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The Role of Beta-7 Integrin and Carbonic Anhydrase IX in Predicting the Occurrence of de Novo Nonalcoholic Fatty Liver Disease in Liver Transplant Recipients

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Abstract
Background: Liver transplant (LT) recipients are at increased risk for developing metabolic syndrome. Early detection of NAFLD and other components of the metabolic syndrome is an important step in reducing morbidity and mortality.
Methods: We assessed 60 liver transplant recipients for clinical and biological features, performed abdominal ultrasound and transient elastography (TE) Fibroscan® with controlled attenuation parameter (CAP), calculated non-invasive scoring systems APRI, FIB-4, NAFLD score, cardiovascular risk (Framingham risk score) and for the presence of metabolic syndrome and performed two biomarkers: beta 7 integrin and carbonic anhydrase IX.
Results: Sixty liver transplant recipients underwent clinical and biochemical evaluation, abdominal ultrasound and TE with CAP. The median age was 56.5 years and the median time from transplantation 35 months. The Spearman correlation coefficient of beta 7 integrin and the liver stiffness measurement values obtained via Fibroscan® we obtained a moderate correlation r=0.31, but a significant association (p=0.01). The univariate analysis showed significant association between both biomarkers and liver fibrosis assessed with a cut-off value of advanced fibrosis of 8.7 kPa. The carbonic anhydrase IX showed a better correlation when compared to the liver stiffness with a correlation coefficient of 0.43 and p-value=0.0007 and a moderate correlation when compared to both FIB-4 (r=0.27) and APRI (r=0.27) score for liver fibrosis but with a significant p value=0.04, respectively 0.03.
Conclusion: We consider very important for our patients the development of new non-invasive biomarkers for early diagnosis of NAFLD and NASH, as the “gold-standard” of liver biopsy is not easily accepted in clinical practice. Also NAFLD and NASH are dynamic processes that need prospective and repeated assessments, a need that cannot be met by the classical liver biopsy.
Key words: non-alcoholic fatty liver disease, non-invasive diagnosis, early detection