

Background: Vitamin D deficiency prevalence is high in children with chronic liver disease and there is no consensus about its best treatment.

Objective: To evaluate the prevalence of vitamin D deficiency in children with chronic liver disease, to identify clinical and laboratorial features related to it and to evaluate the response of treatment with 6000IU per day of cholecalciferol for 60 days or more.

Methods: Historical cohort that included patients younger than 18 years old, followed in Pediatric Hepatology Unit of Hospital de Clínicas de Porto Alegre from January 2015 to November 2020, who had at least one dosage of 25(OH)D before liver transplantation. Laboratorial data were evaluated before and after treatment with cholecalciferol. Clinical and laboratorial features of the group that responded to treatment was compared with the group that did not respond. Data were collected from patient's electronic charts.

Results: Ninety-six patients were included in the study. The prevalence of vitamin D deficiency was 67.7%. Patients with vitamin D deficiency were younger than patients without deficiency ($p < 0.001$), had higher PELD, MELD and Child-Pugh scores ($p = 0.002$ e $p < 0.001$ respectively), higher levels of total bilirubin ($p < 0.001$), gamma glutamyl transferase ($p < 0.001$) and alkaline phosphatase ($p = 0.002$) and lowers levels of phosphorus ($p = 0.009$). Thirty-one patients were treated with 6000IU of cholecalciferol per day for 60 days or more. Only 29% of them achieved normal levels of 25(OH)D. Patients that responded to treatment had lower Child-Pugh score ($p = 0.001$), lower level of total bilirubin at the moment of the second 25(OH)D dosage ($p = 0.001$) and higher level of phosphorus ($p = 0.003$).

Conclusion: Vitamin D deficiency in children with chronic liver disease is related to the severity of the liver disease and cholestasis. The treatment response rate is low. Normalization of 25(OH)D levels is associated with cholestasis improvement.

Keywords: Cholestasis, liver cirrhosis, vitamin D deficiency, metabolic bone diseases

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O-17 Are macroeconomic and health expenditure indicators correlated with the capacity for liver transplantation in Latin American Countries? THE ALEH Special Interest Group, international Survey 2020

Rodrigo Zapata¹, Graciela Castro², Josefina Pages³, Fernando Cairo⁴, Oscar Imventarza⁵, Alejandra Villamil⁶, Paulo Bittencourt⁷, Leonardo Schiavon⁸, J.R. Alfeu de Medeiros Fleck⁹, Ricardo Villarroel¹⁰, Oscar Varas¹¹, Juan Carlos Restrepo¹², Adriana Varon¹³, Daniela Hernandez¹⁴, Pablo Coste¹⁵, Marcia Samada¹⁶, Antonio Enamorado¹⁷, Chong Ricardo¹⁸, Byron Abad¹⁹, Alvaro Urzúa²⁰, Rodrigo Wolff²¹, Mario Uribe²², Regina Ligorrea²³, Edgard Aguilera²⁴, Eira Cerda²⁵, Sergio Lopez²⁶, Marcos Giralda²⁷, Martin Padilla²⁸, Marlene Perez²⁹, Victoria Mainardi³⁰, Solange Gerona³¹

¹ Coordinator, ALEH Liver Transplant Sig. Unidad de Trasplante, Clinica Alemana / Facultad de Medicina, Universidad del Desarrollo, Santiago, Chile

² Co-coordinator, ALEH Liver Transplant Sig. Instituto Nacional de Ciencias Medicas y Nutrición Salvador Zubiran y Hospital Medica Sur, Ciudad de Mexico, Mexico

³ Liver Transplant Unit, Hospital Universitario Austral, Universidad de Buenos Aires, Buenos Aires, Argentina

⁴ Liver Transplant Unit, Hospital el Cruce, Hospital Britanico, Buenos Aires, Argentina

⁵ Liver Transplant Unit, Hospital Argerich, Hospital Garrahan, Stalyc Representative, Buenos Aires, Argentina

⁶ Liver Transplant Unit, Hospital Italiano de Buenos Aires, Argentina

⁷ Liver Unit, Hospital Portugues de Salvador, Bahi, Brazil

⁸ Universidad Federal de Santa Catarina, Florianopolis, Santa Catarina, Brazil

⁹ Liver Transplant Unit, Hospital Moinhos de Vento, Irmandade de Santa Casa de Misericordia de Porto Alegre, Porto Alegre, Brazil

¹⁰ Hospital San Juan de Dios, Santa Cruz de la Sierra, Bolivia

¹¹ Centro de Enfermedades Digestivas Varas Castrillo, Tarija, Bolivia

¹² Liver Transplant Unit, Hospital Pablo Tobon Uribe, Medellin, Colombia

¹³ Liver Unit, Fundación Cardioinfantil, Bogota, Colombia

¹⁴ Hospital Mexico, La Oruca, San Jose, Costa Rica

¹⁵ Hospital Rafael Angel Calderon Guardia, San Jose, Costa Rica

¹⁶ Centro de Investigaciones Medico-Quirurgicas, La Habana, Cuba

¹⁷ Programa de Trasplantes, La Habana, Cuba

¹⁸ Liver Transplant Unit, Hospital de Especialidades Carlos Andrade Marin, Quito, Ecuador

¹⁹ Transplant Coordinator, Hospital de Especialidades Arlos Andrade Marin, Quito, Ecuador

²⁰ Liver Transplant Unit, Hospital Clinico, Universidad de Chile y Clinica Santa Maria, Santiago, Chile

²¹ Liver Transplant Unit, P. Universidad Catolica de Chile, Santiago, Chile

²² Liver Transplant Unit, Hospital Salvador, Hospital Calvo Mackena y Clinica Las Condes, Stalyc Representative, Santiago, Chile

²³ Hospital San Juan de Dios, Ciudad de Guatemala, Guatemala

²⁴ Hospital Clinica Viera, Tegucigalpa, Honduras

²⁵ Unidad de Trasplante Hepatico, Hospital Central Militar, Ciudad de Mexico, Mexico

²⁶ Hospital Escuela Dr. Roberto Calderon, Managua, Nicaragua

²⁷ Universidad Nacional de Asunción, Asuncion, Paraguay

²⁸ Department of Transplantation, Hospital Nacional Guillermo Almenara y Universidad Nacional Mayor de San Marcos, Lima, Perú

²⁹ Liver Transplant Unit, Hospital General de la Plaza de la Salud, Santo Domingo, Republica Dominicana

³⁰ Liver Transplant Unit, Hospital Central de las Fuerzas Armadas, Montevideo, Uruguay

³¹ Liver Transplant Unit, Hospital de Clinicas y Hospital Central de las Fuerzas Armadas, Montevideo, Uruguay

Introduction: Latin America (LA), is a geographical region with 20 countries homing 652 million people (10% world population), with a huge cultural, economic and developmental diversity. The ALEH (Asociación Latinoamericana para el Estudio del Hígado) has driven the formation of special interest groups (SIGs) to enhance the collaboration of health care professionals with common specialized interests in the field of hepatology. The gross domestic product (GDP) is a monetary measure of the market value of all the final goods and

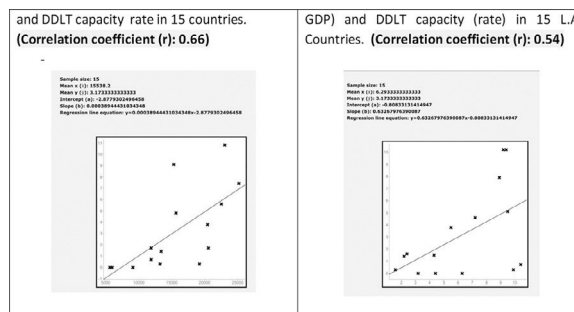
services produced in a specific time period by a country. The ratio of GDP to the total population of the region is the per capita GDP (Mean Standard of Living). It is often considered to be the "world's most powerful statistical indicator of national development and progress". On the other hand, Liver 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!

Roseane Pôrto Medeiros¹, Norah A. Terrault², Daniel F. Mazo¹, Claudia P. Oliveira¹, Jennifer L. Dodge², Patricia M. Zitelli¹, M. Lopes¹, Flair J. Carrilho¹, Mário Guimarães Pessoa¹

¹ Faculdade de Medicina da Universidade de São Paulo, Divisão de Gastroenterologia e Hepatologia, São Paulo – Brasil

² University of California San Francisco (UCSF), Sao Francisco, USA

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;