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Hepatoprotective effect of nifedipine against ischemia-reperfusion injury in rats

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Background and aim: Ischemia-reperfusion (IR) injury is the leading cause of early graft dysfunction. Many mechanisms are involved in IR injury; activation of apoptosis is one of the most important. The blockade of the Ca^{2+} channels inhibits apoptosis and has a potential protector effect against IR injury. Calcium channel blockers, like nifedipine, have potential therapeutic activity against this process in organs such as brain, testicle and intestine. In this project, we aimed to assess the hepatoprotective effect of nifedipine in our IR model.

Material and methods: A total of 18 female Wistar rats were divided into three groups: Sham (SH), IR, and nifedipine + IR (NIR, 10 mg/kg, p.o., twice a day for three days). A midline laparotomy was performed, exposing the liver hilum and inducing IR injury to the IR and NIR groups, by using an atraumatic vascular clamp (ischemia: 20 min; reperfusion: 1 hour). Serum activities of ALT, AST, LDH, and ALP, and serum concentrations of total bilirubin and glucose were measured. Proinflammatory cytokines (IL-1β, IL-6, and TNF-α) were determined, and oxidative stress biomarkers (superoxide dismutase, malondialdehyde, and glutathione peroxidase) were assessed. Histological parameters, such as congestion,

Figure. Biochemical and inflammation markers. $^*p < 0.05$ against SH. $\#p < 0.05$ against IR.

vacuolization, and necrosis, were evaluated in tissue samples stained with hematoxylin and eosin. All rats were handled according to the Official Mexican Norm NOM-062-ZOO-1999. This project was approved by the Ethics and Research Committee of our Institution with registry: HI19-00003.

Results: The administration of nifedipine caused a decrease in the serum activities of ALT and AST compared against the IR group. Also, it caused an increase in the activity of ALP probably caused by osteoclastic induction due to nifedipine. The concentration of glucose and total bilirubin compared with the SH group showed an elevation (Figure). There were no significant differences in the other parameters analyzed.

Conclusions: Nifedipine presents a hepatoprotective effect against IR injury, evidenced by the decrease of liver enzymes. This compound does not show an immunomodulator or antioxidant effect.

Conflicts of interest: The authors have no conflicts of interest to declare.

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Reported resistance to different antibiotics in cirrhotic patients with spontaneous bacterial peritonitis

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Background and aim: Spontaneous bacterial peritonitis (SBP) is one of the most frequent bacterial infections in cirrhotic patients, its mortality without specific treatment is high. Within the first choice of empirical therapy, cephalosporins and quinolones are recommended. However recent studies have shown an increase in the prevalence of infections caused by multiresistant bacteria, especially in nosocomial episodes, which has caused a change in practice. The national literature present only a few data regard this subject, thus its study is important. Aim: To describe the reported resistance to different antibiotics in cirrhotic patients with SBP.

Material and methods: Observational, descriptive, transversal, retrolective study. Procedure: We reviewed the clinical records of patients admitted to the Gastroenterology Department in hospitalization area with diagnosis of SBP from March 2018 to December 2019, taking in count the bacterial culture result and the reported sensitivity or resistance to different antibiotics included in the antibiogram. The qualitative variables were expressed as frequencies and percentages. The numerical variables were expressed as mean and standard deviation.

Results: The study included 70 patients of whom 61.4% were men. The main age was 52.2 ± 12.2 years-old. About 20% of patients were Child Pugh B, and 80% Child Pugh C. Of all patients, 55.7% corresponded to neutrocytic ascites, a gram-negative microorganism was isolated in 25.7% of the cultures, and a gram-positive microorganism was isolated in 18.6%. The most frequently isolated bacterium was *Escherichia coli*. Acquisition of SBP: 56% of infections were acquired in the community, 33% related to health care and 11% nosocomial. The sensitivity and resistance to different antibiotics obtained in the cultures are shown in the following graphs.

Conclusions: There is increasing resistance to different antibiotics, especially in hospital-acquired infections. In the case of spontaneous bacterial peritonitis, resistance to cehalo-sporins and quinolones is observed in more than half of the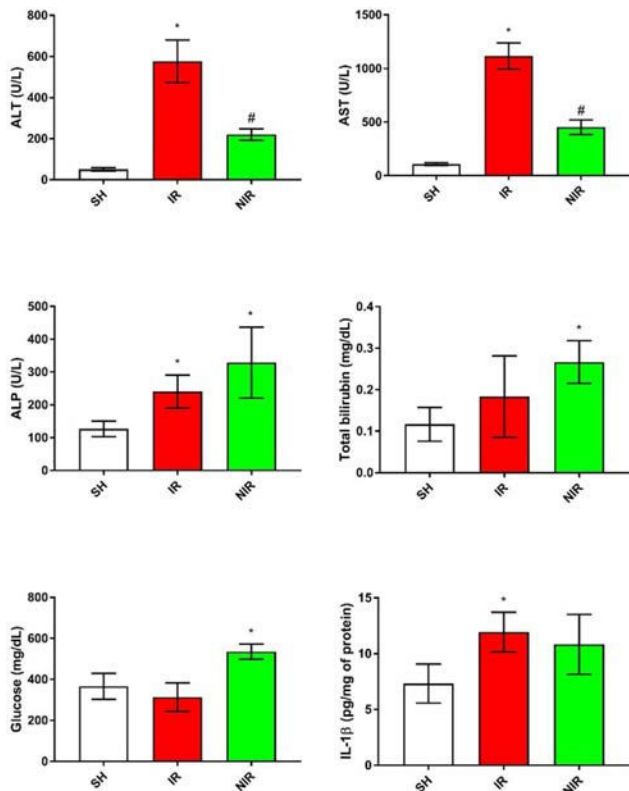 cases, so we must be careful with its prescription.