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ABSTRACTS SECTION

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TRANSPLANT/LIVER SURGERY

BILIARY COMPLICATIONS OF HEPATIC TRANSPLANTATION. PROGRAM EXPERIENCE AT THE HOSPITAL SAN JOSÉ-TEC DE MONTERREY

CARLOS RODRÍGUEZ-MONTALVO, LUCAS TIJERINA GÓMEZ, EDUARDO FLORES VILLALBA, PEDRO CUEVAS ESTANDIA, ZANNDOR DEL REAL ROMO

INTRODUCCTION: Hepatic transplantation (HT) is an excelent treatment option for selected patients with cronic and acute liver faliure, with survival rates of 85% one year and 70% five year survival rate. Biliary complications occur in 11 to 36% of patients, mostly in the first three months post transplant. The HSJ-Tec de Monterrey has a cadaver HT program that started in 1999 and since then the same surgical team has carried out 51 transplants, the program results have been presented previously. This publication centers on the incidence of biliary complications (BC). **OBJECTIVES:** Describe and analyze the BC in the HT program at the Hospital San José-Tec de Monterrety. **MATERIALS AND METHODS:** A retrospective analisis was carried out of the 51 Liver transplants between 1999 and 2010 and the incidence of BC was determined. A univariate analisis of the following variables was calculated: donor age, preservation solution used in the harvest, age, etiology and CHILD-Pugh Score of the host, surgical technique and coincidence of other HT complications to establish possible causative factors for BC. **RESULTS:** Surgical Technique: A CBD to CBD anastomosis was carried out in 49 of the 51 transplants using a T tube (Kher) in the first 15 transplants. A Roux-en-Y Choledocojejunostomy was carried out in 2/51 transplants (1 biliary atresia, 1 sclerosing cholangitis). There where 8 biliary complications in the 51 HT (16%):

- 5/late biliary stenosis, (> than eight weeks post transplant).
- 2/biloma after T tube removal.
- 1/one CBD to CBD anastomotic leak.

Of the five stenosis two were corrected with endoscopic dilatation and three patients where converted to Roux-en-Y choledocojejunostomy. Both patients with bilioma after T tube removal where managed conservatively and the patient with the anastomotic dehisence was converted to Roux-en-Y choledocojejunostomy. The etiology of chirrosis in the patients with BC was: Alcohol 3/8, Hepatitis C/2, Biliary Atresia/1, Glucogenosis/1, NASH/1. There was no coincidence of BC with arterial complications, one patient with late stenosis coincided with a gastrocutaneous fistula secondary to the withdrawl of a gastric band during the HT. Univariate analisis did not find significant correlations between the variables studied. One of the eight patients with BC (late biliary stenosis) died two years after transplantation from Renal Faliure and Hepatitis C virus recurrence, the rest are alive with a functioning graft. **CONCLUSIONS:** When HT began, biliary complications where one of the major problems. The improvements in surgical technique, suture material, advances in radiology, endoscopy and their aplication in the diagnosis and early treatment of biliary complications have contributed to reducing their morbility and mortality. Some conditions have been asociated with the apearance of BC such as arterial thrombosis or prior biliary tree disease do not appear to be a risk factor in our series and as has been reported previously, we did not find correlation between donor conditions with host BC. Our incidence of BC is 16% which is similar to that reported in other series and does not correlate with overall mortality.

RESULTS OF THE HEPATIC TRANSPLANT PROGRAM AT THE HOSPITAL SAN JOSÉ TEC DE MONTERREY 10 YEARS AFTER BEGINNING

CARLOS RODRÍGUEZ-MONTALVO, LUCAS TIJERINA-GÓMEZ, EDUARDO FLORES-VILLALBA, PEDRO CUEVAS-ESTANDIA, ZANNDOR DEL REAL-ROMO, FRANCISCO BOSQUEZ-PADILLA, LAURA CISNEROS, FERNANDO CASTILLEJA-LEAL

INTRODUCTION: Hepatic Transplantation (HT) is the treatment of choice for selected patients with acute or chronic liver failure since it offers a one-year survival rate of approximately 88%. The first successful liver transplant in Mexico was done in 1991. Since then approximately 700 Hepatic Trnasplants have been carried out with few published results. **OBJECTIVE:** To describe the results of the adult, cadaver donor transplant program based at the Hospital San José-Tec de Monterrey. **MATERIALS AND METHODS:** A retrospective analysis of the patient database for transplants between September 1999 and March 2010. The following donor variables where analyzed; Age, sex and origin. Of the host; Age, sex, etiology of liver failure, functional score (CHILD-PUGH). Of the operative procedure; operating time, Red blood cell concentrates used (PRBC), ICU stay, early (< one month) and late (> one month) complications. Survival at one and five years as well as cause of death where analyzed. SPSS software was used for the actuarial survival analysis (Kaplan Meyer), procedure costs where also estimated. **RESULTS:** A total of 51 HT in 50 patients where done, average host age was 49 years with a range of 14 to 72 years, sex distribution 37 male and 14 female. The Etiology of liver failure was Hepatitis C in 33%, Alcohol in 15%, autoimmune in 10%, NASH in 10% and Others 32%. Child Pugh Status was 53% B, and 43% C. The average donor age was 29.9% years, in all patients Caval preservation (Piggy Back) technique was used, average operating time was 419 minutes, 5u PRBC transfused and the average ICU stay was five days. Sixty four percent presented and early complication (< one month), of wich the most sig-

nificant being 3/cases of postoperatibe bleeding requiring "packing", 1/biliary leak, 5/arterial complication, and 1/portal thrombosis. Of the former one arterial thrombosis and the portal thrombosis resulted in graft loss. In addition three mayor neurologic complications occurred 1/cerebral hemorrhage, 1/pontine muelinolysis, 1/Seizure due to Cyclosporine. Thirty eight precent of the patients presented a late complication (> one month), of which the most notable where, 2/CMV infection, 5/Hepatitis C virus recurrence, 1/Renal failure requiring hemodialisis. The acute rejection rate was 23% (12/51) all responsive to steroids. The one month operative mortality was 11.7% (6/51) caused by: 1/arterial thrombosis, 1/renal failure + sepsis, 2/pulmonary embolism, 1/pulmonary hypertension, 1/intra-operative heart failure. Survival at one and five years was 84% and 75% respectively. The average hospital cost at our center was 776,252 pesos. **CONCLUSIONS:** Ou program has had uninterrupted activity for ten years and the results obtained are comparable in survival and mortality to the large series published in USA and Europe. Even though our group does approximately 8% of HT carried out in Mexico, the number of transplanted patients is less than the estimated needed number of transplants given the incidence of cirrhosis and its complications in our country.

FULMINANT HEPATITIS DUE TO EPSTEIN-BARR VIRUS INFECTION

R AGUIRRE-GUTIÉRREZ, I GARCÍA-JUÁREZ, M LINARES-SERRANO, A CHÁVEZ-AYALA, JF SÁNCHEZ-AVILA, M URIBE
DEPARTAMENTO DE GASTROENTEROLOGÍA DEL INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN.

INTRODUCTION: Acute liver failure is defined by the onset of coagulopathy (Internationa Normalized Ratio > 1.5) and mental status changes (encephalopathy) in a patient without previous hepatopathy and a disease of less than 26 weeks of presentation. The annual incidence in the United States is estimated at 2300-2800 cases per year. The most frequent etiologies are acetaminophen overdose, followed by indeterminate acute liver failure and idiosyncratic drug reactions. Epstein-Barr virus induced acute liver failure is infrequent, there are only some case reports. **OBJECTIVE:** Case report of fulminant hepatitis secondary to Epstein-Barr virus **CASE REPORT:** A 21 year old female. She had a one month history of right hypocondrium pain, intermittent and progressive. A couple of days later she complained of hyperthermia, odynophagia, nausea and vomiting. Two weeks later jaundice, acholia and choluria appeared. Thrre days later she had anterior epistaxis that was solved by tamponade. After one week sha had one episode of tonic clonic seizures. On July 2009 is admitted to INCMNSZ emergency room for mental status changes. On admission the patient has hepatic encephalopathy grade 1. Progressively the encephalopathy worsened and it was necessary to perform orotracheal intubation. Laboratory tests showed: Direct bilirubin 19.2 mg/dL, indirect bilirubin 12.1 mg/dL, ALT 216 IU/L, AST 199 IU/L, alkaline phosphatase 787 IU/L, GGT 663 UI/L, INR 1.94. Platelets 70000, sodium 126 Meq/L, creatinine 6.9 mg/dL and BUN 154 mg/dL. Hepatitis A, B, C and E were ruled out, as well as cytomegalovirus infection, leptospyrosis, autoimmune hepatitis, primary biliary cirrhosis and iron metabolism disorders. Liver ultrasound showed hepatosplenomegaly, the vasculature was normal. The Epstein-Barr virus antibodies to VCA IGM and IgG were positive (VCA IgM 155.65 UA/ml, VCA IgG 157.53 UA/mL). A transjugular liver biopsy was performed, the pathology report showed steatohepatitis, cholangitis and acute and chronic pericholangitis. It was concluded that the etiology of acute liver failure was the acute infection with Epstein-Barr virus. The patient was discharged days later, she only received support treatment, antivirals were not given to her. After seven months follow up she is asymptomatic with normal liver function tests. **DISCUSSION:** Acute liver failure due to Epstein-Barr virus infection is infrequent. There are case reports in the literature, with a mortality higher than 70%. Diagnosis is based upon finding heterophile antibodies and IgM antibodies to viral capside antigen of Epstein-Barr virus. Treatment is symptomatic, steroids and antivirals have been used (acyclovir and gancyclovir) but since it is a rather infrequent condition there are no randomized trials assesing their efficacy.

TOMOGRAPHIC ANATOMY OF THE HEPATIC ARTERY. ANATOMICAL VARIATIONS IN 831 PATIENTS

D ZAMORA-VALDÉS,* M DÍAZ-ZAMUDIO,** C CULEBRO-GARCÍA,*** M VILATOBÁ**
* DEPARTMENT OF SURGERY, INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN (INCMNSZ). ** DEPARTMENT OF RADIOLOGY AND IMAGING, INCMNSZ. *** DEPARTMENT OF TRANSPLANTATION, INCMNSZ.

BACKGROUND & AIM: Normal hepatic artery anatomy occurs only in 55 to 75% of the cases. Its variations represent a challenge in hepatopancreatobiliary surgery. The aim of this study was to evaluate hepatic artery anatomical variants in 832 patients. **MATERIAL & METHODS:** Prospective observational study, we included all the patients undergoing a triphasic abdominal tomography at our institution. Two radiologist and two surgeons analyzed the images, discarding suboptimal studies. In case of doubt during axial evaluation, multiplanar reconstruction, maximum intensity projection and 3D reconstruction were performed. The results are presented according to Michels classification. **RESULTS:** We evaluated 873 patients, excluding 41 due to suboptimal studies, including 832 patients. A 60.7% of the subjects exhibited normal hepatic artery anatomy (type 1) and 39.3% anatomical variants. According to Michels classification variant anatomy was: type 2, 5.3%; type 3, 7.8%, type 4, 2.9%, type 5, 7.2%; type 6, 0.8%; type 7, 0.7%; type 8, 2.6%; type 9, 4.9%; type 10, 0.5%. A 6.7% of the cases exhibited variant anatomy not included in Michels classification, being the most common the aortic common hepatic artery. **CONCLUSION:** The hepatic artery showed anatomical variants in 40% of the cases, and more than 5% of the cases the anatomy was different to that described by Michels. Its systematic evaluation through a noninvasive, accessible and fast study, contributes to surgical planning of complex cases in hepatopancreatobiliary surgery and liver transplantation.

PRIMARY HEPATIC LEIOMYOSARCOMA AFTER ORTHOTOPIC LIVER TRANSPLANTATION

M VILATOBÁ,* D ZAMORA-VALDÉS,** M DÍAZ-ZAMUDIO,*** M GUERRERO-HERNÁNDEZ,*** A GAMBOA-DOMÍNGUEZ,**** MA MERCADO**
* DEPARTMENT OF TRANSPLANTATION, INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN (INCMNSZ). ** DEPARTMENT OF SURGERY, INCMNSZ. *** DEPARTMENT OF RADIOLOGY AND IMAGING, INCMNSZ. **** DEPARTMENT OF PATHOLOGY, INCMNSZ.

BACKGROUND & AIM: Posttrasplantation malignancies are a major concern in the setting of chronic immunosupression. Although *de novo* tumors are a significant cause of late

morbidity and mortality, primary hepatic tumors after orthotopic liver transplantation are rare. The aim of this report is to describe a case of primary hepatic leiomyosarcoma arising in the liver graft of an adult. **CASE REPORT:** Nine months after liver transplantation due to hepatitis C virus-induced cirrhosis, a 23-year-old male developed fibrosing cholestasic hepatitis and underwent cadaveric-donor liver retransplantation with complete vena cava exclusion. Two years later, and after intensive antiviral therapy for hepatitis C reactivation, being the patient asymptomatic, an 8-cm solid focal liver lesion was found in the graft's right lobe during routine ultrasound, abdominal CT confirmed this finding and the patient underwent percutaneous liver biopsy of both non-tumoral and tumoral liver, showing chronic hepatitis C (METAVIR A2F1) and an vascular-type epithelioid leiomyosarcoma. Sirolimus was withdrawn uring the evaluation of the patient for a right hemihepatectomy. A PET-CT showed a hepatic hypermetabolic lesion and a secondary supravesical lesion. Non-neoplastic liver was biopsied again showing moderate active rejection. The patient was not considered a candidate for resection due to active rejection, poor response of his recurrent primary disease in the remaining liver and the presence of metastasis. **CONCLUSION:** This is the second report of a primary hepatic leiomyosarcoma arising in a liver graft and the first in an adult. Its association with chronic hepatitis C virus infection, the patient's donor and immunosupression regimens seem to be random. Chronic Epstein-Barr virus infection in the immunosupressed patient may play a role.

MEDIAN ARCUATE LIGAMENT COMPRESSION AS A CAUSE OF EARLY-ONSET THROMBOSIS OF THE HEPATIC ARTERY AFTER ORTHOTOPIC LIVER TRANSPLANTATION

M VILATOBÁ,*,** D ZAMORA-VALDÉS,* M DÍAZ-ZAMUDIO,*** M GUERRERO-HERNÁNDEZ,*** MA MERCADO*
* DEPARTMENT OF SURGERY, INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN (INCMNSZ). ** DEPARTMENT OF TRANSPLANTATION, INCMNSZ. *** DEPARTMENT OF RADIOLOGY AND IMAGING, INCMNSZ.

BACKGROUND & AIM: Early hepatic artery thrombosis (HAT) is a potentially lethal complication after orthotopic liver transplantation (OLT) requiring immediate intervention. The aim of this article is to report an infrequent cause of HAT after OLT and by itself a controversial clinical entity, the median arcuate ligament celiac artery compression. **CASE REPORT:** A 59-year-old female with hepatitis C virus-induced cirrhosis, Child B, MELD 15, underwent cadaveric-donor OLT with complete vena cava exclusion. Type 1 hepatic artery anatomy was found both in the donor and the recipient, the gastroduodenal artery was ligated. During the first eight postoperative days, clinical and analytical evolution was satisfactory and Doppler ultrasound showed no abnormalities. On the ninth postoperative day, the patient developed hypovolemic shock due to bleeding at the hepatic artery anastomosis, surgical reconstruction was performed. Postoperative color Doppler showed absent hepatic artery flow and an angiography suggested celiac artery compression. The patient was explored again the same day, liberating the celiac artery from the median arcuate ligament and performing thrombectomy and reconstruction of the hepatic artery anastomosis. The patient made a satisfactory recovery and color Doppler showed adequate flow in the hepatic artery. She is alive, free of biliary complications and enjoying a good quality of life 12 months after transplantation. **CONCLUSION:** Median arcuate ligament celiac artery compression is a frequent anatomical variant that should be intentionally evaluated in the recipient prior to OLT to prevent potentially fatal complications.

CIRRHOSIS AND ITS COMPLICATIONS

THE PREVALENCE OF DIASTOLIC DYSFUNCTION AND EXTENSION OF THE QT INTERVAL CORRECTED IN PATIENTS CARRYING HEPATIC CIRRHOSIS OF AUTOIMMUNE ETIOLOGY

M CASTILLO BARRADAS, AA ALTAMIRANO GARCÍA, A LARA OLIVARES, RG VARGAS ÁNGELES, MT RIZO ROBLES, OE TRUJILLO BENAVIDES
IMSS. CENTRO MÉDICO NACIONAL LA RAZA. MEXICO CITY.

INTRODUCTION: The prevalence of hepatic miocardiopathy is unknown. The disease is latent and it is perceived when the patient is under stress. The extension of the QT interval and the diastolic dysfunction, is current in most of cirrhotic patients with a Child Pug stage B or C. The diastolic dysfunction is probably current in every patient carrying cirrhotic cardiomyopathy and some simple echocardiographic indexes such as E/A (the relation of the ripple E (the speed of the transmitral blood flow) and A (the belated diastolic velocity)), all in an echocardiocardiogram can detect it. **AIMS:** To determine the prevalence in primary bile cirrhosis or autoimmune hepatitis carriers at the cirrhosis stage, and determine the facts related to its presence. **MATERIAL AND METHODS:** Patients having an autoimmune hepatitis diagnosis or primary bile cirrhosis at the cirrhosis stage were included, and were conducted an echocardiogram and electrocardiogram and stratified their level of ascites (in case they may show it) and also were estimated their grade of hepatic insufficiency through the scales Child Plug and MELD. Descriptive statistics were carried out in order to determine the general prevalence of diastolic dysfunction and electrophysiological disturbances. Some statistically significant differences were researched through the Chi^2 test among qualitative variables and the Student t test for numerical variables. One "P" scoring less than 0.05 was taken as significant. **OUTCOMES:** 22 patients were included who 21 were women and one man. The diastolic dysfunction prevalence scored 68.2%. The patients age (56.1 *vs.* 43.8 having a P= 0.034), the seric creatinine value (0.81 *vs.* 0.70 having a P = 0.041) and the seric potassium (4 *vs.* 3.6 having a P = 0.034) were variables related to the diastolic dysfunction presence. The corrected and extended QT interval was present in 8 patients (36.4%). Besides eight patients (72.7%) out of those having ascites, showed diastolic dysfunction. Eight patients (66.7%) out of the 12 ones with Child Plug A and seven patients (70%) out of the 10 ones with Child Plug B showed diastolic dysfunction. **CONCLUSIONS:** In patients having autoimmune etiology hepatic cirrhosis, the prevalence of diastolic dysfunction is high and it is related to advanced age, creatinine and seric potassium increases. The diastolic dysfunction is higher in patients with ascites, a high MELD and a ChildPlug B; although the relation is not very clear and some researches with a high number of patients is needed to have a relation.

USEFULNESS OF THE CLASSIFICATION OF RIFLE AS A PREDICTIVE TOOL OF MORTALITY IN PATIENTS WITH LIVER CIRRHOSIS AND ACUTE KIDNEY INJURY HOSPITALIZED IN THE HIGHT SPECIALITY MEDICAL UNIT "DR. ANTONIO FRAGA MOURET" SPECIALTY HOSPITAL "LA RAZA"

M CASTILLO BARRADAS, OE TRUJILLO BENAVIDES, H RODRÍGUEZ MARTÍNEZ, LE SOTELO SOLÍS, A HIDALGO MONASTERIO
IMSS. CENTRO MÉDICO NACIONAL LA RAZA. MÉXICO, D.F.

OBJECTIVE: To evaluate the usefulness of RIFLE classification as predictive tools of death in patients with liver cirrhosis developed in our hospital LRA. **MATERIAL AND METHODS:** Patients with established diagnosis of liver cirrhosis who were hospitalized from January 1 to December 31, 2009, and during hospitalization developed acute renal injury with a sudden increase in serum creatinine over a period of 48 h, > 0.3 mg/dL, or > 50% of baseline. Were followed by increased serum creatinine and applied the RIFLE classification (R, I, F, L, E) and urinary volume was considered to be an unreliable parameter. Being as follows: Risk (R) with increase in serum creatinine 1.5 to 2.0 times baseline; Injury (l) Increase in serum creatinine > 2.0 to 3.0 times baseline. At Failure (F) Increase in serum creatinine > 3.0 times the basal value, or serum creatinine > 4 mg/dL, or acute (abrupt) increase > 0.5 mg/dL, or initiation of replacement therapy. Loss (L) or persistent renal failure > 4 weeks. End renal dissease (E) with persistent renal failure > 3 months. **STATISTICAL ANALYSIS:** We used measures of dispersion and central tendency. For comparison of the observed differences we used Student t tests, Chi2 and Fisher's test as appropriate. Statistical significance was considered when the p value was < 0.05. **RESULTS**: We analyzed the results of 18 patients, average age 56.11 years, 77.8% female gender. Average weight 64.28 kg, 20.72 points average MELD, mean baseline serum creatinine 1.02, mean serum creatinine at diagnosis 2.34. The most common cause of liver cirrhosis was HCV infection 6 (33.3%), 61.1% of patients with functional class B Child Pugh. According to the RIFLE classification were obtained: Risk 7 (38.9%), Failure 7 (38.9%), Injury 4 (22.2%). Three patients progressed to acute renal failure (16.7%). Seven patients died (38.9%). The deceased patients showed an older age (60 *vs.* 53 years), MELD index higher (23 vs. 18.9), higher baseline serum creatinine (1.1 *vs.* 0.9) higher maximum serum creatinine (2.68 *vs.* 2.1) and lower serum sodium (129.4 *vs.* 136.5) compared with the average of the surviving patients, but these differences were not statistically significant. The RIFLE classification for mortality showed a sensitivity of 28%, specificity 90%, 66% positive predictive value, negative predictive value 66% with a diagnostic accuracy of 62.5%. **CONCLUSION:** Patients with liver cirrhosis Child Pugh stages B and C, have an increased risk of acute deterioration of renal function (acute renal injury or LRA), with very small elevations in serum creatinine levels but are associated with high mortality. The main trigger for the LRA in our series of patients was sepsis, followed by variceal bleeding, and ultimately as a side effect to treatment with diuretics and lactulose. The mortality in patients with liver cirrhosis and whose developed LRA increes in > 60 years of age with baseline serum creatinine > 1 mg/dL, and serum sodium < 130 mmol/dL. To date there is no accurate test for early detection of acute deterioration of renal function in patients with liver cirrhosis and the RIFLE classification can be a useful tool, with a specificity of 90% and 66% NPV.

UNIDIRECTIONAL ELASTOGRAPHY FOR DIAGNOSIS OF HEPATIC FIBROSIS: EFFECTIVENESS AND RELIABILITY

MISAEL URIBE ESQUIVEL, JAVIER LIZARDI-CERVERA, NAHUM MÉNDEZ-SÁNCHEZ, FRANCISCO SÁNCHEZ ÁVILA, JORGE LUIS POO, EDUARDO SÁNCHEZ
FUNDACIÓN CLÍNICA MÉDICA SUR. MÉXICO, D.F.

INTRODUCTION: The unidirectional elastography (fibroscan) is a recent developed method which through an elastic shear wave with single element ultrasound transducer, allows the measurement of liver stiffness expressed in kilopascals. The purpose of this study is to follow the initial experience in patients with different etiology of liver diseases and to compare the elastography accomplishment with the hepatic biopsy regarding the presence or absence of fibrosis/cirrhosis. **OBJECTIVE AND METHODS:** 114 patients were studied; 64 M and 50 F (8 were excluded for results) with clinical diagnosis and by imaging of chronic hepatic disease and 28 cases were correlated with the hepatic biopsy. The diagnosis were 43 cases with chronic hepatitis C; alcohol in 15 cases; nine with fat liver disease; four cases with chronic hepatitis B; ten patients with autoimmune hepatitis and 33 patients with different diagnosis or cryptogenic disease. In all cases, demographic data were obtained and in 28 cases hepatic biopsy within six months period before or after the procedure. **RESULTS:** The average weight was 75 kg ± 7; height 1.75 m ± 8; and BMI 27 ± 4. The results refer 106 patients. The stiffness average was 15.5 ± 4.0 KPa. The average to determine cirrhosis is above 14. Table 1 shows the elastogaphy results and table 2 its correlation with liver biopsy:

Table 1.

Category	Number of cases	kPa criteria	METAVIR score
Absence of fibrosis	45	< 7	F0-F1
Mil d fibrosis	11	7-8.5	F1-F2
Mo de rate fibrosis	9	8.5-9.5	F2
Extensive fibrosis	6	9.5-12.5	F3
Advanced fibrosis	12	12.6-14	F3-F4
Cirrhosis	23	> 14.0	F4
	106		

Table 2.

Category according to biopsy	Number of cases	Category according to FibroScan	kPa criteria	Number of cases
F0	4	F0-F1	< 7	4
F1	9	F1-F2	7-8.5	4
F2	3	F2	8.5-9.5	6
F3	2	F3	9.5-12.5	2
F4	10	F3-F4	12.6-14	12
	F4	> 14.0		
Total	28			28

It failed to demonstrate consistent to liver biopsy in 83% of the patients with cirrhosis and 100% to those without fibrosis or in those with fibrosis scale 3. **CONCLUSIONS:** The unidirectional elastography method is useful to establish or exclude cirrhosis diagnosis; it is a fast and reliable procedure potentially to establish complications such as portal hypertension.

MELD SCORE AS A THREE MONTH MORTALITY PREDICTOR IN PATIENTS WITH LIVER CIRRHOSIS

R MARROQUÍN-BELTRÁN,* K TORRES-VIGIL,* A ALLEGRE-ALONSO,** LA MORALES-GARZA,** MT SANCHEZ-ÁVILA,** JF SANCHEZ-ÁVILA***
* RESIDENTE DE MEDICINA INTERNA. PROGRAMA MULTICÉNTRICO SSNL-TEC DE MONTERREY, MONTERREY, N.L. MÉXICO. ** DEPARTAMENTO DE GASTROENTEROLOGÍA HOSPITAL SAN JOSÉ TECNOLÓGICO DE MONTERREY. *** DEPARTAMENTO DE GASTROENTEROLOGÍA INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN "DR. SALVADOR ZUBIRÁN".

BACKGROUND: In evaluating a patient with liver cirrhosis, it is important to determine the etiology of the cirrhosis, the level of portal hypertension, and the treatment options for complications, as well as the prognosis and need to transfer the patient to a liver transplant unit. There are multiple scores used for this purpose, with the Child and MELD scores being the most used ones. These allow mortality to be estimated and the latter one used for referral to a liver transplant unit in western countries. **AIM:** To evaluate the usefulness of the Child and MELD scores in cirrhotic patients at time of admission as predictor for three month mortality. **METHODS:** Retrospective study done in the Hospital Metropolitano "Dr Bernardo Sepulveda" in patients admitted between May 2008 and April 2009 with liver cirrhosis from any etiology with tests allowing the use of the MELD and Child scores. The scores were calculated for all of these patients. Patients were followed for three months having mortality as a primary endpoint. **RESULTS:** 30 patients were included; 25 (83.3%) were male. The age range was from 33 to 72 years old with a mean of 55.10 ± 9.24 years old. The etiology of the cirrhosis of the 25 (83.3%) males was alcoholic, while 4 (13.3%) of the females had an unknown etiology, and 1 (3.3%) female had a history of virus type C hepatitis. The reasons for admission were: 14 (46.7%) for upper GI bleeding, 12 (40%) for encephalopathy, 1 (3.3%) for jaundice, 1 (3.3%) for peritonitis, and 2 (6.7%) for other reason. Using the Child score: Class A: 6 (20%) patients, Class B: 11 (36.7%) patients, and Class C: 13 (43.3%) patients. Using the MELD score: 8 (26.7%) patients had a score <10, 15 (50%) had a score between 11 and 20, and 7 (23.3%) > 20. Taking 15 as a cutoff point: 13 (43.3%) had less than 15 and 17 (56.6%) ≥ 15. 9 (30%) patients died during the three month follow up: none were Child A, 5 (55.5%) were Child B and 4 (44.4%) were Child C. Using MELD: 3 (33.3%) patients had less than 15 and 6 (99.9%) ≥ 15.

1.1 MELD score

Death	N	Mean	SD	P
Yes	9	16.44	7.585	0.766
No	21	15.52	7.744	

1.2 Child score

Death	N	Mean	SD	P
Yes	9	9.11	2.619	0.344
No	21	9.10	2.047	

CONCLUSIONS: During this study there was no statistically meaningful difference in the scores between patients that died and those that didn't. This may be due to the small sample of patients. None of the patients classified as Child A died during follow up and more than 60% of those who died had a MELD score over 15, labeling them as transplant candidates. We suggest using a larger sample to validate the MELD score in our area so it can be used, just as the Child score, for the initial evaluation of cirrhotic patients.

SURVIVAL AND CHARACTERISTICS OF ACUTE RENAL FAILURE IN PATIENTS WITH CIRRHOSIS

A TORRE, R MACÍAS-RODRÍGUEZ, R HERNÁNDEZ-RAMOS, I ISLAS-VEGA
GASTROENTEROLOGY DEPARTAMENT, INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN "DR. SALVADOR ZUBIRÁN" MÉXICO, D.F.

BACKGROUND: Acute renal failure (ARF) in patients with liver cirrhosis is a common complication in advanced stages of the disease. In these individuals the IRA was defined as an increase in serum creatinine (SCr) ≥ 1.5 mg% or ≥ 50% of baseline in those with preexisting kidney disease. It occurs in about 19% of hospitalized patients. The main causes of ARF in this population include bacterial infections, hypovolemia, intrinsic renal disease and hepatorenal syndrome (HRS). There are few studies of the mechanism in different types of IRA and its involvement in survival. On the other hand, it has proposed various clinical, biochemical and hemodynamic as powerful predictors of progression to ARF and death in patients with decompensated cirrhosis, so pre-transplant factors including IRAs, are proposed as predictors for recurrence of kidney failure and death after transplantation. **OBJECTIVE:** To determine the characteristics and impact on survival of different types of kidney failure in patients with cirrhosis. **MATERIAL AND METHODS:** Prospective study conducted between August 2008 and July 2009 in patients with liver cirrhosis of diverse etiology who presented ARF on admission or during hospitalization. They are categorized according to Child-Pugh classification and MELD (Mayo Model End-Stage Liver disease). Types were classified as induced by renal vasodilation, hypovolemia, intrinsic or drug use. Clinical factors were determined (ascites, encephalopathy, etc.), Biochemical (serum creatinine, serum sodium (Na), cytokines, etc.), Hemodynamic (mean arterial pressure, heart rate and PVC) and echocardiographic (resistive index renal/intrarenal). Patients were followed for one, three and six months by laboratory studies. **STATISTICAL ANALYSIS:** Univariate analysis was performed to identify predictors of mortality secondary to renal failure. We used the Kaplan-Meier survival analysis. **RESULTS:** We studied 51 patients: 26 men (51%) and 25 women (49%) and the mean age was 56 years (range 20-75 years). At the time of inclusion 43 patients (80.4%) had decompensated cirrhosis. 36 patients (71%) were presented in Child-Pugh class C and 14 in B (27%). The mean MELD score was 25 (range 13-40). The elevated serum creatinine, hyponatremia and the presence of shock were identified as independent factors of mortality. The overall median survival was 66 ± 70 days. According to the etiology of cirrhosis, those with alcohol-induced showed the worst prognosis, with a median survival of 48 days. Patients classified as Child C had a survival of 56 days and Child B in 92 days. All deaths had a MELD score > 20. Based on the type of kidney failure, patients with vasodilation induced ARF had a median survival of 33 days and those with hypovolemia induced ARF by 70 days; in the intrinsic ARF survival was 54 days and in drug-induced ARF lasted 119 days. Four patients undergoing liver transplantation and 50% of these achieved a high than six months survival. **CONCLUSIONS:** Renal insufficiency is a common disorder in patients with cirrhosis, the most affected are those found in advanced stages according to the Child-Pugh classification and MELD. Both the etiology of cirrhosis and renal failure as the clinical conditions at the time of the IRA directly influence the prognosis of these patients. Transplantation is still the only treatment that improves long term survival.

LIVER FAILURE AFTER AN UNCOVERED TIPS PROCEDURE ASSOCIATED WITH HEPATIC INFARCTION

E. LÓPEZ-MÉNDEZ,* D. ZAMORA-VALDÉS,** M DÍAZ-ZAMUDIO,*** O.F. FERNÁNDEZ-DÍAZ,** L. ÁVILA-ESCOBEDO***
* DEPARTMENT OF GASTROENTEROLOGY, INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN (INCMNSZ). ** DEPARTMENT OF SURGERY, INCMNSZ. *** DEPARTMENT OF RADIOLOGY AND IMAGING, INCMNSZ.

BACKGROUND & AIM: Transjugular intrahepatic portosystemic shunt (TIPS) procedure is a safe and effective alternative for the treatment of complications of liver cirrhosis, such as refractory ascites, hepatic hydrothorax and refractory variceal bleeding. The aim of this paper is to describe a rare case of liver failure after a TIPS procedure. **CASE REPORT:** We report a 38-year-old diabetic male with Child-Pugh C liver cirrhosis due to chronic hepatitis C infection that developed refractory ascites and was schedule for a TIPS procedure. Within the next 24 h after TIPS, the patient developed distributive shock, jaundice, persisting grade three hepatic encephalopathy, severe coagulopathy and acute renal failure. He was then treated with lactulose enemas, broad-spectrum antibiotics and blood-derived products. Laboratory data revealed a 100-fold increase in aminotransferases and a computed tomography showed irregular hypodense changes in the right posterior segments of the liver. Although after supportive therapy the overall patient's condition improved, the patient developed progressive liver failure and died two months later. **CONCLUSION:** Hepatic infarction is an uncommon phenomenon after a TIPS procedure; however, it can greatly complicate the course of a patient with an already compromised liver function.

HEPATIC TUMORS

EPIDEMIOLOGY AND SURVIVAL OF HEPATOCELLULAR CARCINOMA IN A THIRD LEVEL REFERRAL CENTER IN MEXICO: A RETROSPECTIVE STUDY

MAURICIO GARCÍA-SAENZ-DE-SICILIA,* JOSÉ DE JESÚS ROMÁN-SANDOVAL,* EDUARDO CERDA CONTRERAS,* FÉLIX IGNACIO TELLEZ-AVILA,* JUAN FRANCISCO SÁNCHEZ-AVILA,* MISAEL URIBE ESQUIVEL*
* DEPARTAMENTO DE GASTROENTEROLOGÍA, INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN SALVADOR ZUBIRÁN.

BACKGROUND: Hepatocellular carcinoma (HCC) has a heterogeneous geographic incidence, and data from several registries show that it's incidence is significantly increasing worldwide. Liver cancer is the third cause of cancer-related death, and constitutes the main cause of death among patients with cirrhosis now days. Even the advances in this field the mortality equals it´s incidence. **OBJECTIVE:** We aimed to determine the clinical and demographic features of HCC in Mexican population of a third level referral center, and to evaluate the prognostic and survival features. **METHODS:** We conducted a retrospective study of patients diagnosed with HCC between January 1990 and December 2008 in a third level referral center in Mexico City. **RESULTS:** 502 patients were found with the diagnosis of HCC, we included 350 patients and 151(43.1%) were female; the median age at diagnosis was 60.2 ± 12 years. The main etiologies found responsible for HCC development were viral hepatitis C (VHC) in 146(41.7%), cryptogenic cirrhosis 83(23.7%), alcohol 72(20.6), viral hepatitis B (VHB) 22(6.3%). Other etiologies were autoimmune hepatitis and primary billiary cirrhosis in 7(2%). The mean alpha-fetoprotein at diagnosis was 140mg/dl (1-320,000), MELD 9.5 ± 6.3, Child-Pugh 7.4 ± 1.8. The most common BCLC stage was the intermediate stage B in 206(58.9%) and in consequence the most frequent treatment modality were ablative strategies 75(21.4%) and transarterial chemoembolization in 69(19.7%). The overall survival rate was 5 months (0-183 months). **CONCLUSIONS:** In conclusion VHC in mexican population is found to be an important factor in HCC development. Also of importance is the playing role of non-alcoholic steatohepatitis in our high frequency of cryptogenic cirrhosis as an etiologic factor for the development of HCC. The main cause of our poor survival is the delay in the diagnosis and referral of these patient.

SPINDLE CELL HEPATOCELLULAR CARCINOMA WITH SARCOMATOID FEATURES. CASE REPORT

C. HERRERA-DEGUISE,* A. ORAMAS-ROJO,** A. TORRE*
* INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN "SALVADOR ZUBIRÁN", DEPARTAMENT OF GASTROENTEROLOGY. ** INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN "SALVADOR ZUBIRÁN", DEPARTAMENT OF PATHOLOGY.

Liver carcinomas with sarcomatoid differentiation are uncommon. Incidence ranges from 2.0% to 9.4%. Liver carcinomas with this histological variety are frequently advanced when diagnosed, intra and extrahepatic metastases are common and so is disease recurrence after resection. We report an unusual case of hepatocarcinoma with sarcomatoid differentiation. A 62 year-old male with a history of hypertension, type 2 diabetes mellitus and dyslipidemia. Background was negative for tobacco and alcohol use. He complained of pain in the right upper quadrant. Abdominal ultrasound showed an 8 cm mass in hepatic segment IV. At admission physical examination was relevant for a temperature of 38° C and stigmata of chronic liver disease. Laboratory tests showed leukocytes 14,300 cells/mm^3, with 70% neutrophils, hemoglobin 11.3 g/dl, MCV 91fl, platelets 304x10^9/L, total bilirubin 1.1mg/dl, aspartate transaminase 75 IU/L, alanine transaminase 47 IU/L, alkaline phosphatase 572 IU/L, gamma glutamyltransferase 186 IU/L, albumin 2.5g/dL, prothrombin time 12.5s, alpha fetoprotein 2.7ng/ml, hepatitis B surface antigen negative, hepatitis C virus antibody negative. Abdominal computed tomography (CT) showed a mass with irregular borders in hepatic segment IVB, with discrete enhancement in arterial phase, chronic liver disease and splenomegaly. Upper endoscopy, colonoscopy, chest and pelvic CT were unremarkable. A biopsy of the lesion showed a hepatocellular carcinoma with sarcomatoid features. Hepatic catheterization measured a hepatic venous pressure gradient of 11 mmHg. Patient received transarterial chemoembolization with cysplatin. Six days later patient presents with ascites, elevated transaminases, bilirubin and creatinine. The new abdomen CT showed areas of necrosis in less than 50% of the lesion. Patient remains hospitalized.

CLINICOPATHOLOGICAL CORRELATION OF HEPATOCELULAR CARCINOMA IN AUTOPSY WITH THE BARCELONA CLINIC LIVER CANCER (BCLC) STAGING SYSTEM

M. ZAVALA SOLARES,* J. AGUIRRE GARCÍA,** N. GIL ROJAS,* V. LÓPEZ LADRÓN DE GUEVARA,* E. PÉREZ TORRES,* J. PÉREZ HERNÁNDEZ,* F. BERNAL SAHAGÚN*
* GASTROENTEROLOGY SERVICE, HOSPITAL GENERAL DE MÉXICO.
** PATHOLOGY SERVICE, HOSPITAL GENERAL DE MÉXICO.

Hepatocellular carcinoma (HCC) is the 5th cause of cancer worldwide. The most accepted score is the Barcelona Clinic Liver Cancer (BCLC) scale. It rates the patient's liver function and carries association with tumor stage and treatment strategy. Stage A: early stage: patients are candidates for resection, transplantation or percutaneous treatments. Intermediate stage or B, should be treated with chemoembolization. Stage C: asymptomatic patient or vascular invasion/ extrahepatic spread, receives molecular target therapy, such as sorafenib and Stage D: Patients are only amenable to palliative treatment. Objective: To know the clinical-pathological characteristics of the cases from 2000 to 2003, and to establish tumor stage and the therapeutic options according to the BCLC scale. **MATERIAL AND METHODS:** A transversal, descriptive and observational study was performed. We performed a collection of 18 autopsy cases with diagnosis of HCC in the period described. Data about sex, affected liver lobe, liver function tests, tumor size, vascular invasion and/or distant metastases, presence of ascites and encephalopathy were recorded. CHILD and BCLC scale were determined. All slides were reviewed by only one pathologist. **RESULTS:** The mean age was 62.7 years. There were no differences in sex distribution. Alcoholism was positive in 11 patients (61.1%), negative in 4 (22.2%) and unknown in 3 (16.7%). Vascular invasion was detected in 10 cases (55.6%): seven with affection of the portal vein (38.9%). The right lobe was affected in 27.3%, the left in36.4% and both in 36.4%. Four patients showed lung metastasis and five lymph node involvement. The CHILD classification was as follows: A 5.6%, B 38.9% and C 55%. Type of cirrhosis: 70% mixed, macronodular in 20% and 10% did not have cirrhosis. The BCLC scale had the following pattern: A-Initial: 7.1%, B-intermediate: 7.1%, C-advanced: 16.7%, D-terminal: 64.3%. **COMMENTS:** HCC was predominant in the 7th decade of life, with no difference between genders. Alcoholism being the most common risk factor. There was a predominance of vascular invasion to the portal vein. The type of cirrhosis more related to HCC was the mixed type. 64.3% of patients were candidates to palliative treatment and 35.7% to sorafenib. It is important to promote methods of screening in HCC to improved survival.

VIRAL HEPATITIS

PRET-SM (PRETREATMENT SCORING MODEL) USEFULNESS IN A GROUP OF GENOTYPE1 CHRONIC C HEPATITIS FROM THE LA RAZA NATIONAL MEDICAL CENTER SPECIALTIES HOSPITAL

M. CASTILLO BARRADAS,* M.T. RIZO ROBLES,* M.C. BERNARDINO DEL RÍO,* L.E. SOTELO SOLÍS,* O .E. TRUJILLO BENAVIDES*
* IMSS. HOSPITAL DE ESPECIALIDADES CENTRO MÉDICO NACIONAL LA RAZA. MEXICO CITY.

INTRODUCTION: The combination of the pegylated Interferon (IFN-peg) and Ribavirin (RBV) nowadays comprises the choice treatment at the chronic hepatitis due to C virus (VHC). Among the predictive factors of sustained viral response, considered as a negative RNA-VHC 24 weeks before the treatment ends up, the viral genotype is one of the most determinant ones, and it is the genotype 1 what is the most difficult to be treated. Aiming to better pick out the candidates with the highest probability to respond to the treatment, not extending it unnecessarily to those whose options to respond are scarce, avoiding in that way efforts and adverse effects, downsizing costs and power, besides, personalizing the treatment, Martinez Bauer and colleagues have developed two predictive viral response models which is sustained in Genotype1 Chronic C hepatitis: PreT-SM (Pretreatment Scoring Model) and 4w-SM (Fourth week of therapy Scoring Model). **AIMS:** To know the PreT-SM usefulness and other predictive RVS variables in a group of Chronic C hepatitis from the La Raza National Medical Center Specialties Hospital. **MATERIALS AND METHODS:** The 17 Genotype1 Chronic C hepatitis patients results were analyzed retrospectively, and were treated using IFN-peg alfa 2ª and RBV. To these, PreT-SM was conducted and variables such as age, gender, body mass index (BMI), vessel viral charge, laboratory basal parameters and its relation with RVS were analyzed. The numerical variables were compared with t de Student y Ji^2 for nominal variables or Fisher extact test when needed. The specificity and sensibility percentages were estimated and the PreT-SM positive and negative predictive values to predict the sustained viral response. **OUTCOMES:** 65% were women whose age was 45. BMI 27.6 ± 4.7, the vessel viral charge average was 613,300 ± 513,052 UI/mL. The PreT-SM value was 10.6 ± 2.8 (range 5.11-14.8). Only six patients (35.3%) showed RVS, the rest had a PreT-SM > 7 (82.4%) and out of these, three showed RVS. The PreT-SM sensibility was 50%, the specificity was 100%, the positive and negative predictive values were 100% and 78.5% respectively. The PreT-SM average value was lower in those patients, whose RVS, compared with the value of those witouth RVS (8.76 *vs.* 11.61). However this difference didn't show statistical significance (p = 0.096), the age, the gender and BMI didn't show statistical significance. Only the low vessel viral charge and the normal plaquettes showed a significant relation with RVS (p = 0.33 and p = 0.023 respectively). **CONCLUSIONS:** The PreT-SM, the plaquettes and the viral charge, can be useful to predict the probability of RVS in patients carrying genotype 1 virus chronic hepatitis C which will be treated using IFN-peg alfa 2ª y RBV.

DURABILITY OF THE SUSTAINED VIROLOGICAL RESPONSE DURING LONG-TERM FOLLOW-UP AFTER TREATMENT WITH PEGINTERFERON ALFA 2B PLUS RIBAVIRIN IN MEXICAN PATIENTS WITH CHRONIC HEPATITIS C

A. CHÁVEZ-AYALA,* D. BALDERAS-VIDAL,* I. GARCÍA-JUÁREZ,* J.F. SÁNCHEZ-ÁVILA,* M. URIBE ESQUIVEL*
* DEPARTAMENTO DE GASTROENTEROLOGÍA. INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN "SALVADOR ZUBIRÁN".

INTRODUCTION: Sustained virological response (SVR) is achieved in around 40% of patients infected with HCV genotype 1 and around 80% of patients infected with HCV genotype 2 or 3 after standard treatment with Peginterferon á plus ribavirin. However, there are few data in the literature regarding the long-term virological follow-up of chronic hepatitis C patients who obtain sustained virological response. **AIM:** To assess the durability of SVR to PEG-IFN and ribavirin therapy during long-term follow-up of naïve Mexican patients with chronic hepatitis C. **METHODS:** We evaluated a cohort of 124 chronic hepatitis C patients (Females 54.8%, age 48.7 ± 12.4 years). All received 1.5 μg/kg/week of PegIFN alfa 2b plus ≥ 10.6 mg/day of ribavirin and SVR was evaluated 24 weeks after the end of treatment. Patients underwent clinical, biochemical and virological evaluations (HCV-RNA in blood) every 6 months during follow-up. **RESULTS:** SVR was achieved in 41 of 99 genotype 1 patients (41.4%) and in 21 of

25 genotype 2/3 subjects (84%). Median duration of follow-up after SVR was 29 months in genotype 1 patiens. Eight genotype 1 subjects with SVR (19.5%) received a 72 weeks course of Peg-IFN plus ribavirin because of virological slower response. Median duration of follow-up after SVR was 25 months in genotype 2/3 patients and fibrosis = F2 was detected in 44%. Cirrhosis was observed in the 6.3% of genotype 2 patients. HCV-RNA in blood was not detected in any genotype 1 or genotype 2/3 patient. **CONCLUSION:** SVR to PEG-IFN and ribavirin treatment is maintained in all genotype 1 and genotype 2/3 mexican patients after a long-term follow-up of more than 24 months.

PREVALENCE AND CLINICAL CHARACTERISTICS OF PATIENTS WITH ACUTE HEPATITIS C IN THE HOSPITAL DE ESPECIALIDADES CENTRO MÉDICO NACIONAL SIGLO XXI

R. SANDOVAL SALAS,* R. MORENO ALCANTAR,* M. DEHESA VIOLANTE*
* DEPARTMENT OF GASTROENTEROLOGY, SPECIALTY HOSPITAL NATIONAL MEDICAL CENTER XXI CENTURY, IMSS, MÉXICO CITY.

INTRODUCTION: Chronic infection with hepatitis C virus (HCV) is considered a public health problem. It is estimated that affects about 2.7 million people in the U.S. alone. The acute phase of HCV infection represents a key point in the evolution of the disease as it may resolve spontaneously or develop chronicity. There are elements that contribute to this disease is underdiagnosed among which are the course usually asymptomatic, low clinical suspicion and patient reluctance to discuss data that can be directly associated with the infection. The prevalence in our environment is not known. **OBJECTIVE:** To establish the prevalence of acute C hepatitis in the Hepatitis Clinic of the Specialty Hospital National Medical Center XXI Century and know their clinical characteristics. **MATERIAL AND METHODS:** We reviewed all records of hepatitis clinic and included patients diagnosed with acute hepatitis C. Acute hepatitis C was considered when was a risk factor for 2-12 weeks before acute event, transaminasemia, HCV RNA measured by PCR in blood and found in the record prior to HCV negative serology, also rule out other causes of acute hepatitis (HBV, HAV, toxic, autoimmune). **RESULTS:** A total of 1120 files were reviewed of which 7 cases were considered compatible with acute hepatitis C and it is in the following table shows their clinical characteristics: Table 1.

In our population these cases have a prevalence of the 0.01%, 43% correspond to the male gender and 57% to the female, symptomatic course in 86% of the cases, 43% belong to the health personnel, 86% presented a clear risk factor for the development of acute event, 86% had elevation of transaminases in 86% of the cases the isolated genotype is 1. Conclusions: Acute hepatitis C is an entity of low prevalence in our unit, remain the personal health risk group often associated with accidental puncture with a patient and in the majority of the cases the antecedent of a factor of clear risk for the development of the acute event exists. Particularly striking is the high proportion of patients with transaminases greater than 1000 and that most of the cases presented general symptoms in contrast to the literature reference.

DISTRIBUTION OF GENOTYPES OF HEPATITIS C VIRUS AMONG THE INSURED POPULATION OF PETROLEOS MEXICANOS, USING RT-PCR IN REAL TIME BY ANALYSIS OF DISOCIATION CURVES BY FRET PROBES"

J.L. PÉREZ-HERNÁNDEZ,* N.A. SALGADO-GALICIA NA, M.R. VEGA-MARTÍNEZ*****
* MÉDICO INTERNISTA Y GASTROENTERÓLOGO HOSPITAL CENTRAL SUR DE ALTA ESPECIALIDAD (HCSAE) PEMEX. ** DOCTORA EN CIENCIAS BIOMÉDICAS, COORDINADORA DEL LABORATORIO DE BIOLOGÍA MOLECULAR HCSAE, PEMEX. *** QUÍMICA BACTERIÓLOGA PARASITÓLOGA ADSCRITA AL LABORATORIO DE BIOLOGÍA MOLECULAR HCSAE PEM.

INTRODUCTION AND OBJECTIVE: The hepatitis C virus has the characteristic of presenting a high tendency to mutation, which has led to describe genotypes and subtypes of this virus, which show differences in the response to treatment. For this reason, it is important determine the HCV by reliable and quick tests in order to establish the type and time of antiviral treatment. Introduction of PCR methodologies in

Table 1. Prevalence and clinical characteristics of patients with acute hepatitis c in the hospital de especialidades centro médico nacional siglo XXI.

Patient	Age	Sex	ALT	AST	BT	Risk Factor	Health Personnel	Clinical manifestation	Comorbidity	HCV negative serology prior to acute event	Level RNA VHC (UI/mL)	*
1	48	M	501	622	0.73	Accidental puncture with patient	Physician	Symptomatic	No	No	51,500	2
2	21	M	1618	1003	1.36	Transfusion	No	Symptomatic	Acute lymphoblastic leukemia with chemotherapy	Yes	353	1b
3	44	F	1028	2438	8.4	Accidental	Nurse	Symptomatic	No	No	912	1b
4	64	F	1229	1214	13.17	None apparent	No	Symptomatic	DM 2, HAS	Yes	2240	1a
5	58	F	617	823	8.46	Accidental	Chemistry	Symptomatic	No	No	1,320,000	1b
6	74	M	832	516	5.6	Cistoscopy	No	Symptomatic	Prostate cancer	No	139.000	1a
7	45	F	175	154	0.7	Transfusion and hemodialysis	No	Asymptomatic	CKD	Yes	170	1b

* Genotype.

real time has allowed laboratories of clinical diagnosis to have specific, sensitive and quick tests, very useful in viral genotyping. Bullock y col described a methodology consisting in carrying out a reaction of reverse transcription and PCR in real time (RT-PCR) by an analysis of dissociation curves (melting curve) with only one set of FRET probes (fluorescent resonance energy transfer) that correlates well with INNO-Lipa and sequencing by DupliType. This methodology was standardized in our laboratory with a few modifications. Objective: To determine the distribution of genotypes of HCV using RT-PCR in real time by analysis of dissociation curves. **MATERIALS AND METHODS:** It is an observational, prospective and analytic study, in samples of patients infected with HCV, processed from June 2005 to December 2009 in the Unit of Molecular Biology in the Hospital Central Sur de Alta Especialidad de Petróleos Mexicanos. For the genotyping it was made a retrotranscription with hexamer primers with random sequences, the DNA was amplified by means of a first PCR in real time using primers NAF and NAR1 using SYBRGREEN for its detection, later, it was carried out a semi-nested reaction, using the primers NAF1 and NAR3, and FRET probes (the anchorage probe marked with FITC and the detection probe marked with LCRed640), and later an analysis of dissociation curves in order to determine the fusion temperatures, that allows to rule out the genotypes 1a/b, 2a/c, 2b, 3a and 3b/4. **RESULTS:** 172 tests were carried out with the following findings: the gender distribution was 114 women (66.2%) and 58 men (33.7%), with 55.2 year average age (rank 16 to 83). Of those genotypes determined, 133 (77.3%) correspond to the type 1, 32 (18.6%) to type 2 and 7 (4.0%) to type 3. The rank of viral loads goes from 741 UI to 7,210.00 UI of RNA-HCV. The method was standardized achieving a behavior very similar to the original protocol. The melting points obtained are very similar to those reported showing a good discrimination among the curves that identify de genotypes. **CONCLUSION:** This methodology proved to be faster than the automated methodology for genotyping by INNO-LIPA, and although it does not detect all the genotypes nor differentiates subtypes, it allows discriminate those clinically relevant (1, 2, 3 and 4), with the advantage of carrying out the genotyping in samples with very low viral load, that can be done with generic systems tools that can be used in other applications and that are efficient for laboratories with low to medium demand in the number of tests requested.

BINGE DRINKING IN YOUNG UNIVERSITY STUDENTS. CORRELATION BETWEEN SERUM ALT AND PERIPHERAL CD8 T

J. HERNÁNDEZ RUIZ,* N. MORALES ROCHLIN,* R. MARTÍNEZ GARCÍA,* D. ROSIQUE ORAMAS,* N. GIL ROJAS,* M. FOSADO GAYOSSO,* L. CORONA CALOCA,* J.L PÉREZ HERNÁNDEZ,* G. ROBLES DÍAZ,* D. KERSHENOBICH, G. GUTIÉRREZ REYES*

* HIPAM, DEPARTAMENTO DE MEDICINA EXPERIMENTAL, FACULTAD DE MEDICINA, UNAM. HOSPITAL GENERAL DE MÉXICO.

INTRODUCTION: Abuse in alcohol consumption is a well-known risk factor for health and changes on liver function, mental health and lymphocytic profile has been well described but less is known about effect of moderate consume. Is known that ethanol and its secondary metabolites, have capacity to induce hepatic, neurological and immunological damage. In humans and murine models chronic alcohol consumption reduces peripheral NK cells and generates unbalance among lymphocytes subtypes, leading to low cytotoxic activity, predisposition to infections and liver fibrosis. However, little is known about alcohol consumption in young people and its relation with hepatic or immunologic alterations. **AIM:** To analyze the relations of alcohol consumption pattern with quality of life, hepatic function and lymphocytic profile in young university students. **METHODOLOGY:** 259 young university students were included. Risk consumption was classificated according to AUDIT (consumers (OH) ≥ 8; controls (CTL) < 8). Written informed consent was obtained. Participants with systemic diseases, neurological alteration, head traumatism with conscience loss, drugs or medicaments consumption or negation to take part in the study were excluded. SF-36 health survey was applied; anthropometric measure and 20 ml of peripheral blood were obtained. Hematic biometry, transaminases (AST, ALT, and GGT) and lymphocytic profile (T, B lymphocytes and NK cells) were performed. Statistical analysis used was Kolmogov-Smirnov goodness-of-fit test, T-student or U-Mann-Whitney to compare between groups and Pearson correlation analysis. **RESULTS:** Participants were classified as 161 CLT and 98 OH with equal BMI and MCV. 79% of OH consume less than 30 g/day, mainly beer one or two times per week in a period of time not more than 5 years. Age of CTL = 21.1 ± 2.7 years old *vs.* OH=22.3 ± 3years old ($p = 0.001$). 45% of CLT were men and 63% of OH. The alcohol consumption in grams per day was CTL = 0.94 ± 3 *vs.* OH = 14.97 ± 1.12 ($p = 0.01$), mainly beer one or two times per week. Were found differences in SF-36 test in limitation of role referred to physical health item ($p = 0.003$), in social performance ($p = 0.003$) and self-perception of mental health ($p = 0.05$), therefore the general value of mental health shown significant differences between CLT and OH ($p = 0.03$), with a lower value in OH group (CTL = 45 ± 9 *vs.* OH = 43 ± 9 $p = 0.01$). Also we found differences in hematic biometry (erythrocytes 5.2 x 106 *vs.* 5.4 x 106 $p = 0.018$; hemoglobin 15.8 *vs.* 16.4 g/dL $p = 0.009$; hematocrite 46.4% *vs.* 48.9% $p = 0.0001$) and liver function proteins (AST 30 *vs.* 38 U/L $p = 0.023$; ALT 30 *vs.* 38 U/L $p = 0.02$). Lymphocytic profile was analyzed in 133 CLT and 65 OH, and CD8 T lymphocytes percentage showed significant difference (26.1 ± 3.8% *vs.* 28.8 ± 3.9% $p = 0.013$), however there were a positive correlation between CD8 percentage with ALT (0.155, $p = 0.037$) and CD8 with alcohol consumption (0.22, $p = 0.002$). **CONCLUSION:** OH group has moderate alcohol intake in the majority of cases but in binge drinking mode, which resulted in clinical normality. However, this group shown minor perception of mental health, major AST and ALT levels and major percentage of CD8 T. Is possible that this profile in the young consumer, depict the beginning of changes described for heavy chronic consumers. It is necessary to further explore the pathogenic role of these changes in order to determine its contribution in liver damage and comorbidities associated with alcohol consumption. This work was supported by "Macroproyecto UNAM: Desarrollo de nuevos modelos para la prevención y el tratamiento de conductas adictivas. MP6-14".

MOLECULAR EPIDEMIOLOGY OF VIRAL HEPATITIS IN MEXICO

N.A. FIERRO,*, G. ESCOBEDO MELÉNDEZ,* S. ROMÁN,*,** B. RUIZ MADRIGAL,*,** A. PANDURO*,****

* SERVICIO DE BIOLOGÍA MOLECULAR EN MEDICINA Y SERVICIO DE INFECTOLOGÍA PEDIÁTRICA. ** ANTIGUO HOSPITAL CIVIL DE GUADALAJARA FRAY ANTONIO ALCALDE. CENTRO UNIVERSITARIO DE CIENCIAS DE LA SALUD, UNIVERSIDAD DE GUADALAJARA

BACKGROUND: In recent years, the rates of liver diseases have increased in Mexico. The main etiologies of liver disease in the country are alcohol and hepatitis B and C infections. However we do not have data relative to the etiology of 30% of

the diagnosed cirrhosis in the country. Molecular diagnosis and genotype identification has been mainly focused on hepatitis B virus (HBV) and hepatitis C virus (HCV), whereas hepatitis A virus (HAV) and hepatitis E virus (HEV) genotypes have been barely detected. **OBJECTIVE:** The aim of the present study was to analyze the current molecular epidemiology of viral hepatitis in Mexico and its role on liver disease. **MATERIAL AND METHODS:** An analysis of the Sistema Unico de Vigilancia epidemiológica SUIVE data was conducted through the Sistema Nacional de Información en Salud (SINAIS) website http://sinais.salud.gob.mx/mortalidad/index.html, analyzing cases per year and age of hepatitis A, B, C and other hepatitis. For anti-HEV detection, serum samples were collected from adult patients attending to the Servicio de Biologia Molecular en Medicina at the Antiguo Hospital Civil de Guadalajara from 2003 to 2007. Thirthy four cirrhotic patients, 83 obese patients with diabetes mellitus type 2, 160 addicts to drugs and 311 healthy controls were included. Assays were performed in serum using a commercial test (MP Diagnostics HEV ELISA, Geneva Switzerland) following manufacturer's instructions.The study was approved by the Ethics Committee of Institution. Informed consent was obtained from all studied participants. **RESULTS:** From 2000 to 2007, the Secretariat of Health reported 192,588 cases of hepatitis, 79% HAV, 3.3% HBV and 6% HCV. However, we do not have data relative to the etiology of 12% of the hepatitis cases reported in Mexico. Preliminary data showed a prevalence of 10% of anti-HEV in healthy controls, 26% in cirrhotic patients, 17% in obese patients with diabetes mellitus type 2% and 4% in addicts to drugs. Interestingly 33% of the cirrhotic patientes analyzed presented unknown ethiology. **CONCLUSIONS:** The findings of a higher frequency of anti-HEV in cirrhotic patients with unknown etiology than controls, together with reports of the high frequency of swine anti-HEV in Mexico, leads to requirement of further studies in order to determine the role of HEV in development of liver disease and its association to zoonotic infection. Improved diagnosis are requiered in order to determinate HAV, HBV, HCV and HEV genotypes and their plausible role on liver disease in Mexico. **ACKNOWLEDGEMENTS:** This work was supported by the Consejo Estatal de Ciencia y Tecnologia y Universidad de Guadalajara (grant COECYTJAL-UdeG-2009-1-06-2009-431).

EARLY DETECTION OF INFECTION FOR VHB IN DONORS OF BLOOD REJECTED BY ALGUN FACTOR OF RISK IN THE BANK OF BLOOD OF MEDICAL NATIONAL CENTER "20 NOVEMBER" ISSSTE. MEXICO CITY

G. QUINTERO AGUILAR,* M.V. RAMOS GÓMEZ, GARCÍA MÉNDEZ,*** A.A. DE LA CRUZ GUILLÉN,**** P.R. ROJAS MACUIL******
* MÉDICO RESIDENTE DE 5TO AÑO CMN 20 DE NOVIEMBRE. ** JEFE DEL SERVICIO DE GASTROENTEROLOGÍA CMN 20 DE NOVIEMBRE. S. *** JEFE DEL SERVICIO DEL BANCO DE SANGRE CMN 20 DE NOVIEMBRE. **** MÉDICO GASTROENTERÓLOGO EGRESADO DEL CMN 20 DE NOVIEMBRE.

INTRODUCTION: The virus of the hepatitis type B (VHB) is DNA's virus of the family Hepadnaviridae. There exist three epidemiological bosses of the hepatitis B. The high boss is with major frequencies of 8%, the interval with numbers from 2 to 7% and the low boss with a minor prevalencia of 2%. The world reports locate Mexico in the boss of transmission under. In a study of prevalencia in Latin America in 1999 one thought that the prevalencia in subjects from 21 to 30 years was 1.8 % and 3.3% in the from 31 to 40 (6). On the frequency of scoreboards of hepatitis B in the banks of blood, in relation with the year 2000 to 2003, frequencies notified to themselves for Mexico from 0.05 to 0.47 of the scoreboard Ag VHBs (5). The mecanisms of transmission are the routes sexually, parenteral and perinatal. Six different scoreboards exist serológicos used regularly. These scoreboards permited to identify the evolution of the infection and they ensue from the identification of antigens or antibodies. Between the first ones (Ag VHBs) and the antigen and (Ag VHBe) figure that of surface. Between the total antibodies the directed ones must be mentioned against the surface antigen (antiVHBs), the central antigen or core (anti-VHBc) and the antigen and (anti VHBe), as well as antibodies of class IgM against the antigen core (IgM anti-VHBc) (1). **OBJECTIVE:** To determine the prevalencia of the infection for virus of hepatitis B in donors of blood rejected by some factor of risk in the bank of blood of the Medical National Center "20 November" ISSSTE and to compare the results with the national average. **MATERIAL AND METHODS:** A transverse study was realized, with sample to convenience, observacional where there were included a total of 390 donors, 278 men and 112 women, who were rejected in the bank of blood of the CMN "20 November" to whom a questionnaire was realized, in the included period from October, 2009 to March, 2010, 50 subjects being detected by factors of risk for VHB, the variables were: transfusion before 1992, odontological interventions recent, use of intravenous drugs, tattooes, couple with hepatitis B, multiple sexual couples, sexual relations without protection, to be a worker of health, mother with hepatitis B. Previous informed assent they realized a rapid test of qualitative detection of the surface antigen of the VHB in blood, which consists of a chromatographic inmunoensaye of qualitative test for detection of blood, whey or plasma of the surface antigen of the VHB, on having reacted and to give a positive result there generates a line of color which indicates a positive result, to which they confirmatory PCR will be realized. **RESULTS:** The prevalencia of carriers of the VHB in donors of bank of blood with factors of risk for this infection in the CMN "20 November" was 0.02% (one patient) 48-year-old man, with more than four sexual couples. **CONCLUSIONS:** The results in this study suggest a fall prevalencia of infection for VHB in donating subjects of blood rejected of bank of blood in this medical center, which coincides with the national average that it places Mexico as a country of fall prevalencia with this does not reach a statistical significancia that rejects the void hypothesis.

ANALYSIS OF THE PROTEOMIC EXPRESSION PROFILE INDUCED BY HEPATITIS C VIRUS (HCV) AND ACETYLSALICYLIC ACID (ASA)

A. SÁNCHEZ-GARCÍA,* C.P. RÍOS-IBARRA,* A.R. RINCÓN-SÁNCHEZ, H. MARTÍNEZ-RODRÍGUEZ,* A.M. RIVAS-ESTILLA***
* LABORATORIO DE INFECTOLOGÍA MOLECULAR, DEPARTAMENTO DE BIOQUÍMICA Y MEDICINA MOLECULAR, FACULTAD DE MEDICINA, UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN. MONTERREY, NL, MÉXICO. ** CUCS, UNIVERSIDAD DE GUADALAJARA, GUADALAJARA, JALISCO, MÉXICO.

INTRODUCTION: HCV affects 3% of the world population; it has been considering a serious public health problem. Despite notable advances in research, mechanism responsible for the development of chronic infection pathogenicity is not yet known and there is no effective specific treatment. Recently, it has been demonstrated that ASA has a suppressor effect in HCV-RNA and protein levels; however, the mechanism of action is unknown. **AIMS:** To evaluate the effect of the ASA in liver cells expressing non-structural proteins of HCV on proteomic expression profiling and further compared it with parent cell. **MATERIAL AND METHODS:** We use a hepatocarcinoma cell line, parental and replicon Huh7 (cells

expressing non-structural HCV proteins) and we implemented two-dimensional separation of cellular total proteins. Subsequently, we identify proteomic expression profile induced by ASA in this cell line and we found expression differences in absence and presence of non-structural proteins of HCV, in cells treated and untreated with ASA. The cells were exposed to 4 mM ASA at different times and were lysated to extract the total protein through a solubilizing method which includes buffer, salts and reducing agents. Protein extracts integrity was verified by SDS-PAGE and Coomassie Blue staining. 100 mg of protein were purified for separation by isoelectric point (pI) (7 h, 50000 V/h) at pH 3-10 gradient, using 17 cm IPG strip, followed by treatment with buffers with reducing agents and fractionation molecular weight (PM) using vertical polyacrylamide gel electrophoresis 12%. The proteins separated were revealed with silver stain. Digital images were made with GS-800 (Bio-RAD) densitometer and analysis of the two-dimensional separation pattern was made with PDQuest (Bio-RAD) software. The statistics analysis included the t test. **RESULTS:** The quantity of proteins obtained by solubilizing method varied in the rank of 50-470 µg/plate. Purification procedure performed before the electrophoresis step permitted an adequate separation by pI and by MW. The proteins were resolved in a two-dimensional pattern, being located most of them in the zone of highly molecular weight and pI slightly acid. After the proteomic profiles of liver cells that express non-structural proteins of HCV was generated, pattern of expression was analyzed. A different protein pattern among hepatocytes lacking the proteins of HCV in comparison with those that **express constitutively** was found. Besides, differentially expressed proteins in cells exposed to ASA were identified. **CONCLUSIONS:** It was possible to obtain expression pattern of hepatocytes that express the HCV proteins which represents the first step in identifying differential profiles. Identification of protein spots induced by ASA treatment could allow us later on to identify new candidates that could be used as antiviral therapy targets. To develop a study to great scale of changes in the expression of proteins will permit the investigation of molecules implied in the viral replication and pathogenesis; but his most important contribution will be the generation of a protein signature for the definition of therapeutic targets, diagnostic and prognostic markers.

Conflict of interest: No conflicts of interest by any of the authors. **Sponsorship of work**: Conacyt BASICA-2006 CB2006-1-58781 and Conacyt-health-2008-01-86996 to Dra. AM Rivas.

CHRONIC AND AUTOIMMUNE CHOLESTATIC LIVER DISEASES

LIVER FUNCTION TESTS ABNORMALITIES IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

R.U. MACÍAS-RODRÍGUEZ,* C. CASTILLO-AYOMETZI,* S.I. PÉREZ-ÁLVAREZ,* A. TORRE, A. DUARTE-ROJO*
* GASTROENTEROLOGY DEPARTAMENT, INSTITUTO NACIONAL DE CIENCIAS MÉDICAS Y NUTRICIÓN "DR. SALVADOR ZUBIRÁN", MÉXICO, DF.

INTRODUCTION AND OBJECTIVES: Liver disease in systemic lupus erythematosus (SLE) has been proposed since the early 50's, but there is not specific pattern and multiple etiologies have been posulated. Causes such as use of medications (methotrexate and steroids), infections, vascular-hemodynamic changes, other autoimmune diseases with primary liver involvement or SLE per se have been proposed as the source of persistent alteration in liver function tests (LFT) in SLE. The aim of this study is to describe the changes in the PFH in patients with SLE at a tertiary care in Mexico and observe their clinical and biochemical characteristics. **MATERIAL AND METHODS**: In this Retrolective study we reviewed 2100 charts of patients with SLE. Of these, were found 163 patients with non-persistent LFT abnormalities and 137 patients with persistent LFT alteration, defining the latter as the alteration of PFH in two consecutive occasions in a separate time between each a minimum of six months, establishing a relationship ALT (alanine amminotransferase)/ALP (alkaline phosphatase) ≥ 5 or ALT > 2 times the upper normal value for a hepatocellular pattern; ALT/ALP ≤ 2 or ALP > 2 for cholestatic pattern and between 2 and 5 for the the mixed pattern. Records were obtained from clinical and biochemical variables in 170 patients with persistent alteration of LFT. We used descriptive and comparative statistics for the interpretation of the data. **RESULTS:** Of the 137 patients with persistently impaired LFT studied, the mean age at presentation was 33.6 ± 11.6 years, 91% women, 17% died in the evolution of SLE, 17.9% of patients were taking during that period azathioprine, chloroquine and cyclophosphamide 14.9% 5.5% among the most frequent 27% of patients with BMI > 25. Ingested steroids in the 76% of the cases, 14% used methotrexate. Antiphospholipid syndrome was observed in 15.2%, ESRD in 8.7% and 5.4% of the study population with hypothyroidism. 54% with renal activity at some point in its evolution, 23% with neurologic activity, hematologic activity was observed in 77%, 89%with joint disease and 83%with cutaneous disease. The most prevailing LFT abnormality was hepatocellular in the 45%, followed by cholestatic pattern in the 44% and mixed pattern in the remaining 11%. Liver biopsy was performed in 15% and found steatosis/steatohepatitis in the 46%, cholestasis, chronic active hepatitis and regenerative changes in 13% each, and the remaining others. This led to an expectant management in 53%, add immunosuppression in 27% and changes in lifestyle on the rest. They normalized LFT in the 62%. The most common patterns of ANA (antinuclear antibodies) were thick speckled, homogenous and fine speckled in 34, 32 and 13% respectively. During the evolution of the LFT alteration 34% of patients had some type of infection. 10% had viral hepatitis, being the hepatitis C virus infection the most frequent. Diabetes Mellitus was present in the 6.7% of the cases, hypertension in the 32%, metabolic syndrome in the 15%. 7.5% had a history of prior ingestion of alcohol. 7.5% had cirrhosis (only in those with hepatitis virus infection). The most common findings on ultrasound were fatty liver in 39%, normal findings in the 24% and 12% had hepatocellular damage. **CONCLUSIONS:** Hepatocellular pattern was the most common. A biopsy was performed in 15% of cases and in general the outcome of patients with persistent alteration in the LFT was good and only developed cirrhosis those patients with hepatitis virus infection. There are numerous causes for deterioration in the LFT that should be investigated and taken into consideration. Prospective studies are needed to support these findings. No conflicts of interest. This study was conducted with funding from the Department of Gastroenterology INCMNSZ

AMA-POSITIVE AUTOIMMUNE HEPATITIS, ARE A DIFFERENT GROUP?

L.E. MUÑOZ-ESPINOSA,* A.B. MERCADO-MOREIRA,* K. SENTÍES-NAVARRO,* G.A. VILLARREAL-VILLARREAL,* G. ALARCÓN-GALVÁN**

* UNIDAD DE HÍGADO. ** DEPARTAMENTO DE ANATOMÍA PATOLÓGICA, HOSPITAL UNIVERSITARIO "DR. JOSÉ E. GONZÁLEZ" UANL, MONTERREY, NL, MÉXICO.

INTRODUCTION: Antimitochondrial antibodies (AMA) are the serological hallmark for primary biliary cirrhosis (PBC). The occurrence of AMA is 7% to 34% in patients with otherwise classic autoimmune hepatitis. Their presence is inconsistent with the diagnosis of autoimmune hepatitis (AIH), and the scoring system of the International Autoimmune Hepatitis Group (IAIHG) acknowledges this inconsistency by assigning them a large debit score. The aim of this study was to evaluate the histological, clinical, or biochemical features on patients AIH-AMA positive (AIH-AMA+) and negative (AIH-AMA -) and the follow-up in both patients group. **PATIENTS AND METHODS:** From 1981 to 2008, at the Liver Unit (Internal Medicine Department, University Hospital "José Eleuterio González" 71 patients with AIH were diagnosed, according to scoring system of IAIHG of 1999 (≥ 10 points), (Hepatol 1999; 31:929) they had at least one year of follow-up and at least an hepatic biopsy. The patients were grouped according to the AMA result: HAI-AMA+ and HAI-AMA-. We compare: gender, age at diagnosis, follow-up time, presence of another autoimmune diseases, liver function tests (LFTs), IgG, IgM, antinuclear antibodies (ANA), smooth muscle antibodies (SMA) and histological features and the score system results, original and simplified (Hepatol 2008; 48:1). **RESULTADOS:** From 71 patients with AIH, 12 cases (17%) were AIH-AMA+. No significant difference were found at compare age, sex, presence of another autoimmune diseases, abnormal LFTs, IgG, ANA, SMA, hepatic cirrhosis at admission; nor in the score systems from 99 and 2008 (13 ± 2 *vs.* 15 ± 3, p = 0.053; 6.3 ± 1.4 *vs.* 5.7 ± 1.3, p = 0.224 respectively). Patients AIH-AMA+ had more follow-up time than patients AIH-AMA - (106 ± 89 *vs.* 58 ± 53, p = 0.018). Although evolution, just 6/12 (50%) had a negative result for AMA, all patients AIH-AMA + had a ductular reaction liver biopsy (p = 0.003), no significant difference were found in ductular proliferation (p = 0.223), acute cholangitis (p = 0.354) or lymphocytic cholangitis (p = 0.348). All patients AIH-AMA + behaved as AIH along the track only one case in liver biopsies subsequently had suggestive of PBC data. No patient developed cirrhosis of the AIH-AMA + group, whereas AIH-AMA - group, two patients not cirrhotic at admission, clinical or histological, developed in the follow-up (PNS). **CONCLUSIONS:** Patients with AIH-AMA +, had a clinical presentation and scores system IAIHG 99 and 08 similar to patients with AIH-AMA -. In the liver biopsy, were more ductular reaction in AIH-AMA +, but showed no cholangitis data and behaved as HAI along the evolution with the exception one case. This work was sponsored entirely by own resources of participating departments, CONACYT and PAICYT

ALCOHOLIC LIVER DISEASE AND FATTY LIVER

EFFECT OF FREE FATTY ACIDS PRETREATMENT ON RESPONSE TO OXIDATIVE DAMAGE PRODUCED BY ETANOL METABOLISM IN HEPATOCYTES

I HERNÁNDEZ RESÉNDIZ, LE GÓMEZ QUIROZ, V SOUZA ARROYO, E HÉRNÁNDEZ PÉREZ, MC GUTIÉRREZ RUIZ, L BUCIO ORTIZ
LAB. FISIOLOGÍA CELULAR, DPTO. CS. DE LA SALUD, UAM-I.

INTRODUCTION: Nonalcoholic fatty liver disease (NAFLD) is one of the most common liver diseases in the Western world. Palmitic (C16:0) and oleic (C18:1) acids are the predominant free fatty acids (FFA) in patients with NAFLD. Accumulation of FFA could induce reactive oxygen species (ROS) production. Hepatocytes have enzymatic and non-enzymatic systems that counteract oxidative stress. Superoxide dismutase (SOD) catalyzes removal of superoxide radicals while catalase (cat) helps to remove H_2O_2. Gluthatione (GSH) is probably the most important non-enzymatic antioxidant present in cells. GSH is synthesized from glutamate plus cysteine plus glycine in two steps as catalyzed by ã glutamyl cysteine synthetase (γGCS) and GSH synthetase. γGCS is the rate limiting enzyme in this two step pathway. Ethanol (EtOH) biotransformation by cytochrome 2E1 (CYP2E1) produces ROS that could damage cells. It has been considered that hepatic lipid accumulation could make the liver more susceptible to another insult. **OBJECTIVE:** The objective of the present study was to test the hypothesis if steatosis sensitizes hepatocytes to ethanol biotransformation damage in the antioxidant response. **METHODS:** The hepatic cell line VL-17A, obtained from HepG2 cells transfected with CYP2E1 and alcohol dehydrogenase, was used. Cells were seeded and cultured at 140,000 cells/cm^2 in presence of 1mM oleic and palmitic acids (2:1) during 24 h. After that, cells were treated with 100 mM EtOH in presence of FFA for 48 h. Viability was determined by trypan blue assay. Intracellular lipids content were measured with red O oil. CYP2E1, cat, SOD 1 and 2 and γGCS were determined by Western blot. Data are mean of three independent experiments. Statistical analysis was done by ANOVA and then Tukey's probe. **RESULTS:** VL-17A cells decreased viability 34% with FFA and 43% with FFA plus EtOH after 72 h treatment. Both treatments increased six times intracellular triglyceride content. Treatment with FFA and EtOH increased significantly SOD 1 and 2 compared with FFA treated cells, while no change in cat was found. γGCS decreased 50% and CYP2E1 increased significantly in FFA and EtOH treated cells. **CONCLUSION:** EtOH treatment in cells previously treated with FFA decreased viability, increased SOD1 and 2 and CYP2E1 content, and decreased γGCS. CYP2E1 rise could induce ROS production, and with the decreased cell capacity to produce GSH show that FFA could sensitize hepatocytes to EtOH damage by decreasing its antioxidant response, making cells vulnerable to damage progression.

UTILITY OF OXIDATIVE STRESS WITHIN BIOMARKERS OF ALCOHOL-INDUCED CHRONIC LIVER DISEASE AND ITS COMPLICATIONS

JA SUÁREZ-CUENCA, NG JIMÉNEZ-SAAB, J RÍOS-NERI, A MACEDA-SERRANO, H DÁVILA-JOLLY, M TORRUCO-SALCEDO, A ARANDA-FRAUSTRO, M OLGUÍN-MARTÍNEZ, L SÁNCHEZ-SEVILLA, R HERNÁNDEZ-MUÑOZ*
DEPTS. INTERNAL MEDICINE, IMAGE ANALYSIS AND ENDOSCOPY H.G. XOCOTICOMÁN, SSDF; MEXICAN GROUP FOR BASIC AND CLINICAL RESEARCH IN INTERNAL MEDICINE, AC; CAAF, MEXICAN INSTITUTE OF PSYCHIATRY; PATHOLOGY, INC "IGNACIO CHÁVEZ", CELLULAR BIOLOGY, IFC, NATIONAL UNIVERSITY OF MEXICO

Fibrotic progression during chronic liver damage implies a more severe disease. Several factors participate during alcohol-induced chronic liver disease (aCLD), such as oxidative stress (OS), inflammatory, fibrogenic and vasoactive factors, which are associated to liver damage and its clinical features. Serum markers have shown predictive ability to estimate steatosis, fibrosis and cirrhosis underlying aCLD. In this study, we evaluated the role of OS, as a component of a aCLD biomarker model. **MATERIAL Y METHODS:** A total number of 40 patients, heavy drinkers (> 50 g alcohol/day), with evidence of aCLD and signed informed consent were included. Histology: liver damage

was evaluated according to Technical Review for NAFLD and METAVIR scores: steatohepatitis (F0, n = 15), early fibrosis (F1, F2 n = 13) and advanced fibrosis/cirrhosis (F3, F4 n = 12). APRI, FIB-4 and Forns indexes were calculated, and additionally, a model denominated "Bio-Ox" was generated with the variables OS, determined as malondialdehyde (MDA) serum levels, AST/ALT, GGT and cholesterol. Fibrotic progression, portal hypertension (portal vein diameter, hepato-splenomegaly and esophageal varices), and complications during hospitalization were analized through logistic regression and odds ratio (OR). Analysis: mean±SD, T-test, U-Mann-Whitney or χ^2, according to variable nature and distribution. The study was authorized by the Ethical Review Board and is in accordance with the Helsinki Declaration. **RESULTS:** Sample: 27 male and 13 female patients, age 39.5 ± 11.8 years (Table 1) and several levels of liver damage (Figure 1).

Table 1. Basal characteristics.

	Esteato-hepatititis	Fibrosis		p
		Inicial	Avanzada	
Age (years)	38 ± 0.6	42 ± 7.8	42 ± 12.4	0.8
Gender (m:f	13:2	7:6	9.3	0.1
APRI	2.9 ± 1.3	6.3 ± 1.3	2.8 ± 1.7	0.3
FIB-4	34 ± 0.6	10.2 ± 14.2	3.1 ± 1.7	0.5
Forms	5.7 ± 2.8	7.3 ± 3.1	7.3 ± 2.6	0.6
Bio-Ox*	5.0 ±0.6	4.8 ±0.7	5.4 ±0.8	0.3
Varices (Drdagradi)	1.3 ± 2.3	1.7 ± 0.6	1.8 ± 1.7	0.2
Complicaciones	0.3 ± 0.6	0.4 ± 0.8	0.8 ± 0.9	0.3

* Biomarker containing the variables OS + AST/ALT + GGT + cholesterol.

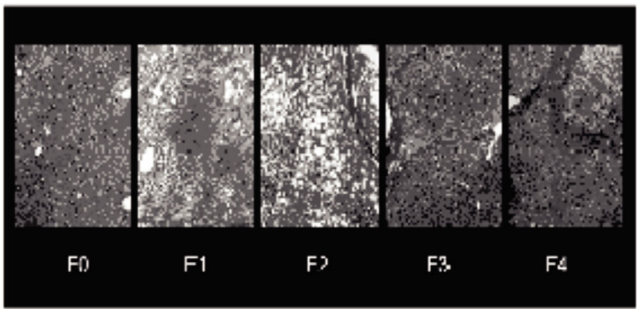

Figure 1. Several levels of ACLD.

A Bio-Ox ROC-cuttoff of 5 correlated with fibrotic progression, as the other indexes did (Bio-Ox r = 0.34 ± 0.6,p = 0.05; Forns r = 0.40 ± 1.9, p = 0.03; APRI r = 0.33 ± 2.0, p = 0.03). Bio-Ox associated with complications during hospitalization (Bio-Ox < 0.5 OR = 0.047, IC95% 0.01-0.66, p = 0.04) while the other biomarkers did not (FIB-4 = 0.5, IC95% 0.06-4.09, p = 0.63; FORNS = 5.0, IC95%0.47-52.9, p = 0.28); and showed higher correlation (Bio-Ox > 5 r = 0.67 ± 0.66, p = 0.002 *vs.* Forns r = 0.33 ± 0.70, p = 0.03). Regarding portal hypertension, Bio-Ox did not correlate at all (Bio-Ox r = 0.27 ± 0.95, p = 0.07; Forns r = 0.60 ± 0.79, p = 0.01), probably due to involvement of other pathophysiologic elements. **CONCLUSION:** The addition of variables associated with aCLD, such as OS, may impact in the predictive ability of serum biomarkers regarding fibrotic progression and clinical prognosis; with some limitations when evaluating portal hypertension. **CONFLICT OF INTEREST:** Nothing to claim.

ACUTE PHASE MARKERS IN THE PROGRESSION OF LIVER DAMAGE IN OBESITY CHILDREN

IDALIA CURA ESQUIVEL, PAULA CORDERO PÉREZ, MARCELINO AGUIRRE GARZA, LILIANA TORRES-GONZÁLEZ, LINDA MUÑOZ-ESPINOSA

DEPARTAMENT OF PEDIATRIC, AND LIVER UNIT, GASTROENTEROLOGY SERVICE, DEPARTMENT OF INTERNAL MEDICINE, HOSPITAL UNIVERSITARIO "DR. E. GONZALEZ," UNIVERSIDAD AUTONOMA DE NUEVO LEON, MONTERREY, NUEVO LEON, MEXICO.

INTRODUCTION: Mexico ranks first in childhood obesity worldwide. Several non-invasive markers of acute phase are currently used to establish the degree of activity and inflammation in adult subjects with overweight (Fibromax), however there are few studies of the usefulness of these in pediatric patients. **OBJECTIVE:** To determine the levels of acute phase [haptoglobin (HPT), α -2 macroglobulin (α2M), Apolipoproteina A1 (APO-A1) and alaninamino transaminase (ALT) according to sex and degree of obesity in a population pediatric and the correlation between these variables and other biochemical and anthropometric parameters. **MATERIALS AND METHODS:** We evaluated 55 children with obesity, age range of 10 ± 3 years .They assissted to the consultation of Pediatrics, Hospital Universitario Dr. Jose E. Gonzalez. Children were determined weight, body mass index (BMI), liver function tests, cholesterol (CHOL), triglycerides HPT, α2M, and APO-A1 by nephelometry. **RESULTS:** Of the 55 children, 26 were female (F) with a mean age of 10.9 ± 2.3 years and 29 male (M) with an average age de10.4 ± 2.8 years. By dividing the total group by sex (M / F) was found only difference in weight (M/F, 74.5 ± 34.9 / 68.2 ± 15.9 kg, p = 0.008) and BMI (M/F, 32.1 ± 8.7/30.1 ± 3.4 p = 0.008), no difference was found between acute phase markers: APO (M/F, 1.42 ± 0.29/1.22 ± 0.28 g/L,p = 0.22) α2M (M/F, 2.82 ± 0.63/2.58 ± p = 0.92 g/L, p = 0.22), HPT (M/F, 0.96 ± 0.37/1.03 ± 0.34 g/L. p = 0.92), ALT (M/F, 39.5 ± 44.1/ 46.8 ± 59.5UI/L, p = 0.22). When dividing the total group according to degree of obesity moderate (Mo) and severe (S) was found only significant difference in AST (Mo/S, 34.7 ± 12.5/47.5 ± 32.1 IU/L, p = 0.008) and ALT (Mo/S, 27.7 ± 21.1 / 51.0 ± 60.7 IU/L, p = 0.045) no difference was found between markers of acute face APO (Mo/S, 1.33 ± 0.24/1.32 ± 0.33 g/L, p 2M (Mo/S, 2.7 ± 0.57α = 0.32),/2.7 ± 0.88 g/L, p = 0.41), HPT (Mo/S, 0.97 ± 0.31/1.0 ± 0.38 g/L p = 0.32). Assessing the correlation between variables analyzed only the correlation of APO-A1 with α2MG (r = 0.361, p = 0.007), COL (r = 0.455,p = 0.00) y AST (r = 0.449, p = 0.001); α2M with TGL (r = 0.344, p = 0.01): HPT and COL (r = 0.268, p = 0.048), ALT and AST (r = 0.308, p = 0.022) and GGT (r = 0.607, p = 0.00). **CONCLUSIONS:** The male children had more weight and BMI. In the study group found no difference in acute phase reactants studied according to sex and degree of obesity. The ALT and AST if showed difference in levels according to degree of obesity. The APO-A1 was the marker of acute phase showed more correlation with other variables. It is considered to increase the sample size for defining the most objective involvement of mediators in the study. This work was subsidized by own resources of the participating departments and PAICYT. This work was sponsored entirely by PAICYT.

THE PROTECTIVE EFFECT OF ESTROGENS AGAINST NON-ALCOHOLIC FATTY LIVER DISEASE IN PREMENOPAUSAL, POSTMENOPAUSAL AND POLYCYSTIC OVARIC SYNDROME WOMEN

YLSE GUTIÉRREZ GROBE,* GUADALUPE PONCIANO RODRÍGUEZ,** MARTHA HELENA RAMOS,* CRISTINA GARCÍA CORONA,*

RAMON ARTURO KOBASHI MARGAIN,*
MISAEL URIBE,* NAHUM MÉNDEZ SÁNCHEZ*
* LIVER UNIT. BIOMEDICAL RESEARCH UNIT. MEDICA SUR CLINIC AND FOUNDATION, MEXICO CITY . MEXICO. ** FACULTY OF MEDICINE. NATIONAL AUTONOMUS UNIVERSITY OF MEXICO (UNAM) MEXICO CITY

INTRODUCTION AND AIM: Non alcoholic fatty liver disease (NAFLD) is the most common liver disease in Western countries. Estrogens are a potent antioxidant whose deficiency associates with the pathogenesis of metabolic syndrome (MS) which is the most important factor to develop NAFLD. The aim of this study was to investigate role of estrogens in premenopausal, posmenopausal and polycystic ovaric syndrome (PCOS) women with and without NAFLD. **MATERIALS AND METHODS:** We enrolled 197 women, comprising 93 women with NAFLD (29 premenopausic, 33 posmenopausic women and 31 women with PCOS) and 104 women without NAFLD (61 premenopausic women, 24 posmenopausic women and 19 women with PCOS). Anthropometric, metabolic, biochemical and diet variables were measured in the groups. The presence of NAFLD was determined by abdominal ultrasound. Serum estradiol, cortisol and testosterone concentrations were determined in all patients and compared between the groups. **RESULTS:** Age, BMI, hip to waist ratio, fat %, fasting glucose, HOMA –IR, and insulin were significantly higher in NAFLD patients. Women without NAFLD had significantly higher levels of serum estradiol (100 ± 95.4) compared with NAFLD patients (55.5 ± 66.6) p = 0.001. By group with and without NAFLD premenopausal (55.44 ± 93.3 *vs.* 128.56 ± 109.22), posmenopausal (44.98 ± 51.41 *vs.* 42.72 ± 51.48) and PCOS women (64.9 ± 53.3 *vs.* 101.36 ± 80.89) had significantly different hormone profile. The MS features of all groups are more prevalent in NAFLD. **CONCLUSION:** We observed higher estrogens concentration in women without NAFLD and low concentrations in patients with NAFLD. These results suggest a protective effect of estrogens against NAFLD in women. This is the first study that shows the beneficial effects of estrogens and explains in part why the prevalence of NAFLD in premenopausal women is low, and why when estrogens levels are low, as occurs in postmenopausal and PCOS, the prevalence of NAFLD is higher.

ELEVATED CONCENTRATIONS OF ANTIOXIDANT ENZYMES RELATED TO ELEVATED LEVELS OF ESTRADIOL REDUCE NON-ALCOHOLIC FATTY LIVER PREVALENCE IN PREMENOPAUSAL WOMEN

YLSE GUTIÉRREZ GROBE,* GUADALUPE PONCIANO RODRÍGUEZ,**
MARTHA HELENA RAMOS,* CRISTINA GARCÍA CORONA,*
RAMON ARTURO KOBASHI MARGAIN,*
MISAEL URIBE,* NAHUM MÉNDEZ SÁNCHEZ*
* LIVER UNIT. BIOMEDICAL RESEARCH UNIT. MEDICA SUR CLINIC AND FOUNDATION, MEXICO CITY . MEXICO. ** FACULTY OF MEDICINE. NATIONAL AUTONOMUS UNIVERSITY OF MEXICO (UNAM) MEXICO CITY

INTRODUCTION AND AIM: Several studies have demonstrated the antioxidant effect of estradiol. In patients with elevated estradiol, concentrations of peroxidase glutation are significatively higher than in lower concentrations of estradiol. In a previous study performed by our group we demonstrated that elevated concentrations of estradiol are associated with a lower prevalence of NAFLD in women. The objective of this study was to demonstrate that the protective effect of estrogens in NAFLD is related to the antioxidant effect of these. **MATERIALS AND METHODS:** We performed a cross sectional study in the Diagnostic Clinic of Medica Sur Clinic and Foundation. Our study comprehended 90 women including 30 premenopausal, 30 postmenopausal and 30 with polycystic ovaric syndrome (PCOS). Presence of NAFLD was established through abdominal ultrasonography. Anthropometric, metabolic, dietary and biochemical variables of all patients were measured. Concentrations of glutation peroxidase, catalase and superoxide dismutase were determined and compared between all groups. **RESULTS:** Age, body mass index (BMI), waist to hip ratio, body fat percentage, fasting glucose, HOMA-IR and insulin were significatively higher in patients with NAFLD specially in postmenopausal patients and with PCOS. Concentrations of antioxidant enzymes were more elevated in patients without NAFLD and a significant difference was observed in concentrations of catalase in premenopausal patients without NAFLD. **CONCLUSION:** The antioxidant effect of estrogens is responsible for the protection given to develop NAFLD, this can be seen in the tendency that show antioxidant enzymes to be elevated in groups with elevated estradiol, principally the catalase, although several studies suggest that the greater activity takes place over the glutation peroxidase, however this require further studies with a bigger sample. This work has been sponsored by Medica Sur Clinic and Foundation.

REDUCED LEVELS OF ESTRADIOL IN WOMEN WITH POLYCYSTIC OVARY SYNDROME ARE ASSOCIATED WITH THE PRESENCE OF NON ALCOHOLIC FATTY LIVER DISEASE

RAMON ARTURO KOBASHI MARGAIN,* YLSE GUTIÉRREZ GROBE,*
GUADALUPE PONCIANO RODRÍGUEZ,** MARTHA HELENA RAMOS,*
CRISTINA GARCÍA CORONA,*
MISAEL URIBE,* NAHUM MÉNDEZ SÁNCHEZ*
* LIVER UNIT. BIOMEDICAL RESEARCH UNIT. MEDICA SUR CLINIC AND FOUNDATION, MEXICO CITY . MEXICO. ** FACULTY OF MEDICINE. NATIONAL AUTONOMUS UNIVERSITY OF MEXICO (UNAM) MEXICO CITY

INTRODUCTION AND AIM: Recent studies have determined that insulin resistance is one of the most important physiopathogenic factors in the development of polycystic ovaric syndrome (PCOS), likewise recent research shows that PCOS patients are in a continuous state of insulin resistance creating a cycle. Several studies have shown that one of the most important physiopathogenic factors of non alcoholic fatty liver disease (NAFLD) is insulin resistance. The aim of this study was to establish the prevalence of NAFLD in Mexican PCOS women, to study the relation between PCOS and the presence of NAFLD and to describe which metabolic factors might be related to the presence of NAFLS in PCOS women.**MATERIALS AND METHODS:** We carried out a cross sectional study in de Diagnostic Clinic at Medica Sur Clinic and Foundation. We studied 50 women selected in sequential form. The diagnosis of NAFLD was established through abdominal ultrasonography, and the presence of PCOS through transvaginal ultrasonography and with clinical criteria from the 2003 Rotterdam Consensus on PCOS. Anthropometric, metabolic, dietary and biochemical variables were determined in all patients. Serum estradiol and cortisol levels were also determined. **RESULTS:** Prevalence of PCOS patients with NAFLD was 62%. Age, Body mass index, waist to hip ratio, percentage of body fat, fasting glucose, HOMA IR and insulin were significantly higher in patients with NAFLD. The presence of metabolic syndrome related directly with the presence of NAFLD. Serum estradiol and cortisol levels were significantly higher in patients without NAFLD. **CONCLUSION:** Prevalence of NAFLD in mexican patients with PCOS is similar to that found in Chile by the group of Arrese et al. Metabolic syn-

drome one of the most important factors for the presence of NAFLD since every patient with NAFLD presented MS and none patients without NAFLD presented MS. On the other hand patients with high serum estradiol levels did not presented NAFLD. In this study we found two risk factors that are associated to the presence of NAFLD in patients with PCOS on one side the ersistent state of insulin resistance and on the other the reduced levels of estradiol.

THE OVERLOAD OF CHOLESTEROL IN HEPATOCYTES ALTERS THE MOLECULAR RESPONSE OF HEPATOCYTE GROWTH FACTOR

N NUÑO LÁMBARRI,* M DOMÍNGUEZ-PÉREZ,*, D CLAVIJO-CORNEJO,* C ENRÍQUEZ-CORTINA,* HÉRNANDEZ-RESENDIS*, A LÓPEZ-REYES,* C GARCÍA-RUIZ, MC GUTIÉRREZ RUIZ,* JC FERNÁNDEZ-CHECA, ** LE GÓMEZ-QUIROZ***

* DEPARTAMENTO DE CIENCIAS DE LA SALUD, UAM IZTAPALAPA.
** UNIDAD DE HÍGADO, CENTRO DE INVESTIGACIONES BIOMÉDICAS ESTHER KOPLOWITZ, MDIM, HOSPITAL CLÍNIC I PROVINCIAL Y CIBEREHD, IDIBAPS, INSTITUTO INVESTIGACIONES BIOMÉDICAS DE BARCELONA, CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS, BARCELONA, ESPAÑA.

Non-Alcoholic Fatty Liver Disease (NAFLD), is the hepatic manifestation of the metabolic syndrome, defined as the deposition of fat (fatty acids, triglycerides and cholesterol) in 5% or more in the hepatocytes. It has been reported that the presence of lipids, mainly cholesterol, induces cell sensitization to damage. HGF and its receptor c-Met are responsible for the cellular protection against these stimuli. The system HGF/c-Met has been widely studied in carcinogenesis and antiapoptotic protection. However it is poorly understood the impact of the signaling mediated by c-Met in the control of oxidative stress and/or cellular redox state. The activity of NADPH oxidase is an important endogenous source of reactive oxygen species in the body. After a stimulus, the different components of the NADPH oxidase are translocated to the membrane where they undergo an assembly process that forms the active enzyme system. The aim of this work was to study the activation and signal transduction mediated by c-Met in mouse hepatocytes subjected to a diet rich in cholesterol, as well as the characterization of the molecular mechanism that induces HGF for the transcriptional repression of the catalytic subunit NADPH oxidase. Methods: CD1 mice, were fed with a hypercholesterolemic diet (2% cholesterol and 0.5% sodium cholate) or normal diet (Chow) for two days. Subsequently, liver was perfused for hepatocytes isolation. The primary culture was treated with HGF at different times, to extract whole cell protein and subject it to Western blot studies against total and active forms of c-Met and its main transduction proteins, as well as RT-PCR assay to address the Nox1 and 2 expressions. A study of wound-healing was performed to analyze the tissue repair at different times. Results: We observed in the cells of mice with normal diet, activation of c-Met with HGF treatment, at 30 seconds, with a maximum activation at one minute, falling down to five minutes, while for hypercholesterolemic fed mice, activation is delayed taking the maximum activation within five minutes. For the wound-healing experiments, we observed better tissue repair in mice with normal diet than in mice with high cholesterol diet, demonstrating that cholesterol is changing in some way the activity of HGF and c-met receptor. The Nox1 mRNA expression is delayed in animals with high cholesterol diet, compared to normal mice. In conclusion, our data suggest that cholesterol affects the liver repair process induced by HGF, delaying molecular response elicited by c-Met. CONACYT 61544

CELLULAR REDOX STATE REGULATION BY HEPATOCYTE GROWTH FACTOR (HGF) IN PRIMARY MOUSE HYPERCHOLESTEROLEMIC HEPATOCYTES.

M DOMÍNGUEZ-PÉREZ, N NUÑO LÁMBARRI, D CLAVIJO-CORNEJO, C ENRÍQUEZ-CORTINA, K FLORES-MARTÍNEZ, I HERNÁNDEZ-RESÉNDIZ, A LÓPEZ-REYES, LE GÓMEZ-QUIROZ, MC GUTIÉRREZ RUIZ
DEPARTAMENTO DE CIENCIAS DE LA SALUD, UAM IZTAPALAPA, LABORATORIO DE FISIOLOGÍA CELULAR

Hypercholesterolemia is one of the main risk factor for develop non-alcoholic fatty liver disease (NAFLD). NAFLD is defined as the infiltration of fat (fatty acids, triglycerides and cholesterol) in hepatocytes, by more than 5% in the absence of alcohol consumption, is predominantly characterized by presence of macrovesicular hepatic steatosis. One of the consequence of the cholesterol overload in the hepatocyte is the production of reactive oxygen species (ROS), which can trigger an inflammatory response and tissue damage. ROS can be generated in the liver by mechanisms that involve mitochondria, cytochrome P450, NADPH oxidase, among others. Thus, oxidative stress has been recognized as key mechanism responsible progression of liver damage. ROS regulation is governed largely by antioxidant enzymes, which is induced by growth factors such as a hepatocyte growth factor (HGF). It is well known the role of HGF in many cellular process including apoptosis protection, proliferation and survival, but the effect of this growth factor on the regulation of redox state is not well characterized in the liver. The aim of this work was to address the effect of HGF on the regulation of cellular state redox in primary culture hepatocytes of mouse with a high cholesterol diet. **METHODS:** We used CD1 male mice, which were fed with high cholesterol diet (HC, 2% cholesterol and 0.5% sodium cholate) or normal diet (Chow) for two days. Primary mouse hepatocytes were isolated by the method of two-step collagenase perfusion. Cell primary cultures were pretreated or not with 50 ng/mL HGF for 3, 6, 12 and 24 h. Protein oxidation was determined using OxyBlot™ kit (Chemicon). Catalase, superoxide dismutase (SOD) and γ-glutamylcysteinyl synthetase (γGCS) enzymes were assayed by Western blot. **RESULTS:** Our data show that exist, in HC cells a higher content on total cellular proteins regarding chow cells, furthermore the HGF improve the content in oxidized proteins hypercholesterolemic hepatocytes in a time-dependent manner. Chow hepatocytes responded to the HGF treatment increasing significant the content on γ-GCS (1.6-fold) and catalase (2.6-fold) at 24 h. We observed in the case of SOD1 that this enzyme increased its production earlier than catalase and γ-GCS, peaked at 12 h. Hypercholesterolemic hepatocytes showed an enhanced basal content in the antioxidant enzymes, but responded to HGF increasing even more the expression of the antioxidant enzymes. In conclusion, the data suggest that HGF protects against oxidative stress in hypercholesterolemic hepatocytes by a mechanism mediated by the expression of antioxidant enzymes. CONACYT 61,544

EFFECT OF HYPERCOLESTEROLEMIC DIET IN THE HGF/C-Met MEDIATED REGULATION OF NADPH OXIDASE

A LÓPEZ-REYES,*, D CLAVIJO-CORNEJO,* C ENRÍQUEZ-CORTINA,* M DOMÍNGUEZ-PÉREZ, * N NUÑO LÁMBARRI N,* C PINEDA-VILLASEÑOR,** LE GÓMEZ-QUIROZ,* MC GUTIÉRREZ RUIZ ***

* DEPARTAMENTO DE CIENCIAS DE LA SALUD, UAM. ** DEPARTAMENTO DE LÍQUIDO SINOVIAL, INSTITUTO NACIONAL DE REHABILITACIÓN.

INTRODUCTION: Obesity is an important health public disease with pandemic characteristics. It is associated to cere-

bral-vascular disease, hypertension, diabetes, and hepatic diseases as non-alcoholic fatty liver disease (NAFLD). The NADPH oxidase is present in the hepatocytes membrane. It is an enzymatic complex that responds to growth factors and cytokines and generates Reactive Oxygen Spices (ROS), which regulate cellular process as proliferation, survival and apoptosis. Our group previously reported, in hepatocytes of c-met Knockout mouse, the increase of NADPH oxidase activity and the over expression of some subunits of the NADPH oxidase complex. **OBJECTIVE:** To characterize the regulation or c-Met and HGF in NADPH oxidase activity in hepatocytes of mouse fed with a high cholesterol diet (2% cholesterol and 0.5% sodium cholate). **METHODS:** CD1 Mice were fed with the hypercholesterolemic diet or standar mice chow diets for 48 h, after that, hepatocytes were isolated by the double perfusion collagenase method. Cell cultures were treated for different times with HGF 50 ng/mL). The effect of HGF in NOX-2, p22 and p47 were analyzed by Western blot, and RT-PCR. **RESULTS:** Our data show an increase in the expression of NOX-2, p22 and p47, in the hepatocytes from hypercholesterolemic mice in comparison with the cells from mice fed with Chow diet; these data were correlated with the protein content measured by Western blot. Interestingly the HGF treatment decrease the NOX subunits expression in the chow group, but we observed in the hypercholesterolemic group the opposite effect, increasing the expression of the NOX subunits in comparison with the not treated cells. In the other hand, we observed an interaction between p22 and c-Met in the not treated chow hepatocytes, this interaction was diminished in the hypercholesterolemic hepatocytes. **CONCLUSION:** In conclusion we observed that the cholesterol overload in the hepatocytes induces a defected regulation of NADPH oxidase by HGF and its receptor c-Met leading the generation of oxidative stress which can permit the sensitization of the cell to a second hit such as alcohol or virus damage. CONACYT 61544, Estímulo Antonio Ariza Cañadilla (FUNDHEPA).

BASELINE CHARACTERISTICS OF PATIENTS WITH HEPATIC STEATOSIS AND NON ALCOHOLIC STEATOHEPATITIS

LINDA E. MUÑOZ-ESPINOSA, LILIANA TORRES-GONZÁLEZ, LUIS ALBERTO PÉREZ-ARREDONDO, PAULA CORDERO-PÉREZ
UNIDAD DE HÍGADO, SERVICIO DE GASTROENTEROLOGÍA, DEPARTAMENTO DE MEDICINA INTERNA, HOSPITAL UNIVERSITARIO "DR. JOSÉ E. GONZÁLEZ", UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN, MONTERREY, NUEVO LEÓN, MÉXICO.

INTRODUCTION: Hepatic steatosis (HS) represent the most common liver disease, it is thought to have a benign prognosis, on the other hand non alcoholic steatohepatitis (NASH), can envolve to hepatic cirrhosis up to 25-30%, and further present descompensation of advanced disease with the risk o hepatocellular carcinoma and the need for liver transplantation. **AIM:** In this study we compared clinical, biochemical baseline characteristics of patients from the Liver Unit with diagnosis of HS and NASH. **MATERIAL AND METHODS:** Patients seen at the Liver Unit with diagnosis of HS (Group 1) (n = 41) and NASH (Group 2) (n = 94) from January 2002 to December 2009 were included. We seek for differences in age, sex, body mass index (BMI, kg m^{-2}), serum lipids (HDL, LDL, Triglicerides), AST, ALT, GGT, glucose more or less 100 mg/dL on admission. All patients were from the northeast of Mexico. In group 1 diagnosis was made by ultrasound in 25 patients and by liver biopsy in 16 patients. In group 2 diagnosis was made by liver biopsy in 76 patients, by FibroMax in 14 patients and both in 4 patients. For statistical analysis, t test was used to determine differences between groups and was performed using SPSS 11.0 software. **RESULTS:** In patients with HS *vs.* NASH the main differences according to BMI ($\geq 25 \geq 30$ kg/m^2) in TG (210.66 ± 222.22 mg/dL *vs.* 184.91 ± 74.83 mg /dL, $P < 0.05$) at admission. Based on the serum glucose below 100 mg / dL in NASH *vs.* patients with ES only significant difference in ALT (41.80 ± 28.02 U/L *vs.* 62.13 ± 39.70 U/L, $P < 0.05$), GGT (53.52 ± 42.75 U/L *vs.* 100.15 ± 99.48 U/L, $P = 0.01$). Based on the subdivision in accordance with male gender in HS *vs.* NASH was significant difference in LDL (112.65 ± 23.20 mg/dL *vs.* 111.48 ± 38.41 mg/dL, $P < 0.05$), AST (29.29 ± 15.45 U/L *vs.* 49.98 ± 35.95 U/L, $P = 0.01$), ALT (54.47 ± 32.56 U/L *vs.* 82.81 ± 68.22 U/L, $P = 0.01$), GGT (49.50 ± 25.04 U / L *vs.* 111.85 ± 91.64 U / L, $P = 0.01$) admission. By subdividing according to age over 45 years showed significant differences in ES *vs.* NASH, only the GGT (14.75 ± 29.71 U/L *vs.* 92.90 ± 98.65 U/L, $P < 0.001$).**CONCLUSIONS:** In our study, patients with NASH showed hepatic involvement than patients with hepatic steatosis. This work was sponsored entirely by own resources of participating department, CONACYT and PAICYT.

DRUG-INDUCED LIVER DAMAGE

DRUG-INDUCED HEPATOTOXICITY IN A THREE YEAR PERIOD IN HOSPITAL GENERAL DE MÉXICO

GIL ROJAS, FOSADO GAYOSSO, JL PÉREZ HERNÁNDEZ, A SERRALDE ZUÑIGA
DIVISION OF GASTROENTEROLOGY, HOSPITAL GENERAL DE MÉXICO.

INTRODUCTION AND OBJECTIVES: Drug-induced hepatotoxicity (DIH) (1/1000-100000) is most frequent in 45-58 year-old women. 20% have a fulminate outcome. This represents < 1% of cirrhosis cases. Approximately 1,000 medications and diverse herbal remedies cause hepatic injuries. Acute liver failure is the most frequent presentation. Hepatic lesions are classified in hepatocellular injuries, cholestasis and mixed, based on alanine aminotransferase and alkaline phosphatase. Histology shows unspecific data. The Roussel Uclaf Causality Assessment Method (RUCAM) score system measures the association between clinical manifestations and drugs. The objective of this research is to evaluate clinical manifestations, evolution, and implied substance in patients who have developed drug-induced hepatotoxicity. **MATERIALS AND METHODS:** Files of patients who were admitted into the Division of Gastroenterology with a diagnosis of acute hepatitis (AH), icteric syndrome (IS) and idiopathic liver injury (ILI) in a three year-old period were reviewed, looking for patients who were discharged with diagnosis of DIH. Demographic, clinical, and biochemical characteristics and the illness outcome were registered. Descriptive statistics were applied to the obtained data (medium, minimum-maximum). **RESULTS:** 1653 patients were admitted, 85 with an initial diagnosis of AH, IS or ILI. 10 cases of DIH were identified: 9 women and 1 man, age rate 41.5 (26-54) years. The rate drug consumption was 15 days (1-248). 6 patients presented clinical manifestations while taking the medication and 4 patients after the medication was suspended (54 days). The predominant clinical manifestation was icteric syndrome (8 cases). Results included: 5 cases of hepatocellular damage, 3 cases of cholestasis and 2 cases of mixed lesion. 80% patients had hepatic function test (HFT) improvement during their

stay at the hospital. A hepatic biopsy was performed on 2 patients with chronic granulomatous inflammation and secondary drug induced cholangitis report. The following drugs were associated with inducing hepatotoxicity: 6 allopathic drugs (clindamicine, metimazol, acetylsalicylic acid, amoxicilline, tamoxifen and ciprofloxacine), 1 homeopathic drug and 3 herbal substances (Indian tea, "herbalife" and wild mushrooms). Association according to the RUCAM results in: 2 improbable cases; 4 possible cases and 4 probable cases. Evolution: 7 improvement cases, 1 chronic liver failure and 2 acute liver failure and death. **CONCLUSIONS:** DIH is an uncommon pathology in our hospital. Patients' characteristics are related to those reported in literature (age and genre). This diagnosis must be suspected in patients with hepatic function tests alterations without probable cause. In spite of the low incidence and the favorable outcome in most of cases, it's important to take into account that near 20% of the cases can lead to acute liver failure and death.

Table 1. Drugs associated with liver injury.

Hepatocellular injury	cholestatic injury	MIXEmixed injury
Clindamicine*	Metimazol‡	Amoxiciline‡
Acetylsalicylic acid†	Tamoxifen*	Indian tea*
Herbalife†	ACciprofloxacine*	
Wild mushrooms†		
Homeophatic drugs†		

RUCAM score: ‡ Low probability.* Possible. † Probable.

Conflict of interests: Authors do not declare any conflict of interests.

MISCELANEOUS

THE CORRELATION BETWEEN THE HEPATIC FIBROSYS "METAVIR" AND DIFFERENT SEROLOGICAL MODELS OF FIBROSYS IN HEPATIC DISEASE PATIENTS OF DIFFERENT ETIOLOGIES

M CASTILLO BARRADAS, LE SOTELO SOLÍS, MC BERNARDINO DEL RIO, RG VARGAS ÁNGELES, MT RIZO ROBLES, OE TRUJILLO BENAVIDES
IMSS. CENTRO MÉDICO NACIONAL LA RAZA. MEXICO CITY.

INTRODUCTION: The hepatic biopsy is considered as the reference test to measure the necroinflammatory activity degree and the fibrosis state in chronic hepatopathies. In recent years there has been a growing interest to develop non- invasive methods for diagnosing the hepatic fibrosis with the mere aim to avoid a biopsy application, and there have been proposed different estimations: image tests and serological models. Different serological models have been described which are mostly used with C chronic hepatitis, combining different analytic variables and calculating a punctuation through a multivariate analysis mathematical formula. These are APRI, Forns, FIB-4, HALT-C. **AIMS:** To know which of the hepatic fibrosis serological models (APRI, Forns, FIB-4, HALT-C) has a better correlation with measured fibrosis using the METAVIR scale in the hepatic biopsy. **MATERIAL AND METHODS:** 44 hepatic biopsies with different etiologies hepatopathy were checked whose patients were stadified their fibrosis degree using the METAVIR scale, while they were conducted to a hepatic biopsy they were applicated some serical determinations of the necessary parameters to get el APRI, Forns, FIB-4 and HALT-C. For the current research different central tendency and dispersion measures were used. As for the correlation analysis Spearman Rho test was used. Statistical importance was considered when $p < 0.05$. **OUTCOMES:** 44 hepatic biopsies outcomes, whose patients 70.5% females with an average age of 46.5 ± 10.1, were analyzed. The fibrosis degree (METAVIR) distribution was 0: 29.5% (n = 13), I: 11.4% (n = 5), II: 4.5% (n = 2), III: 31.8% (n = 14), IV: 22.7% (n = 10). A correlation analysis was carried out and it was observed a negative correlation ranking from average to acceptable among the number of plaquettes and the fibrosis degree (rs -0.53) ($p < 0.001$); but a positive correlation ranking from average to acceptable between the Forns index and the fibrosis degree (rs 0.52) ($p < 0.001$). APRI, FIB-4 y HALT-C indexes showed a certain correlation degree (rs 0.44, 0.47 y 0.47 respectively). **CONCLUSIONS:** The described serological fibrosis models offer an acceptable correlation with the hepatic biopsy METAVIR and from all of them, the one with the best correlation is the Forns index. It is also observed the fact that the less plaquettes the higher fibrosis degree.

ROLE OF PARASYMPATHETIC NERVOUS SYSTEM IN DEVELOPMENT OF AMEBIC HEPATIC ABSCESS IN HAMSTER

JAVIER VENTURA JUÁREZ,* MARTÍN HUMBERTO MUÑOZ ORTEGA,* MARÍA DEL ROSARIO CAMPOS-ESPARZA,* ANDRÉS QUINTANAR STEPHANO,** MARIO GARCÍA LORENZANA,*** RAFAEL CAMPOS RODRÍGUEZ****
*DEPARTAMENTO DE MORFOLOGÍA, **DEPARTAMENTO DE FISIOLOGÍA Y FARMACOLOGÍA, UNIVERSIDAD AUTÓNOMA DE AGUASCALIENTES; AGS. MÉXICO. ***DEPARTAMENTO DE BIOLOGÍA DE LA REPRODUCCIÓN, UNIVERSIDAD AUTÓNOMA METROPOLITANA, UNIDAD IZTAPALAPA, MÉXICO D.F. ****DEPARTAMENTO DE BIOQUÍMICA, ESCUELA SUPERIOR DE MEDICINA, IPN. MÉXICO, D.F.

The innate immune response is the first defense against parasitic infection, their mechanisms are constitutively present in individuals before contact to protozoa and there are suddenly activated. The Parasympathetic Nervous System (PNS) is represented in the liver by afferent and efferent vagus nerve fibers which interact to parenchyma and innate immune cells, this phenomenon is studied by the Neuro-immunology. In this work, we analyse the interaction of the Parasympathetic System to innate immune system in an Amebic Hepatic Abscess model in hamster (AHA). In the vagotomized hamster there were an increase of the size of amebic lesions delimited by great deposits of collagen, forming structures like modified granulomas and phybrotic zones. By immunohistochemical procedure we detect 18.16 polymorphonuclear cells/mm^2 and 1.88 macrophages/mm^2, meanwhile, in the control hamster we observed 35.66 polymorphonuclear cells/mm^2 and 3.94 macrophages/mm^2 and small amebic lesions with rare deposits of collagen fibers, granulomas type lesions and necrotic zones, so, this results suggests that the absence of the PNS in an AHA model causes an early inhibition of the amebic invasion and is responsible for the scarce inflammatory reaction and an augment of parenchymatous phybrosis found in advanced lesions of invasive amoebiasis. This work was supported by CONACYT (49749) and UAA (PIBB07-6N).

ASSOCIATION OF 5HT2A RECEPTOR GENE POLYMORPHISMS WITH ALCOHOL CONSUMPTION IN YOUNG DRINKERS

R MARTÍNEZ GARCÍA, N MORALES ROCHLIN, G CASILLAS GUZMÁN, A CRUZ PALACIOS, F HIGUERA DE LA TIJERA, F ALVARADO,

J HERNÁNDEZ RUIZ , ROBLES DÍAZ G , KERSHENOBICH D, GUTIÉRREZ REYES G
HIPAM, DPTO. MEDICINA EXPERIMENTAL, FACULTAD DE MEDICINA UNAM. UNIDAD DE GASTROENTEROLOGÍA HOSPITAL GENERAL DE MÉXICO

INTRODUCTION: Serotonin (5HT) is a neurotransmitter synthesized in neurons of the central nervous system (CNS) and enterochromaffin cells. There are multiple 5HT receptor subtypes and different genetic variations of these receptors have a significant impact on physiological disorders. In the 5HT2A receptor gene, the frequency of the allele G (-1438 region) has been associated with an increased incidence of eating disorders, while the frequency of the allele C in the 102 region confers susceptibility to alcohol dependence and contributes to the maintenance of excessive alcohol consumption (Akash K, *et al*. 2009; Nakamura T, *et al*. 1999). **OBJECTIVE:** Analyze, the frequency of 5HT2A receptor (-1438 A/G y 102 T/C) gene polymorphisms in young college drinkers. **METHODOLOGY:** Inclusion criteria: College students with alcohol consumption (OH) and a matched control (CTL) in age and education. Assessment of alcohol consumption was performed using the AUDIT (Alcohol Use Disorders Identification Test). Participants were classified as CTL if AUDIT < 8 or OH if AUDIT ≥ 8. We obtained written informed consent. Exclusion criteria: neurological and psychiatric alterations, alcoholism, history of head trauma with loss of consciousness, uncorrected visual impairment or people who refuse to participate in the study. From each participant, we obtained anthropometric measurements (height, weight, body mass index (BMI)) and 20 mL of peripheral blood, from which liver function tests (GGT, AST and ALT) and hematological parameters, as well as extraction genomic DNA and determination of genetic polymorphisms by restriction fragment length polymorphism (RFLPs) were performed. **RESULTS:** CTL and OH subjects had an age of 21 ± 1.8 and 23.0 ± 3.6; BMI was 23.5 ± 3.6 and 24.5 ± 3.1 respectively. The most common genotype in the promoter region -1438 was the heterozygote A/G: CTL = 38% *vs.* OH = 50%, and in the 102 region the heterozygous T/C: CTL = 42% *vs.* OH = 40%. Allele frequency for the G allele (region -1438) was CTL = 48% *vs.* OH = 42%, for the region 102 for the C allele CTL = 59% *vs.* OH = 55%. The groups had Hardy-Weinberg equilibrium. We found no significant association between alcohol consumption and the present of a polymorphisms, both in the promoter region (-1438) as well as in position 102 of the 5HT2A receptor. The genotype A / A -1438 promoter region is not presence in subjects with BMI> 30. The heterozygotes were the most frequent genotype (72%) both in controls and OH for two polymorphisms. **CONCLUSION:** The presence of genotype A/A may be to confer protection for the development of obesity. The participants were young people that still do not have damage due to alcohol consumption or complete alcohol dependence. This work was supported by UNAM: MP16-14 SDEI-PTID-06-3.

BINGE DRINKING IN YOUNG UNIVERSITY STUDENTS. CORRELATION BETWEEN SERUM ALT AND PERIPHERAL CD8 T

J HERNÁNDEZ RUIZ, N MORALES ROCHLIN, R MARTÍNEZ GARCÍA, D ROSIQUE ORAMAS, N GIL ROJAS, M FOSADO GAYOSSO, L CORONA CALOCA, JL PÉREZ HERNÁNDEZ, G ROBLES DÍAZ, D KERSHENOBICH, G GUTIÉRREZ REYES
HIPAM, DEPARTAMENTO DE MEDICINA EXPERIMENTAL, FACULTAD DE MEDICINA, UNAM. HOSPITAL GENERAL DE MÉXICO.

INTRODUCTION: Abuse in alcohol consumption is a well-known risk factor for health and changes on liver function, mental health and lymphocytic profile has been well described but less is known about effect of moderate consume. Is known that ethanol and its secondary metabolites have capacity to induce hepatic, neurological and immunological damage. In humans and murine models chronic alcohol consumption reduces peripheral NK cells and generates unbalance among lymphocytes subtypes, leading to low cytotoxic activity, predisposition to infections and liver fibrosis. However, little is known about alcohol consumption in young people and its relation with hepatic or immunologic alterations. **AIM:** To analyze the relations of alcohol consumption pattern with quality of life, hepatic function and lymphocytic profile in young university students. **METHODOLOGY:** 259 young university students were included. Risk consumption was classificated according to AUDIT (consumers (OH) ≥ 8; controls (CTL) < 8). Written informed consent was obtained. Participants with systemic diseases, neurological alteration, head traumatism with conscience loss, drugs or medicaments consumption or negation to take part in the study were excluded. SF-36 health survey was applied; anthropometric measure and 20 mL of peripheral blood were obtained. Hematic biometry, transaminases (AST, ALT, and GGT) and lymphocytic profile (T, B lymphocytes and NK cells) were performed. Statistical analysis used was Kolmogov-Smirnov goodness-of-fit test, T-Student or U-Mann-Whitney to compare between groups and Pearson correlation analysis. **RESULTS:** Participants were classified as 161 CLT and 98 OH with equal BMI and MCV. 79% of OH consume less than 30 g/day, mainly beer one or two times per week in a period of time not more than 5 years. Age of CTL = 21.1 ± 2.7 years old vs OH = 22.3 ± 3 years old (p=0.001). 45% of CLT were men and 63% of OH. The alcohol consumption in grams per day was CTL = 0.94 ± 3 *vs.* OH =14.97 ± 1.12 (p = 0.01), mainly beer one or two times per week. Were found differences in SF-36 test in limitation of role referred to physical health item (p = 0.003), in social performance (p = 0.003) and self-perception of mental health (p = 0.05), therefore the general value of mental health shown significant differences between CLT and OH (p = 0.03), with a lower value in OH group (CTL = 45 ± 9 *vs.* OH = 43 ± 9 p = 0.01). Also we found differences in hematic biometry (erythrocytes 5.2 x 10^6 *vs.* 5.4 x 10^6 p = 0.018; hemoglobin 15.8 *vs.* 16.4 g/dL p = 0.009; hematocrite 46.4% *vs.* 48.9% p = 0.0001) and liver function proteins (AST 30 *vs.* 38 U/L p = 0.023; ALT 30 *vs.* 38 U/L p = 0.02). Lymphocytic profile was analyzed in 133 CLT and 65 OH, and CD8 T lymphocytes percentage showed significant difference (26.1 ± 3.8% *vs.* 28.8 ± 3.9% p = 0.013), however there were a positive correlation between CD8 percentage with ALT (0.155, p = 0.037) and CD8 with alcohol consumption (0.22, p = 0.002). **CONCLUSION:** OH group has moderate alcohol intake in the majority of cases but in binge drinking mode, which resulted in clinical normality. However, this group shown minor perception of mental health, major AST and ALT levels and major percentage of CD8 T. Is possible that this profile in the young consumer depict the beginning of changes described for heavy chronic consumers. It is necessary to further explore the pathogenic role of these changes in order to determine its contribution in liver damage and comorbidities associated with alcohol consumption. This work was supported by "Macroproyecto UNAM: Desarrollo de nuevos modelos para la prevención y el tratamiento de conductas adictivas. MP6-14".

LIVER TESTS ABNORMALITIES IN PATIENTS WITH RHEUMATOID ARTHRITIS

R SOTO-SOLIS, G CARMONA-AGUILERA, A DUARTE, A TORRE
DEPARTMENT OF GASTROENTEROLOGY. NATIONAL INSTITUTE OF MEDICAL SCIENCES AND NUTRITION "SALVADOR ZUBIRÁN" (INCMNSZ)

INTRODUCTION AND OBJECTIVES: Rheumatoid arthritis is an autoimmune disorder with a chronic and modifiable course. Liver test abnormalities are common in these patients. This is somewhat explained by the common use of chemical biomarkers of liver function in modern medicine. However, a rational approach to these alterations warrants a better way in understanding the causes, severity, pattern, and prevalence of this clinical problem. **METHODS:** This is an observational, transversal, and descriptive study. Clinical files from all patients with the diagnosis of Rheumatoid Arthritis (RA) attended at the National Institute of Medical Sciences and Nutrition "Salvador Zubirán" (INCMNSZ) from April 2000 to April 2007 were revised. Liver function tests (LFT) of a total of 1501 patients were analysed. Abnormal values of total bilirubin (TB), direct bilirubin (DB), indirect bilirubin (BI), alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (AP), or gamma-glutamyltransferase (GGT) were recorded. Patients with persistent alterations were included. These were classified according the predominant pattern in hepatocellular, cholestatic, or mixed. For all patients demographics, complementary studies, and final diagnosis were recorded. **RESULTS:** Ninety-five patients were included for final analysis. From this, 98% were women and 2% were men. Mean-age for men was 59 years-old, and 41 years-old for women. Most of them presented a cholestatic pattern (87.4%), whereas 10.6% presented a mixed pattern and 2.1% a hepatocellular one. The degree of alteration was mild in 97.9%. In 57.9% no etiology was pursued. Regarding to the final diagnosis, in 26.3% was drug-related, in 5.3% non-alcoholic steatohepatitis (NASH), in 4.2% autoimmune hepatitis, and in 3% viral hepatitis. **CONCLUSIONS:** Liver enzymes alterations were infrequent in the population of study (6.3%). Most of these abnormalities were mild and a thorough study wasn't done. The most common identifiable etiology was drug-related. In the subgroup without a specific cause; it may be related to the primary disease.

MATERNAL MORTALITY ASSOCIATED WITH HEPATIC DISEASES

V LÓPEZ LADRÓN DE GUEVARA, M ZAVALA SOLARES, N GIL ROJAS, G MARTÍNEZ RAMÍREZ, L MACÍAS, JL PÉREZ HERNÁNDEZ

INTRODUCTION: Hepatic disorders appearing during pregnancy involve a diagnostic challenge in which exists a broad number of diferential diagnosis. It is reported that hepatic disorders in this stage are uncommon, however there is some data where anormalities in hepatic function tests are found in 3 out of every 100 pregnant patients and in 1 out of every 500, an hepatic disease threatening maternal life and fetal viability is present, for example acute fatty liver in pregnancy, HELLP syndrome, preeclampsia and eclampsia with hepatic involvement, hepatic rupture, to mention some. In an elevated percentage the endpoint of this pathologies is directly related with the time in achieving the precise diagnostic and starting oportune treatment. Actually, support measures are established in earlier stages, so that comparing with the first reports, maternal morbility and mortality have been notably reduced. **OBJECTIVES:** To report maternal death frecuency associated with hepatic diseases evaluated in autopsies in the Hospital General de México, taking place in the period from 2000 to 2003. **METHODS:** A retrospective study was realized, in which 2898 autopsies were reviewed, which took place between 2000 and 2003. Maternal mortality cases asociated with hepatic diseases were analized. Central tendency measures were used to evaluate the frecuency of these conditions, as well as the characteristics of the studied population such as age, gestational age, pregnancy number, and main clinical and biochemical alterations. **RESULTS:** Nine cases of maternal death asociated with hepatic disorders were found. 66% was asociated with HELLP syndrome. 11% secondary to eclampsia and the resting 22% associated with acute fatty liver in pregnancy. One case of hepatic hematoma was found (11%) concomitant with HELLP syndrome. The median age of presentations was 29 years, with a gestational age of 33 weeks. 44 % of the cases ocurred during the first pregnancy. The average of hospitalization duration was 3 días. **CONCLUSIONS:** Maternal and fetal mortality has decreased in recent years as it has improved the diagnostic and terapeutic approaches of the hepatic diseases associated with pregnancy, however the prevalence of these entities is still considerable, so that kwowing these data, it should be mantained the diagnostic suspicion in that cases with risk factors and incipient clinic and biochemical signs. Competing interests: None declared

HEPATOCYTE GROWTH FACTOR (HGF) AND ITS RECEPTOR C-MET REGULATE NADPH OXIDASE EXPRESSION AND ACTIVATION IN PRIMARY MOUSE HEPATOCYTES

D CLAVIJO-CORNEJO, AJ LÓPEZ-REYES, C ENRÍQUEZ-CORTINA, M DOMÍNGUEZ-PÉREZ, N NUÑO, V SOUZA, MC GUTIÉRREZ RUIZ, LE GÓMEZ-QUIROZ.
DEPARTAMENTO DE CIENCIAS DE LA SALUD, UAM IZTAPALAPA. UNIVERSIDAD AUTÓNOMA METROPOLITANA IZTAPALAPA.

The NADPH oxidase is a membrane-bound enzymatic complex that was found primarily at the plasma membrane of phagocytes, however today is know that similar NADPH-like oxidase is expressed in a variety of non-phagocytes cells, including hepatocytes. This oxidase is activated in response to growth factors and cytokines in order to generate ROS that eventually activate signaling pathways that control many cellular processes like proliferation and survival among others. Previous data of our group revealed that hepatocytes from c-Met knockout mice show an enhanced activation of the NADPH oxidase as well as an overexpression of some components of this oxidase. The aim of this work was to address the effect of HGF/c-Met on the expression of the components of NADPH oxidase and the possible direct interaction of c-Met with p22. Methods: Primary mouse hepatocytes were isolated by the method of two-step collagenase perfusion from male mice strain CD1. Cell primary cultures were pretreated or not with 50 ng/mL HGF for different times points. NADPH oxidase activity was assayed by spectrophotometry and ROS production by spectrofluorometry labeling with DCFH. We analyzed by Western blot the effect of HGF on the content of Nox2 and p47 and we detected by RT-PCR the RNA expression of the different NADPH oxidase catalytic subunit. Finally by immunoprecipitation we determinate the possible interaction between p22 with the HGF receptor c-Met. Results: Our data revealed that HGF induces an increase in NADPH oxidase activity at early time points, but it decreased under control values at long time points of treatment, these results are related whit ROS production that show the same trend, ROS increases at early time points and decreases at long time points of treatment. The RT-PCR assay shows the downregulation on mRNA expression of the catalytic subunits NOX1, NOX2 and NOX4 at early time points that continues until 24h, this explain the oxidase activity and ROS production effect. Finally we observed by immunoprecipitation that c-Met interact with p22 subunit, suggesting an alternative post-traductional

regulation of the oxidase by c-Met. In conclusion our data provide evidence that HGF decrease the activity of NADPH oxidase, a process associated to a downregulation of some components of the enzyme (transcriptional regulation) at long time points, while at short time points of treatment, the NADPH oxidase is regulated by HGF/c-Met through the sequestration of p22, thus preventing the assembly of the NADPH oxidase in the absence of stimuli, but the presence of HGF allows the oxidase assembly and activation for signaling purposes. CONACYT 61544, Estímulo Antonio Ariza Cañadilla (FUNDHEPA).

PERCUTANEOUS DRAINAGE OF AMEBIC LIVER ABSCESS, FIVE YEARS EXPERIENCE

FG ALVARADO-LÓPEZ, JL PÉREZ-HERNÁNDEZ, A SERRALDE-ZÚÑIGA
HOSPITAL GENERAL OF MEXICO, DEPARTMENT OF GASTROENTEROLOGY.

INTRODUCTION AND OBJECTIVE: Amebiasis is an infectious disease caused by Entamoeba histolytica (EH), a protozoan transmitted via fecal-oral related to poor hygiene. In Mexico its prevalence varies according to geographical area and socioeconomic status. After ingestion of amebic cysts these become trophozoites in the colon, where they invade the mucosa. The organism moves the portal circulation to the liver where it can develop amebic liver abscess (ALA), which is the most common extraintestinal manifestation. Is often unique, usually located in the right hepatic lobe. There may be leukocytosis with neutrophilia, elevated erythrocyte sedimentation rate and alkaline phosphatase. EH antibodies are detected in 90% of patients. Percutaneous drainage is a therapeutic option in patients with complications or those who have not responded to drug treatment, while surgical treatment is associated with significant morbidity and mortality rate (10-47%). The aim of this study was to determine the outcome of patients who have been made known percutaneous drainage and its complications. **MATERIAL AND METHODS:** We included all patients with amebic liver abscess that required percutaneous drainage in a period of January 1, 2004 to March 31, 2009 admitted to the Gastroenterology Department "Hospital General de México", was revised files and descriptive statistical analysis. **RESULTS:** Of a total of 102 patients with AHA to 86 underwent ultrasound-guided percutaneous drainage with Seldinger technique using multi-pigtail catheter (8 French) of these 63 men (73.26%) and 23 women (26.74%) Range of age (18-87 years), mean 43 years, the most common location in the right lobe of 68 patients (79.06%), both lobes 10 (11.62%) and 8 (9.32%) in the left lobe. Single lesion in 68 patients (79.06%) and multiple liver abscesses in 18 patients (20.94%). The drained volume was 500.48 ± 332 cc. Two septated abscesses. Two patients died of sepsis, the first by breaking the pleura and empyema, and the second for secondary peritonitis (2.32% mortality). 77 patients (89.53%) had no complications associated with catheter placement in seven patients (8.14%) had uncomplicated bleeding and two patients (2.33%) hemiperitoneo. Three patients required surgical treatment for impending rupture of the abscess located in the left lobe, secondary peritonitis or rupture with empyema pleura. Hospital stay was 12 days ± 7. There was no injury to the pericardium and/or other organs. All patients received intravenous antibiotics. **CONCLUSIONS:** The USG-guided percutaneous drainage with Seldinger technique remains an effective therapeutic liver abscess complicated with low risk of complications. In our series, morbidity and mortality were low.

HGF/C-MET INDUCE LA ACTIVACIÓN DE NRF2 POR UN MECANISMO MEDIADO POR NAD(P)H EN HEPATOCITOS DE CULTIVO PRIMARIO DE RATÓN

C ENRÍQUEZ-CORTINA, D CLAVIJO-CORNEJO, M DOMÍNGUEZ-PÉREZ, N NUÑO-LAMBARRI, MC GUTIÉRREZ-RUÍZ, LE GÓMEZ-QUIROZ
DEPARTAMENTO DE CIENCIAS DE LA SALUD, UNIVERSIDAD AUTÓNOMA METROPOLITANA- IZTAPALAPA, D.F.

Nrf2 (NF-E2-related factor 2) is a transcription factor that binds to the antioxidant response element (ARE) DNA sequence, driving the regulation of a battery of antioxidant and detoxification phase 2 enzymes which trigger a survival and repair response in the liver; such enzymes are NAD(P)H quinine oxidoreductase 1 (NQO1), γ-glutamylcysteine synthetase (γ-GCS), and the superoxide dismutase 1 SOD1, among others, which contribute for the correct maintenance of the cellular redox status and control the damage when oxidative stress occurs. In the liver, the hepatocyte growth factor (HGF) detonates the repairing, proliferation, surviving and antioxidant responses through its receptor c-Met. Recently it has been shown that c-Met is capable to regulate the NAD(P)H oxidase activity to generate reactive oxygen species (ROS) that could activate Nrf2. The aim of this work was to address the HGF effect in Nrf2 activation and expression and the production of its main target genes in primary mouse hepatocytes. We isolated CD-1 strain mouse hepatocytes by the double collagenase perfusion method. The cultures were pretreated or not with HGF (50 ng/mL) at different times. To determine HGF-mediated Nrf2 activation an electro mobility shift assay (EMSA) was performed using the consensus ARE sequence. The ROS determination was determined by spectrofluorometry using 2',7'-dichlorfluorescein-diacetate (DCFH) at 503 nm of excitation and 529nm of emission. The protein content of Nrf2, SOD1, γ-GCS, y NQO1 was assayed by Western blot using specific antibodies. Our data show that HGF induces the expression of the transcription factor Nrf2, as well accumulation at 24h of treatment. In addition, at short times, HGF induced the activation of Nrf2 judged by EMSA and nuclear translocation experiments. The above, was verified by target genes expression analysis, revealing that SOD1, γ-GCS y NQO1 were significantly increased after treatment with HGF. This effect was abrogated when NADPH oxidase and PKC inhibitors were added. The HGF protective Nrf2-mediated effect was measured by tripan blue exclusion assay, displaying that HGF prevents the damage caused by the antimycin A-induced oxidative stress, this effect was diminished when NADPH oxidase was inhibited. In conclusion our data reports that HGF induces the activation of Nrf2 and the production of antioxidant and phase 2 detoxification enzymes by a mechanism mediated by NADPH oxidase and PKC. Nrf2 and NADPH oxidase could be introduced as therapeutic targets in the control of some hepatic pathologies that have oxidative stress as a contributing factor. CONACYT 61544 and Estímulo Antonio Ariza Cañadilla, FUNDHEPA

ELEVATED ALANINE AMINOTRANSFERASE LEVELS ASSOCIATED TO THE PRESENCE OF PRE-DIABETES IN WOMEN

C BERMÚDEZ PEÑA, G ZAMBRANO GALVÁN, L SIMENTAL-MENDÍA, M RODRÍGUEZ-MORÁN, F GUERRERO-ROMERO, H RODRÍGUEZ-HERNÁNDEZ.

INTRODUCTION AND OBJECTIVE: Alanine aminotransferase (ALT) is the most specific marker of liver damage. In addition, it has been shown to predict incident type 2 diabetes (DT2). These patients are often obese and dyslipidemic

what also has been related to elevated ALT levels. On the other hand, impaired fasting glucose (IFG), a pre-diabetes state, predominantly have hepatic insulin resistance. Thus, the objective of this study was to determine the association between elevated ALT levels with obesity, pre-diabetes and diabetes. **MATERIAL AND METHODS:** A comparative cross-sectional study where women older than 18 years were allocated into control, obesity, pre-diabetes and diabetes groups. Alcohol consumption, smoking, positive markers to viral hepatitis B o C, liver damage by drugs, previous diagnosis of chronic liver disease, renal disease, glomerulopathies, neoplasia, and cardiovascular disease were exclusion criteria. Obesity was defined by body mass index (BMI) ≥ 30 kg/m^2; pre-diabetes as impaired fasting glucose (IFG), diagnosed by fasting plasma glucose (FPG) ≥ 100 mg/dL but < 126 mg/dL; and DT2 women with previous diagnosis and treatment. Elevated ALT levels were defined as >19 U/L. Numerical values are reported as mean ± standard deviation, and categorical variables are expressed as proportions. Differences into groups were estimated using one-way ANOVA with analysis to posteriori of Bonferroni test. The 95% confidence intervals (CI 95%) were determined, and a *p*-value of < 0.05 defined statistical significance. Logistic regression was used to compute the odds ratio (OR) between elevated ALT levels (independent variable) and obesity, pre-diabetes and diabetes (dependent variables). Data were analyzed using the statistical package SPSS 15.0. (SPSS Inc., Chicago IL, USA). **RESULTS:** A total of 513 (100.0%) women aged 44.9 ± 10.1 years were enrolled; of these, 64 (12.5%), 224 (43.6%), 124 (24.2%) and 101 (19.7%) in the control, obesity, pre-diabetes and diabetes groups. Elevated ALT levels was detected in 428 (83.4%); 51(79.6%), 196 (87.5%), 114 (91.9%) y 85 (84.1%) women in the control, obesity, pre-diabetes and diabetes groups, respectively. Elevated ALT was significantly associated with pre-diabetes (OR 2.9; CI 95%, 1.1-7.7; p = 0.02), but not with obesity (OR 1.7; CI 95% 0.8-3.8; p = 0.169) neither diabetes (OR 1.3; CI95% 0.5-3.2; p = 0.599). **CONCLUSIONS:** Results of this study suggest that elevated ALT levels are a risk factor associated to presence of pre-diabetes; specifically to IFG.

SEROPREVALENCE OF VIRAL MARKERS OF HEPATITIS B (HVB) AND HEPATITIS C (HVC) IN NURSES AND LAB ON A GENERAL HOSPITAL OF THE MEXICAN SOUTHEAST

CA MELÉNDEZ G, BE SOTELO OR, M BARRIOS, GE LEON, R DE LA FUENTE

INTRODUCTION AND OBJECTIVES: Viral hepatitis infection secondary to hepatotrofic virus B (VBH) and virus C (VCH) is considered a global public health problem of morbidity and mortality for these agents cause, mainly related to cirrhosis and liver cancer. The occupational hazard of health workers is recognized since 1950, with the development of medical diagnostic technology, such as viral serology, with the realization that its magnitude and come to calculate the exposure was three to five times greater in relation to the whole population. The risk of accidents associated with contaminated needle puncture is 0.12 per. capita. Put another way, the occupational risk for injury with sharps in health workers is 3%. And it is estimated that 6 to 30% of those who suffer an accident of this kind acquire VBH infection and 3% to 10% (average 1.8%) for VCH whereas surgical medical staff, medical students, nurses and laboratory personnel, the highest figures are reported for those who work in hemodialysis units with percentages ranging from 12.8% to 48.7%. The estimated prevalence in relation to hepatitis B for health workers is 1.2 %. As for anti-HCV among them in different regions of the world varies between 0.7% and 1.6% An interesting case is in Cuba where health care personnel considered high risk for presence of hepatitis B viral markers was 21.1 % and clinical laboratory personnel was 24.3%. In our country the figures range from 1.2%. When used as a marker for hepatitis B anti-HBc was 1.6 to 10.93%. **OBJECTIVES:** To determine the frequency of serological markers and risk factors for Hepatitis B - HVB - and Hepatitis C - HCV - in nursing staff and laboratory at the General Hospital of Zone 2 - HGZ 2 - Tuxtla Gutierrez, Chiapas. **METHODOLOGY:** Descriptive study, cross between February 01.2007 and January 31 2008. 159 serological tests were performed at the same number of workers with occupational exposure more involving 140 nurses and 11 chemicals. The 159 workers read and signed informed consent form before extraction of the blood sample they received a self-administered questionnaire that consisted of 16 closed questions, dichotomous in which they explored the most common risk factors. All of them were determined to Surface Antigen Hepatitis B (HBsAg), antibody against Hepatitis B Core Antigen (Anti-HBc) and antibody against hepatitis C virus (Anti-HCV). Reagents were used immuno-enzymatic analysis of micro-particles (MEIA) - AxSYM/ Abbott for the detection of HBsAg and Anti-Core (Recombinant) at HVB. While for HCV the same technique was used in the version 3.0 **RESULTS:** There were three/159 - 1.8% - positive results for anti-HBc, two of them with a history of previous vaccination and another without this background, three cases underwent determination of antibody against surface antigen hepatitis B (Anti-HBs) positive results. were positive for anti-HCV 2/159 (1.2%), one with the background having worked in the field of hemodialysis, at two workers underwent Chain Reaction (PCR, for its initials in English)), resulting in < 50 copies each. For the five positive cases (3 anticore and 2anti-HCV) underwent liver function tests and ultrasound hepatosplenic biochemical tests are normal and one case - anti-HCV - reported increased hepatic echogenicity. Among the risk factors explored were the following rates: have been in contact with people suffering from hepatitis 64%, Sharp cutting accidents 47.7%, have had contact with blood from patients 58.3%; management of patients unprotected 66.23%, unprotected handling of blood, urine or discharge 54.4%. Other personal risk factors such as having more than three sexual partners 7.28%, a history of liver disease 5.3%, and 2.64% sexual transmission. Have received blood transfusion after 1992, 2.64%. Previous treatments of acupuncture 11%, tattoos or piercing 5%, manicure and 25% using cocaine nose, having used syringes or needles reused or hemodialysis patient have been 0%. Satisfactorily answered the questionnaire 151/159 workers (94.9%). **CONCLUSION:** The seroprevalence of markers for viral hepatitis, is zero for HBsAg, 0.6% for anticore (excluding the two vaccinated, because if we include these two the prevalence would be 1.8%) and 1.2% for HCV among the 159 workers of the categories studied in the general hospital in Zone 2 of the IMSS in Tuxtla Gutierrez. Our results reflect immunity acquired by a party to a previous contact with the virus of HVB and the other induced by immunization. While the two HCV positive cases are interpreted as contact with the virus without express until viral activity data. The figures collected are similar to those reported by Dr. Nahum Mendez, *et al.* Taking into consideration the universe studied - 159 *vs.* 376 - Different to those reported in a study of the Civil Hospital of Guadalajara (4% for HVB and 4% for HVC) and a private hospital in Buenos Aires, Argentina (1.59% anti-HCV and anti-HBc was de10.93%). Similar to the anti-HCV and Liver Disease Seminars reported in February 1995 for North America ranged between 0.7% and

1.6%. In South America and United Kingdom 0, Western Europe between 0.9% - 1.2%. Finally we find that there is a need for greater dissemination of preventive measures for handling secretions, sharps and general risk factors for acquiring hepatitis viral. This work was registered and accepted the 0327307 before the Committee on Health Research Local (792) of General Hospital Zone 2, recorded R-2007-702-1 Delegacional Coordination in Health Research, Mexican Institute of Social Security.

FENOFIBRATE DOES NOT PROTECT THE LIVER AGAINST ISCHEMIA/REPERFUSION INJURY

LILIANA TORRES-GONZÁLEZ*, CLAUDIA RAQUEL CORTEZ-RAGA*, JULIO CESAR JIMÉNEZ-PÉREZ*, GABRIELA ALARCÓN-GALVÁN**, CARLOS RODRIGO CÁMARA-LEMARROY*, FRANCISCO JAVIER GUZMÁN-DE LA GARZA*, LINDA MUÑOZ-ESPINOSA*, PAULA CORDERO-PÉREZ*

*UNIDAD DE HÍGADO, SERVICIO DE GASTROENTEROLOGÍA, DEPARTAMENTO DE MEDICINA INTERNA, HOSPITAL UNIVERSITARIO "DR. JOSÉ E. GONZÁLEZ",**SERVICIO DE ANATOMÍA PATOLÓGICA Y CITOPATOLOGÍA, HOSPITAL UNIVERSITARIO "DR. JOSÉ E. GONZÁLEZ", UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN, MONTERREY, NUEVO LEÓN, MÉXICO.

INTRODUCTION: Ischemia/reperfusion (I/R) is a complex and multifactorial pathophysiological process involving the formation of reactive oxygen species and an excessive inflammatory response, which are key to mechanism of damage during reperfusion. Recent studies in experimental models have shown that fenofibrate reduced the injury induced by I/R in intestine, heart and kidney, however, has not yet been determined in the liver. **AIM:** To evaluated the effect of fenofibrate after injury induced by I/R in liver of rats. **MATERIALS AND METHODS:** Experiments were performed in three groups of 5 male Wistar rats for each group with an average weight of 200-250 g. These groups were: sham group, in which the intestines were handled but there is no ischemia, group I/R, in which this was induced by clamping in pringle maneuver for 20 minutes, followed by 90 minutes of reperfusion and Fenofibrate treatment group (100 mg / kg, orally), which was administered daily for three days before induction of I/R (FEN). The rats were killed after the indicated period of reperfusion, and blood and tissue samples were taken for analysis. Was determined in serum aspartate aminotransferase (AST), alanine aminotransferase (ALT), lactate dehydrogenase (LDH), interleukin-1 (IL-1) and interleukin-6(IL-6), tumor necrosis factor alpha (TNF-α). It also conducted a histopathological analysis. For statistical analysis, t test was used to determine differences between groups and was performed using SPSS 11.0 software. **RESULTS:** After I/R, there was evident tissue injury characterized by inflammatory cell clusters with 10 to 20 cells predominantly perivenular zone, 20 inflammatory foci per 10 fields of dry high (40x) and presence of apoptotic bodies. Also, AST and ALT levels increased significantly in I/R group compared with sham group (807 ± 351 U/L *vs.* 202 ± 39 U/L, 348 ± 157 U/L *vs.* 71 ± 17 U/L, $P < 0.05$), respectively. There was no significant difference in LDH levels in I/R group *vs.* sham group, but these levels were higher in I/R group (7173 ± 4581 U/L *vs.* 5178 ± 4439 U/L). Serum concentrations of IL-1, IL-6 and TNF-α were increased in I/R group vs. sham group. All these alterations described for the group I/R were not lowered by treatment with fenofibrate and even were increased. At the histological level the FEN group showed extensive changes of degeneration globular perivenular, inflammatory foci similar to the I/R, isolated apoptotic bodies, but also areas of confluent necrosis with presence of polymorphonuclear and abundant mitosis. Serum levels of AST, ALT and LDH were elevated in FEN group but no significant difference compared with I/R group (1083 ± 1172 U/L *vs.* 807 ± 351 U/L, 644 ± 197 U/L *vs.* 348 ± 157 U/L and 18,334 ± 15,643 U/L *vs.* 7173 ± 4581 U/L, respectively). No significant changes in the concentrations of pro-inflammatory cytokines. **CONCLUSIONS:** Pretreatment with fenofibrate did not reduce the damage induced by ischemia-reperfusion in rat liver. This work was sponsored entirely by own resources of participating departments, CONACYT and PAICYT.

PIROXICAM AND MELOXICAM AMELIORATE HEPATIC OXIDATIVE STRESS AND PROTEIN CARBONYLATION IN KUPPFER AND ENDOTHELIAL CELLS PROMOTED BY ISCHEMIA-REPERFUSION INJURY

EDUARDO E. MONTALVO-JAVÉ,*,†,‖ JOSÉ A. ORTEGA-SALGADO,* ANDRES CASTELL,‡ CÉSAR MONTALVO-ARENAS,‡ ROLANDO HERNÁNDEZ-MUÑOZ§ AND ENRIQUE PIÑA†

* DEPARTAMENTOS DE CIRUGÍA. †BIOQUÍMICA, Y ‡ BIOLOGÍA CELULAR Y TISULAR; FACULTAD DE MEDICINA. §DEPARTMENTO DE BIOLOGÍA CELULAR, INSTITUTO DE FISIOLOGÍA CELULAR (IFC), UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO (UNAM), MEXICO D.F., MÉXICO. ‖ SERVICIO DE CIRUGÍA GENERAL, HOSPITAL GENERAL DE MÉXICO, SSA, MEXICO CITY, MÉXICO.

INTRODUCTION: The present study was aimed at assessing the effect of protein carbonylation in hepatic cells and effects of inhibitors of CycloOXygenases (COX) 1 (piroxicam) and 2 (meloxicam), on indicators of tissular damage induced by Liver Ischemia Reperfusion Injury (LIRI), which is unavoidable in liver surgeries, especially in transplants, hepatic resections, and trauma. **METHODS:** We used male Wistar rats, randomly distributed in one sham group, and three groups subjected to LIRI, one of these without treatment and two groups treated with a piroxicam or with meloxicam. Warm ischemia was performed by to partial vascular occlusion during 90 min, then allowing reperfusion. Samples were taken at the following post-reperfusion times: 0; 0.5; 1.0; 1.5; 2.0; 4.0; 12, and 24 h. In serum, we determined catalytic activity of the following Hepatic Enzymes (HEs): ALanine aminoTransferase (ALT); ASpartate aminoTransferase (AST); Lacticate DeHydrogenase (LDH), and Ornithine CarbamoylTransferase (OCT). In liver samples, we studied cellular alterations by means of histological studies, and we measured lipid peroxidation markers by the assaying ThioBarbituric Reactive SubstanceS (TBARS), Protein Carbonylation (PC) by ImmunoHistoChemistry (IHC), and apoptosis by the TdT-mediated dUTP Nick-End Labeling (TUNEL) technique. We also measured Reactive Oxygen Species (ROS) in bile by means of Electron Paramagnetic Resonance (EPR). **RESULTS:** All indicators of cell injury appeared from the first hour of reperfusion, and reached their maximum expression at 2 and 4 h post-reperfusion. A sharp increase in serum activity of the four HEs was observed simultaneously with greatest histological damage. An increase in TBARS, PC, and apoptosis was recorded, which correlated with an elevated ROS pool in the bile. Based on PC data, endothelial cells (EC) and Kuppfer cells (KC) were the first to exhibit LIRI-associated oxidative damage and prior to parenchymal cells. Administration of piroxicam or meloxicam during the pre-ischemic period produced a highly significant decrease in all studied injury indicators. No significant differences were revealed between the two drugs. **CONCLUSIONS:** The data shown here suggest the potential use of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) in minimizing ischemic event-caused damage in liver, especially in programmed surgical-intervention-related events. We also propose that PC may be employed as an adequate tool to assess tissue damage following oxidative stress during clinical interventions.