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NON-INVASIVE SERUM LIPIDOMIC APPROACH TO DISCRIMINATE NON-ALCOHOLIC STEATOHEPATITIS IN MULTIETHNIC PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Background: The OWLiver Test has been reported to be a good test for the diagnosis of Non-alcoholic Fatty Liver Disease (NAFLD) and Non-Alcoholic Steatohepatitis (NASH) based on the triglyceride profile and Body Mass Index (BMI). However, this test is limited by the discovery population composed by Caucasians without type 2 diabetes mellitus (T2DM). The aim of this study was to refine the OWLiver Test considering other populations with different ethnicities and diabetic status.

Methods: A multiethnic, multicenter discovery cohort of 616 adult subjects with biopsy proven NAFLD (263 Steatosis, 353 NASH) was analyzed. A logistic regression model was developed including lipidomic features and clinical variables and following a K-fold Cross-Validation process. Finally, the model was validated in a new independent blind cohort (n = 65; 18 Steatosis, 47 NASH). The diagnostic performance was

reflected in area under the receiver-operating characteristic (AUROC) curve, sensitivity and specificity. Values are given as mean \pm 1 standard deviation of the mean. **Results:** The characteristics of the discovery cohort (n = 616) were 53% male, BMI (34.5 \pm 6.44, kg/m²), alanine aminotransferase (ALT = 53.33 \pm 38.27, U/L), aspartate aminotransferase (AST = 38.63 \pm 24.75, U/L) and glycated hemoglobin (HbA1c = 6.58 \pm 1.17, %). The 24% of the cohort had a poor glycaemic control HbA1c > 7%. A novel lipidomic-based algorithm in serum was generated from this international multiethnic cohort of patients with type 2 diabetes, resulting in an AUROC of 0.79 \pm 0.012 in training and 0.81 \pm 0.047 in the K-fold Cross-Validation process. The sensitivity was 0.67 \pm 0.012 (training) and 0.67 \pm 0.049 (validation), and specificity was 0.77 \pm 0.007 (training) and 0.80 \pm 0.029 (validation). Previous version of the OWLiver test in this cohort got an AUROC < 0.7. An independent cohort from Chile was analyzed (n = 65): 29% male, BMI (31.21 \pm 4.60, kg/m²), ALT (81.96 \pm 67.24, U/L), AST (55.60 \pm 40.30, U/L) and HbA1c (6.13 \pm 1.07, %). The new test was blindly evaluated in this cohort. The AUROC was 0.81 \pm 0.064, sensitivity 0.72 \pm 0.147 and specificity 0.72 \pm 0.113, improving the results of previous version of the test that obtained a suboptimal performance. **Conclusion:** This new non-invasive test improves the results of the OWLiver test for the discrimination between steatosis and NASH in a more general population, taking into account the multiethnicity and diabetes status.

Disclosures:

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OBETICHOIC ACID (OCA) IMPROVES NON-INVASIVE MARKERS OF FIBROSIS IN PATIENTS WITH NON-ALCOHOLIC STEATOHEPATITIS (NASH): A SECONDARY ANALYSIS OF THE PHASE 3 REGENERATE STUDY

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