences were analyzed employing the Student's T test. LEUS and liver biopsy were performed by 1 radiologist with 20 year experience. LEUS values were analyzed classifying patients in group 1 (volunteers and F0-1) and group 2 (F2-3-4), as per F Metavir scale for liver fibrosis. **Results.** 34 females and 12 males were included [ages 19-49 years (mean 38.3)]. Biopsy reports were: viral hepatitis (7), autoimmune hepatitis (6), esteatohepatitis (3), primary biliary cirrhosis (2), and other (3). LEUS measurements in LLM, RLM and RLFM were different for group 1 (mean 1.56, 1.45 and 1.56 m/s) than for group 2 (mean 1.97, 2.57, 2.09 m/s) ($p \leq 0.004$). LEUS interrogation mean results for each site did not correlate in group 1, but they did in group 2: correlation coefficients were more than 0.68 ($p \leq 0.007$) and multiscale correlation had a Cronbach's Alpha of 0.812. For group 1 LEUS values correlated significantly with body mass index (RLM and RLFM, 0.43 and 0.54, respectively). Mean values of LLM, RLM and RLFM in groups 1 and 2 were significantly different. LLM had an area under the ROC curve of 0.79 ($p = 0.009$). A cut-off point of 1.73 m/s is suggested (sensityvity 87%, specificity 63%) to differentiate from Metavir $F \leq 1$ *vs.* $F \geq 2$. **Conclusions.** The values obtained by LEUS measurements in our series are higher in all categories compared with those described in other reports. It is possible that the current obesity trend in Mexican population could play a role in these results. The sample size needs to be increased to reliably evaluate this non-invasive liver fibrosis test in Mexican population.
The authors declare no conflict of interest.

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FULMINANT BUDD-CHIARI SYNDROME. A CASE REPORT

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Background. The Budd-Chiari syndrome (BCS) is characterized by hepatic venous outflow obstruction by thrombotic occlusion of the hepatic vein, inferior vena cava (IVC) or right atrium (RA). Progressively it leads to sinusoidal congestion, ischemic injury, portal hypertension and cirrhosis. Clinical manifestations depend on the extent and rapidity of the occlusion of the hepatic vein, fulminant liver failure (jaundice and hepatic encephalopathy) with a mortality greater than 90%, severe (intractable ascites without collateral veins), subacute (insidious onset ascites, with collateral veins) or chronic (cirrhosis complications). The fulminant presentation is infrequent and it occurs mainly in women with a hypercoagulable state and is manifested by severe abdominal pain, vomiting, jaundice and ascites. Laboratory studies show elevated transaminases and bilirubins. The diagnosis is performed with ultrasound (US) Doppler, computed tomography (CT) and magnetic resonance imaging (MRI). Treatment includes management of ascites, anticoagulation, transhepatic angioplasty, transjugular intrahepatic portosystemic shunts and liver transplantation in selected cases. **Objective.** To present a characteristic case of a female patient with fulminate Budd-Chiari syndrome. **Case report.** 50 year old woman with history of

chronic renal failure and liver failure of unknown cause two months before admission. With a history of hospitalization due to ascites. She wassent to our department for illness of 1 week evolution characterized by abdominal distension, nausea, vomiting, pelvic limb edema and dyspnea, a day before adding generalized abdominal colic pain and dyspnea on slight exertion. Physical examination revealed jaundice of sclerae, breathing sound and voice transmission decreased in bilateral infrascapular region. Mitral systolic murmur. Abdomen with collateral venous network, 7 cm below the costal margin on conventional lines hepatomegaly, not tension ascites and tenderness in mesogastrium. Pelvic limb edema + + +. Laboratory studies: platelets 37,000 UL, TB 6.4mg/dL, IB 3.3 mg/dL, albumin 3.3 g/dL, ALT 146 U/L, AST 186 U/L, ALP 276 U/L, GGT 130 U/L, LDH 1,038 U/L, PT 23 sec, other studies were normal. CT reported IVC thrombosis, hepatic vein, AD, pericardial effusion and bilateral pleural effusion. One day after admission she suddenly developed respiratory distress and irreversible cardiac arrest resuscitation. Autopsy was performed finding portal vein thrombosis, intrahepatic branches, IVC, right renal vein, AD and left atrium. **Conclusions.** The fulminant Budd-Chiari syndrome has a high mortality and should be suspected in any patient with rapid deterioration of liver function since it is an indication for emergency liver transplant.

The authors declare no conflict of interest.