**INTRODUCTION**

Non-alcoholic fatty liver disease (NAFLD) is a common liver disease that ranges from hepatic steatosis, involving the simple accumulation of triglycerides in the liver, to non-alcoholic steatohepatitis (NASH). NASH is characterized by steatosis, hepatocyte ballooning, inflammation, fibrosis and necrosis.

The progression from hepatic steatosis to NASH is not completely understood, although the continuously changing hepatic environment—reflected in lipid metabolic changes and the lipotoxicity they generate—is considered a key point.

We have used a UPLC/MS-based metabolomics platform to determine the sera metabolite profile of NAFLD patients, allowing us to define a robust BMI-dependent lipidomic signature that reliably and accurately differentiates liver steatosis from NASH.

**METHODS**

We have developed a LC/MS-based platform that allows the semiquantitative determination of around 1000 lipids and 150 polar metabolites.

**RESULTS**

The metabolic profile was dependent on body mass index (BMI), suggesting that the NAFLD pathogenesis mechanism may be quite different depending on an individual’s level of obesity.

**CONCLUSIONS**

This BMI-dependent serum metabolic profile may reliably distinguish NASH from steatosis patients, having significant implications for the development of NASH biomarkers and potential novel targets for therapeutic intervention.