Lipoprotein sub-fractions show increased cardiovascular disease risk in pediatric non-alcoholic steatohepatitis compared to non-alcoholic fatty liver

Juna V. Konomi1, Rebecca L. Cleeton1, Ran Jin1, Jennifer Frediani1, Albert Hernandez1, Hayley Braun1, Maria Cordero1, Shelley Caltharp2,3, Miriam B. Vos1,3

1. Department of Pediatrics, Emory University School of Medicine; 2. Division of Pathology, Emory University School of Medicine; 3. Children’s Healthcare of Atlanta;

BACKGROUND

- Cardiovascular disease (CVD) remains one of the main leading causes of death in patients suffering from non-alcoholic steatohepatitis (NASH)
- NASH may contribute to a more atherogenic profile than steatosis alone (NAFL)
- Lipid profiles in pediatric NASH and NAFL are not well characterized

METHODS

- Human Subjects: After IRB approval and consent of participants, fasting serum samples were obtained from 92 patients with NAFLD. NAFLD was determined by clinical assessment and magnetic resonance spectroscopy (MRS) ≥ 5% or by liver biopsy. The sample size consisted of 54 NAFL and 36 NASH patients.
- Analysis: Full spectrum of lipid profiles were measured in NASH and NAFL subjects using nuclear magnetic resonance spectroscopy (NMR) and included lipoprotein particles, cholesterol, triglycerides and apolipoproteins (performed by LabCorp). Variables were tested for normality. Student t-tests were performed to compare the two groups or non-parametric tests, when variables were not normally distributed. Values presented as mean (S.E.)

RESULTS

- When focusing on sub-fractions of lipoproteins, the NASH group had higher concentrations of total triglyceride-rich and small HDL particles, and decreased concentrations of large HDL particles.

CONCLUSIONS

Our findings show differences between NASH and NAFL in lipoprotein spectrum and sub-fractions.

ACKNOWLEDGMENTS

We thank all of the participants and their families for generously giving their time. LabCorp for sample analysis Support from NIH, Emory A-CTSI and NASPGHAN.