In vitro analysis of apoptosis in hepatic stellate cells cultured under steatogenic conditions

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Introduction and Objectives: Hepatic stellate cells (HSC) are responsible for the development of fibrosis during chronic liver disease. Cell death is among the most common cellular causes of increased tissue damage. From the different types of cell death, apoptosis and necrosis of hepatocytes are associated with the development of inflammation and the progress of liver disease. We aimed to assess cell death by apoptosis and necrosis in LX-2 hepatic stellate cells in an *in vitro* model of steatosis.

Materials and methods: LX-2 HSC were cultured under different conditions: control (C), mild steatosis (MS), severe steatosis (SS) and activation (TGFβ). Cell death was identified by trypan blue staining. Apoptosis and necrosis were analyzed by flow cytometry at 24, 48 y 72h. Data: Mean±SD, analyzed by one-way ANOVA, $p<0.05$ was considered significant.

Results: Cell death was similar between HSC cultured under control or activation conditions at the different times studied. Increased cell death was observed in MS at 72h and in SS from 24h. Accordingly, percentage of apoptotic cells was significantly increased in MS at 72h compared with other conditions at that time (C72h=14.1±6.1, TGFβ72h=11.8±5.2, MS72h=57.7±8.4, SS72h=3.8±2.7 %, $p<0.05$). In contrast, SS group showed its peak in apoptosis at 24h (C24h=27.4± 2.8, TGFβ24h=21.7±7.5, MS24h=25.7±3.2, SS72h=50.8±9.5 %, $p<0.05$), showing that apoptosis begins early at 24h but is evidenced by trypan blue up to 48h. Activation of HSC was not associated with changes in apoptosis. No differences were observed in necrosis.

Conclusions: Apoptosis in LX-2 HSC was associated with the severity of the steatogenic condition, the higher the amount of free fatty acids in the medium, the higher the mortality at short term. Apoptosis explained most of the mortality observed by trypan blue in HSC; however, other death processess, including pyroptosis or necroptosis, should not be discarted yet, since they might also contribute to HSC cell death during steatosis.

Ethical statement
The protocol was registered and approved by the Ethics Committee.

Declaration of interests
None

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None

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Prevalence of Immunoglobulin G against Hepatitis A Virus and Hepatitis E Virus in healthcare personnel

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Introduction and Objectives: The hepatitis A and hepatitis E viruses are organisms that stand out for their high resistance to acid and alkaline media, as well as to freezing temperatures. Despite presenting an approximate mortality of 1% for both viruses, a seroprevalence of up to 81.3% has been reported in previous decades, so it is important to know the current epidemiological status of both diseases.

Materials and Patients: Cross-sectional, descriptive, prospective and observational study. Individuals over 18 years of age were recruited, who were studying or had the degree of gastroenterologists at the Hospital de Especialidades Centro Médico Nacional Siglo XXI, in a period of time between June 01 and June 30, 2023. Blood samples were collected for detection of immunoglobulin G against hepatitis A and hepatitis E viruses and a demographic questionnaire was conducted to each of the participants.

Results: 23 individuals were recruited, 60.9% men (n=14) and 39.1% women (n=9), with a median age of 29 years, 13.0% corresponding to individuals from Mexico City (n= 3) and 86.9% from other states of the Mexican Republic (n=20). A seroprevalence of 17.3% (n=4) and 4.3% (n=1) was reported for hepatitis A virus and hepatitis E virus, respectively.

Conclusions: There is a lower seroprevalence for hepatitis A and hepatitis E viruses than reported, so it is vitally important to take preventive measures in populations at risk of infection, such as health personnel.

Ethical statement
The protocol was registered and approved by the Ethics Committee. The identity of the patients is protected. Consentment was obtained.

Declaration of interests
None

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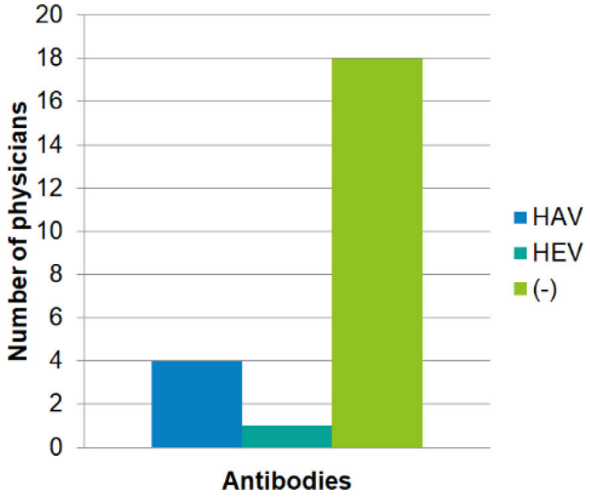
Table 1.
Number of physicians with antibodies against hepatitis A virus (HAV), hepatitis E virus (E) or a negative test (-).



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Noninvasive markers of hepatic fibrosis and their clinical application in coronary artery disease.

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