Multivariate Predictive Analysis of Non-Alcoholic Steatohepatitis Risk Using Comorbid Diagnoses and FibroScan Metrics

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Non-alcoholic steatohepatitis is a progressive liver disease that is frequently underdiagnosed due to its asymptomatic nature in earlier stages. It is strongly associated with the presence of four metabolic conditions: hyperlipidemia, hypertension, obesity, and Type II Diabetes. The study hypothesizes that the presence of two or more comorbid conditions could indicate an elevated risk for fatty liver disease. Using a dataset of over 27,000 de-identified, anonymous patient records, 675 unique individuals with detailed diagnostic and a relevant, reported FibroScan were analyzed. A Visual Basic model within Excel was used to create a Macro code, which the probability was then used to compare with the risk of NASH disease. The results reflected that across all of the patients, having two or more of the metabolic conditions was strongly correlated with increased FibroScan scores, and therefore the risk of fatty liver disease. Stratification by age, sex, and race was also utilized to determine areas of disparity for targeted screening education. Overall, the results reflected the necessity for standard protocols to be set in place in both primary care and gastroenterology settings in order to prevent rapid progression for NASH disease in patients with this risk. This could facilitate earlier detection for fatty liver disease and ultimately improve patient outcomes.

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