treated patients, Na, K-pumps were significantly increased (311 ± 20 pmol/g, compared to 259 ± 9 pmol/g, $P < 0.01$), and isokinetic muscle strength were increased 17% ($P = 0.08$). The duration (1 to 12 weeks) of spironolactone treatment, correlated to muscle Mg and isokinetic muscle strength ($r = 0.46$, $P < 0.01$ and $r = 0.35$, $P < 0.05$, respectively). Treatment with spironolactone in cirrhotic alcoholics, may contribute to restore skeletal muscle contents of Mg and K, increase the number of Na, K-pumps, and possibly increase isokinetic muscle strength though this effect was not statisti-cally significant at the level of 5%.

1158 LYMPHOCYTE MARKERS IN THE LIVER IN ALCOHOLIC HEPATITIS AND ALCOHOLIC CIRRHOSIS

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Three types of lymphocyte participate in cellular immunity in the liver: T cells, natural killer cells (NK) and NKT cells. The aim of this study was to investigate lymphocyte activation in patients with alcoholic liver disease.

Patients & Methods: Liver tissue was obtained from 10 patients with alcoholic hepatitis (AH), 12 patients with alcoholic cirrhosis (AC) and 7 normal controls (NC). Protein was extracted for immunoblotting analysis of expression of CD3, CD56, CD57, CD80, IFN-gamma, and IL-12. RNA was extracted for RT-PCR analysis of expression of CD4, CD8, TNF-alpha and TNFRI.

Results: Hepatic expression of CD80, CD3 and CD57 proteins were significantly increased in patients with AH compared to both NC (Sheffe's F test: $p = 0.0001$; $p < 0.0001$; $p = 0.0007$ respectively) and AC ($p < 0.0001$; $p < 0.0001$; $p = 0.0005$). In the RT-PCR analysis, the hepatic expression of CD8 mRNA in patients with AC was significantly increased compared to AH (Fisher's Exact test $p = 0.0083$) and NC ($p = 0.0063$). The hepatic expression of TNF-alpha mRNA was increased in patients with AH compared to NC ($p = 0.0345$).

Conclusions: The high level of expression of CD3 and CD57 in liver in AH suggests activation of T, NK and NKT cells, whereas CD8 positive T cells are activated in AC. This study suggests that different mechanisms are involved in hepatocyte death in AH compared to AC.

1190 HEPATIC MITOCHONDRIAL FUNCTION ASSESSMENT THROUGH 13C- METHIONINE, 13C-OCTANOATE AND 13C-KETOISOCAPROATE BREATH TESTS

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Object: 13C-ketoisocaproic acid (KICA), 13C-methionine (MET) and 13C-Na-octanoate (OCT) have been proposed to explore liver mitochondrial pathways. We aimed to assess mitochondrial function both at baseline than after acute-ethanol ingestion.

Methods: 10 male controls received 1.5 mg/kg of L-methionine-1-13C. Breath samples were taken before and every 15 min for 2 h. 3 days later, test was repeated 30 min after oral ETOH ingestion (0.3 mg/kg). 7 days later, test was repeated after iv administration of fructose-1-6-P (FBP) (1 mg/kg) followed by ETOH ingestion. After 15 and 30 days, the subjects repeated the same protocol after receiving 1.5 mg/kg of sodium 1-13C-octanoate and 1 mg/Kg of sodium 1-13C-ketoisocaproate, respectively. 13C-excretion was assessed by mass spectroscopy, % 13C-peak and 120 min % 13C-cumulative dose were assessed.

Results: ETOH ingestion led to a significant decrease in % 13C-peak and 120 min % 13C-cum dose compared to baseline ($p < 0.01$). FBP pretreatment significantly attenuated the decrease in % 13C-cum dose ($p < 0.05$). No differences were observed with any of the 13C-substrates used.

Conclusions: 13C-MET, 13C-OCT and 13C-KICA BTs seem to be reliable tools to assess in vivo human liver mitochondria, both at baseline than after reversible manipulations of the mitochondrial function.

1208 SUSCEPTIBILITY TO THE TOXIC EFFECTS OF CYCLOSPORIN IN THE RAT: EFFECTS OF AGING

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Free radicals are involved in aging and in cyclosporin A (CyA)-induced toxicity. The present study was undertaken to investigate the influence of aging on the susceptibility to the toxic effects of CyA and the age-related changes in the oxidative status and antioxidant defenses in rats after a short-term CyA treatment.

Methods: Male rats of different ages (1-, 2-, 4- and 24-month-old) were treated for one week with CyA (10 mg/kg body wt/day, i.p.).

Results: The cholestatic effect induced by CyA was significantly higher in the oldest rats: bile flow was reduced by 18%, 19%, 17% and 33% in the 1-, 2-, 4- and 24-month-old rats, respectively, when compared to their controls. Similarly, CyA treatment increased plasma bile acid and bilirubin concentrations in all treated rats, but the CyA-induced increases were significantly higher in the senescent rats. The hepatic content of reduced glutathione (GSH) increased with age, peaked at 4 months, and decreased in senescent rats. By contrast, TBARS and glutathione disulfide (GSSG) concentration, and superoxide dismutase, glutathione peroxidase and catalase activities were higher in the oldest than in youngest rats. CyA treatment depleted GSH and increased liver TBARS and GSSG concentrations to a greater extent in senescent rats. Moreover, superoxide dismutase and catalase activities were significantly decreases only in the oldest animals.

Conclusions: The senescent liver is more susceptible to CyA-induced cholestasis, oxidative stress and lipoperoxidative injury in rats, and both GSH depletion and decreased antioxidant enzyme activities may contribute to this effect.

1220 SERUM (LPTS) AND ASCITIC LEPTIN (LPTA) LEVELS IN DECOMPENSATED CIRRHOTIC PATIENTS

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LPT is an adipocytic hormone regulating food intake and energy expenditure. Increased serum values of LPT were found in cirrhotics. We aimed to investigate the relationship between seric and ascitic LPT and both nutritional status and ascitic inflammation. We studied 10 ascitic cirrhotics (7 M/3 F; mean age 55 ± 4); aetiology was HCV in 7 patients and alcohol abuse in 3. Five were Child-Pugh's class B, 5 class C. Fat mass was measured with bioelectrical impedence analysis. Blood and ascitic samples were contemporaneusly performed for white (WBC) and red blood cells (RBC) count, albumin concentration and LPT levels. Data are expressed as media ± SD. FM was 19.7 ± 11 kg. Ascitic polimorphonuclear cells were always <250/mm3, seric-albumin/ascitic-albumin ratio was >1, RBC were absent in ascites. There was a significant difference between LPTa and LPTs (8.7 ± 5 ng/ml vs 5 ± 3 ng/ml; $p < 0.01$) with positive interrelationship ($r = 0.72$; $p = 0.02$). LPTa positively correlated with ascitic WBC (488 ± 303/mm3; $r = 0.63$; $p = 0.05$), and ascitic monocytes (96 ± 73/mm3; $r = 0.74$; $p = 0.015$). LPTs and FM showed positive correlation ($r = 0.78$; $p = 0.007$). A similar trend was found between LPTa and FM ($r = 0.61$; $p = 0.06$). These relationships suggest that there is an intraperitoneal source of LPT in decompensated cirrhosis with ascites, probably linked to a subclinical reactivity of the intra-abdominal fat. Only LPTs seems to be directly related to the nutritional status, while LPTa could play an indirect role.