

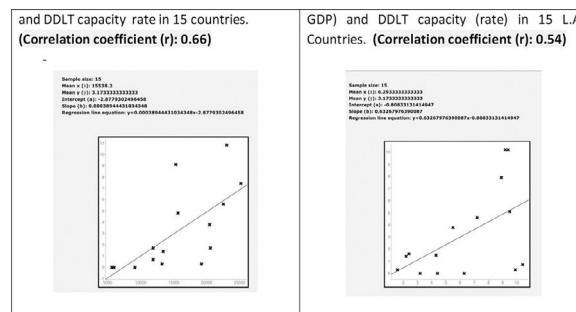
services produced in a specific time period by a country. The ratio of GDP to the total population of the region is the per capita GDP (Mean Standard of Living). It is often considered to be the "world's most powerful statistical indicator of national development and progress". On the other hand, Liver transplantation (LT) is considered a very expensive procedure requiring high-cost management with a lifelong immunosuppression, hence a possible barrier to some underdeveloped countries. In the different regions of the USA, there has been shown a strong correlation between GDP per capita and all organ donation rates, except heart donation (1988-2012). In LA countries, there is almost no data on the relation of macroeconomic indicators in relation to the capacity for LT.

Aims: To study the influence of macroeconomic indicators with the LT capacity in LA.

Methods: During 2020, LA countries, were invited to nominate representatives to this SIG and also from the STALYC. Online ZOOM meetings were arranged to discuss a survey of more than 70 questions in relation to different topics in LT including economic indicators of countries, barriers and access to LT. A database with all the information was built in an excel file. Scatter plot graphs were built to evaluate correlation and linear regression equations for different variables.

Results: 15 out of 20 countries completed the questionnaire by Jan/2021. During 2019 there were 3,354 DDLT performed in 13 out of the 15 countries (DDLT rate of 5.85 LT/ppm), and 483 LDLT in 7 countries. The mean costs of LT (hospitalization and first month) in our survey was 57,000 USD. After evaluating a few macroeconomic indicators, the higher GDP per capita and the higher health expenditure (as % of GDP) had a good positive correlation with the LT capacity in LA countries (scatter plot). There was no correlation with the gross GDP with LT (DDLT nor LDLT), nor with the number of active LT centers in each country.

Conclusions: Our study shows a positive correlation between economic indicators of prosperity (GDP per capita and health expenditure) and LT rates. Chronic liver diseases are a very common cause of burden of disease in LA, and although LT is a high-cost procedure, it is a lot less expensive than in other world regions. LA is still composed of countries with huge cultural, economic and developmental diversity and where at least 30% of the population lives in poverty, nevertheless, some countries have been able to perform LT with rates > 5 ppm with excellent results. There is need to improve education and investment in LT as a health priority, being saving life procedure



making possible to return a chronic patient to a normal and productive life.

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O-18 IMPAIRED ANTI-HBV VACCINE RESPONSE IN NON-CIRRHOTIC CHRONIC HCV PATIENTS IS NOT OVERCOME BY DOUBLE DOSE REGIMEN. FOURTH DOSE MAYBE THE ANSWER!

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Introduction: Hepatitis B virus (HBV) vaccination is regarded as the most effective method for the prevention and control of HBV infection. Studies showed a reduced HBV vaccine response between patients with chronic hepatitis C (HCV), but studies exploring HBV vaccine efficacy in this population have equivocal results.

Objectives: To evaluate HBV vaccine response in patients with HCV submitted to two different (20 µg vs 40 µg in 0, 1 and 6 months) anti-HBV vaccine schemes and administer the 4th additional dose in non-responders as well as assess the maintenance of seroprotectors titers.

Table 1

Summary of demographics, macroeconomical indicators and LT practices in LA (LT: Liver Transplantation; DDLT: Deceased donor LT; LDLT: Living donor LT; Rates: per million population; GDP: Gross domestic product; pp: per capita; LOS: Length of stay of hospitalization for LT; Pop: Population; Mill: Millions; Dom. Rep.: Dominican Republic; USD: US Dollars; Hosp: Hospitalization)

Country	Pop. 2019 (mill)	GDP 2019 (current, in million USD)	GDP per capita 2019 (USD)	Health expenditure (% of GDP)	Number active LT centers	Total DDLT (2019)	DDLT Rate (2019)	Total LDLT (2019)	LDLT Rate (2019)
1.Argentina	44,5	445,445.18	23.040	9.4	32	463	10.2	41	0.9
2.Brazil	211,9	1,839758,04	15.300	9.2	74	2177	10.2	304	1.4
3.Bolivia	11,3	40,895.32	9.110	4.2	1	0	0	4	0.3
4.Colombia	48,2	323,615.98	15.634	7.2	14	231	4.6	102	2
5. Costa Rica	5,1	61,801.39	20.443	7.8	3	19	3.8	0	0
6.Cuba	11,3	100,023.00	11.900	10.4	3	9	0.7	0	0
7.Chile	19,5	282,318.16	25.155	8.9	11	145	7.9	19	1
8. Ecuador	17,1	107,435.66	11,878	2.7	5	27	1.5	0	0
9.Honduras	9,6	25,095.40	5.981	6.3	0	0	0	0	0
10.Mexico	127	1,268,870.53	20.582	2.4	25	213	1.6	10	0.08
11.Nicaragua	6,4	12,520.92	5.646	3.2	0	0	0	0	0
12.Paraguay	6,9	38,145.29	13.246	9.9	1	2	0.3	0	0
13.Peru	32,6	226,848.05	13.416	2.2	4	46	1.4	1	0.09
14.Dom Rep.	11	88,941.30	19.227	1.6	1	4	0.3	0	0
15.Uruguay	3,2	56,045.91	22.515	9.5	1	18	5.1	0	0
All Countries	566	1,810,965,758	14.573	6.3	143	3.354	5.85	483	0.84

Abbreviations
D. Republic: Dominican Republic; GDP: gross domestic product; pp: per capita; USD: United states Dollars;

Methods: This randomized controlled trial included 141 HCV who received double dose (40ug) or standard dose (20ug) and 70 healthy volunteers who received standard dose (20ug) at 0, 1 and 6 months. Anti-HBs titers were measured at 1 month after last dose. Vaccine response was defined by anti-HBs ≥ 10 U/L. Non-responders received the fourth dose according to the group that were previously randomized. Multivariate regression was modeled as a logistic regression.

Results: 128 completed the study. Median age 51 years, 61% female, 52% White, 40% F2-3, and 75% GT1, median 6 log₁₀ HCV RNA. Overall seroconversion rate was 76.7% (n=60) in double dose and 73.5% (n=68) in standard dose, compared to 91.2% in controls (n=68). 23 patients received the fourth dose; 7 seroconverted (30.4%) and seroconversion rate for double and standard doses were 42.9% and 11.1%, respectively ($p=0.18$). Controlling for confounders, only older age ($p<0.001$) and GT1 ($p=0.005$) were associated with a decreased anti-HBs response.

Conclusion: In HCV-infected patients without cirrhosis, responses to HBV vaccination are significantly impaired and this reduced response cannot be overcome by the use double dose. Besides that, 4th dose HBV vaccination can be a strategy efficacious this vulnerable population.

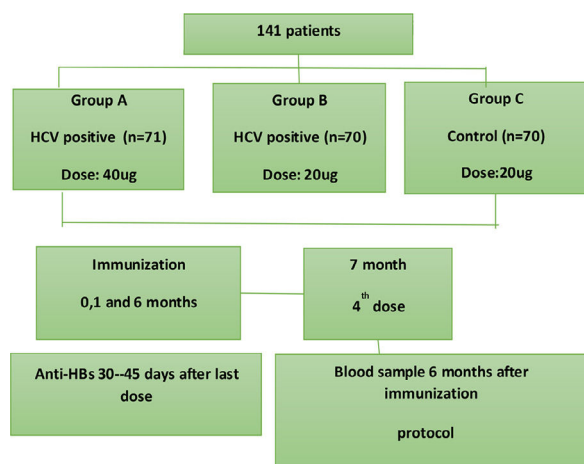


Figure 1- A randomized study comparing two doses of anti-HBV vaccination.

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O-19 INCIDENCE, PATTERN OF PRESENTATION AND RISK FACTORS FOR HEPATOCELLULAR CARCINOMA AFTER DIRECT ACTING ANTIVIRAL TREATMENT IN PATIENTS WITH HEPATITIS C VIRUS CIRRHOSIS

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Background: Brazilian public health system currently provides universal free all oral direct-acting antiviral (DAA) therapy for patients with hepatitis C virus (HCV) infection. Despite high rates of sustained virological response (SVR), patients with cirrhosis remain at risk for hepatocellular carcinoma (HCC).

Objectives: The aim of this study was to investigate incidence, risk factors and tumor pattern at presentation in a cohort of Brazilian HCV-related cirrhotic patients treated with DAAs.

Methods: This prospective cohort study included patients with HCV-related cirrhosis treated with DAAs and followed for at least 24 weeks after therapy at the Viral Hepatitis Outpatient Clinic of Hospital de Clinicas de Porto Alegre, Brazil, between August 2016 and November 2017. Ultrasound screening was performed within 24 weeks before DAA therapy and patients with presumed past or current HCC were excluded. Primary outcome was HCC incidence. Secondary outcomes were risk factors for HCC occurrence and tumor pattern at presentation. Multivariate analysis was used to identify independent variables associated with HCC development.

Results: A total of 234 patients with HCV cirrhosis were included. Fifty-six percent were males with a mean age of 61.2±10.9 years. Overall SVR was 97.4%. Child-Turcotte-Pugh (CTP) A, B and C at baseline was found, respectively, in 89.3%, 9.4% and 1.3%. Mean Model for End Stage Liver Disease (MELD) score was 9.17 ± 2.82. Esophageal varices were found in 43.6% of the patients. Type 2 diabetes was present in 18.8%. *De novo* HCC was diagnosed in 9% (21/234) of the patients during follow-up. Tumor pattern at presentation according to BCLC staging was 0, A, B, C and D in 19.1%, 47.6%, 4.8%, 28.6% and 0%, respectively. Multivariate analysis showed significant relative risk (RR) for HCC occurrence associated with the following variables: baseline MELD score ≥ 10 (RR: 1.8; $p=0.05$); absence of SVR (RR: 6.9; $p=0.04$); baseline platelet count $<120 \times 10^9/L$ (RR: 5.0; $p=0.04$) and baseline albumin level <3.5 mg/dL (RR: 4.6).

Conclusions: A high incidence of HCC was found after DAA therapy compared to the literature, particularly among patients with more advanced cirrhosis, particularly those with baseline albumin levels < 3.5 g/dL plus platelets $< 120 \times 10^9/L$. Absence of SVR was also significantly associated with HCC development. The majority of patients presented with very early (BCLC 0) or early (BCLC A) HCC, although a significant proportion showed advanced stage (BCLC C) at presentation.

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O-20 ASSOCIATION BETWEEN UNCOUPLING PROTEIN 3 POLYMORPHISMS AND NONALCOHOLIC FATTY LIVER DISEASE AND METABOLIC SYNDROME

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