## FREQUENCY OF HEPATIC FUNCTION ALTERATION IN MEXICAN PATIENTS WITH COVID-19 AND ITS ASSOCIATION WITH THE SEVERITY OF ACUTE RESPIRATORY DISTRESS SYNDROME: PRELIMINARY RESULTS

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**Introduction:** COVID-19 is a disease caused by the SARS-CoV-2 virus; atypical pneumonia and sepsis are the most severe manifestations of the disease. There is evidence that the virus affects the liver in different ways. The mechanism of liver damage has not yet been clearly established.

**Objectives:** To determine the frequency of alterations in the LFT (liver function tests) and its association with the severity of the ARDS (accute respiratory distress syndrome) in patients with COVID-19 and to determine if obesity, DM2 (diabetes mellitus) and HBP (high blood pressure) are associated with the severity of the ARDS.

**Material and methods:** Descriptive, cross-sectional and observational study of 56 patients with dx of ARDS due to COVID-19; Main variables: glucose, LFT and procalcitonin. Secondary variables: age, BMI, DM2, HBP, the severity of ARDS and days of stay. The frequency of qualitative variables was calculated in percentages, measures of central tendency and dispersion were determined for quantitative variables and the association between the increase in the parameters of the LFT and the severity of ARDS by calculating the Spearman correlation coefficient and the Mann-Whitney U test, stratifying according to those who survived or died. The medians of the quantitative values of the LFT between living and deceased were compared with the Mann W. U test for independent samples; due to the small sample size and the fact that the normality requirement was not met, statistically significant values were considered with $p < 0.05$.

**Results:** Of the 56 patients, 57% are women, all had tomographic data compatible with COVID-19. 41% presented moderate ARDS and 34% severe; 45% died. In the living, the frequency of DM2 and HBP was 22% in severe ARDS; An increase in AST (Aspartate aminotransferase) was found in 67% of admissions and in 100% there was an increase in its maximum peak. In mild ARDS, 33% of the living had increased GGT (gamma glutamyl transferase) at admission and 78% in severe ARDS. There was a statistically significant association between the increase in LDH (lactic dehydrogenase) at the maximum peak and the severity of ARDS ($p = 0.047$), the GGT at admission almost reached the statistically significant p value ($p = 0.053$), with a Spearman coefficient of 0.354 ($p = 0.051$). In the deceased, the frequency of DM2 in severe ARDS was 40%. 100% of those who died with severe ARDS had GGT and LDH increased values at their maximum peak. 100% with moderate ARDS and 90% of the severe ones had hypoalbuminemia upon admission, with a significant association with ARDS severity ($p = 0.033$). The LDH values at the maximum peak also showed a significant association with ARDS severity ($p = 0.043$) with a Spearman coefficient of 0.413 ($p = 0.040$).

**Discussion:** To date, this study is one of the few that has investigated the effects of the SARS-CoV-2 virus on liver function and its association with the severity of ARDS in Mexican population. Although our study has the weakness of having a small sample size, it has the strength of being carried out in a hospital that was converted into a COVID hospital, with which we will have access to data from a high number of patients, which will allow comparison alterations in liver function in living and deceased patients and relate it to the severity of ARDS.

**Conclusions:** Most of the patients had no history of DM2 or HBP; a large percentage had overweight / obesity and hyperglycemia on admission. There is a high frequency of patients who have alterations in LFT; however, with this sample, it was only possible to determine that the increase in LDH at the maximum peak during hospitalization and hypoalbuminemia on admission are associated with the severity of ARDS.

The authors declare that there is no conflict of interest.

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## RELIABILITY FACTORS FOR THE MEASUREMENT OF HEPATIC STEATOSIS BY MEANS OF A CONTROLLED ATTENUATION PARAMETER BY TRANSIENT ELASTOGRAPHY

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**Introduction and aim:** The controlled attenuation parameter (CAP) allows the indirect measurement of liver fat and the indirect the indirect measurement of liver fat and stiffness by transient elastography. Its diagnostic utility has been validated, but the factors for its reliability are unknown. Therefore, the objective is to evaluate the predictors of CAP quality by transient elastography.

**Material and methods:** Retrospective, observational design of transient elastography studies from January 2015 to December 2019 for fatty liver screening, fibrosis evaluation and esophageal varices screening, using Fibroscan 502 Touch with M and XL probes according to the manufacturer's recommendations. Sociodemographic and clinical data and reliability measures were evaluated: degree of liver stiffness (kpa), decibels / meter (db/m), interquartile ranges (IQR <40 and IQR <30), number of total and valid measurements. The data are shown in measures of central tendency and dispersion; for the reliability factors, a univariate and multivariate logistic regression analysis was performed.

**Results:** 1153 studies were analyzed, 52.6% (n = 606) were men, with a median age of 54 years [IQR 44-63] and BMI 27.4 kg / m2 [IQR 24.1-29.7]. The main indication was fatty liver screening 48.8% (n = 558), the median CAP was 262 (215-313) db / m with an interquartile range of 34 (24-47). In 26.2% (n = 302) an incorrect probe was used. The factors associated with reliability with IQR <40 were the XL probe (OR 0.34 CI95% 0.26-0.45), age <54 years (OR 0.71 CI95% 0.55-0.92) and IQR kPa <30 (OR 0.48 CI95% 0.28-0.82) and for the reliability of IQR <30 the use of the XL probe (OR 0.31 CI95% 0.23-0.42) and IQR kPa <30 (OR 0.35 CI95% 0.17-0.71). Evaluating only screening studies (n = 558), the use of the XL probe and age <54 years maintained an independent association for IQR <40 and with respect to IQR <30, only the XL probe maintained this association. Table 1.

**Discussion:** Current recommendations for quality CAP studies are to obtain valid measurements with IQR <30 and <40, although there is little evidence to support this. It was demonstrated that regardless of the indication, degree of fibrosis and BMI, the use of the XL probe favors the quality of the study and an adequate evaluation of liver stiffness (IQR kPa <30).

**Conclusions:** The main factor that favors the reliability of the CAP IQR <40 and 30 is the use of the XL probe regardless of the indication for use and the body mass index.

The authors declare that there is no conflict of interest.