

Dyslipidaemia and Diabetes in Children and Adolescents with Obesity: a 10-Year Retrospective Emirati Study

Tomader Ali, Saradalekshmi Radha, Radwa Helal, Esphie Fojas, Sherif El-Reftee, Hani Sabbour and Nader Lessan

Imperial College London Diabetes Centre (ICLDC), Abu Dhabi, United Arab Emirates

Introduction: Evidence indicates cardiovascular risk may start early in life. Data on specific risk factors including lipids in childhood and adolescence are scant. We investigate lipid profiles in overweight/obese patients.

Methods: Data on pediatric ICLDC patients (N=11,116) with complete lipid profile (2009-2019) were extracted. Overweight/obese category (BMI $\geq$ 85th percentile) was divided into: pre-diabetes (Pre-Dia), type1 (T1DM), type 2 (T2DM) and normoglycemic (NGT) groups. Lipid percentiles were calculated for all lipids; distribution curves were plotted on R and statistical analyses performed on SPSS24.

Results: Patients (n=4659) included: Pre-Dia (24%), diabetes (T1DM 6%, T2DM 2%) and NGT (68%). Total cholesterol (TC), LDL and non-HDL were significantly increased ($p \leq 0.001$) and HDL was significantly decreased ($p \leq 0.001$) in diabetes groups compared to NGT; except TC in NGT vs Pre-Dia. Different trends arose in between diabetes groups whereby TC, LDL and non-HDL were significantly increased ($p \leq 0.001$) while HDL was significantly decreased ($p \leq 0.001$); except for LDL, non-HDL and TC in T1DM vs T2DM, non-HDL in Pre-Dia vs T1DM and TC in Pre-Dia vs T2DM.

Conclusion: Even at an early age, significant increases in TC, LDL and non-HDL, accompanied by decreases in HDL, were observed in patients with type 1, type 2 diabetes and pre-diabetes groups. Early intervention may need to be considered.

1. Conflict of Interest:

None

2. Funding:

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3. Abbreviations:

Electronic Medical Records (EMR), lipid profile low density lipoprotein (LDL), high-density lipoprotein (HDL) and non-high-density lipoprotein (non-HDL), total cholesterol (TC)

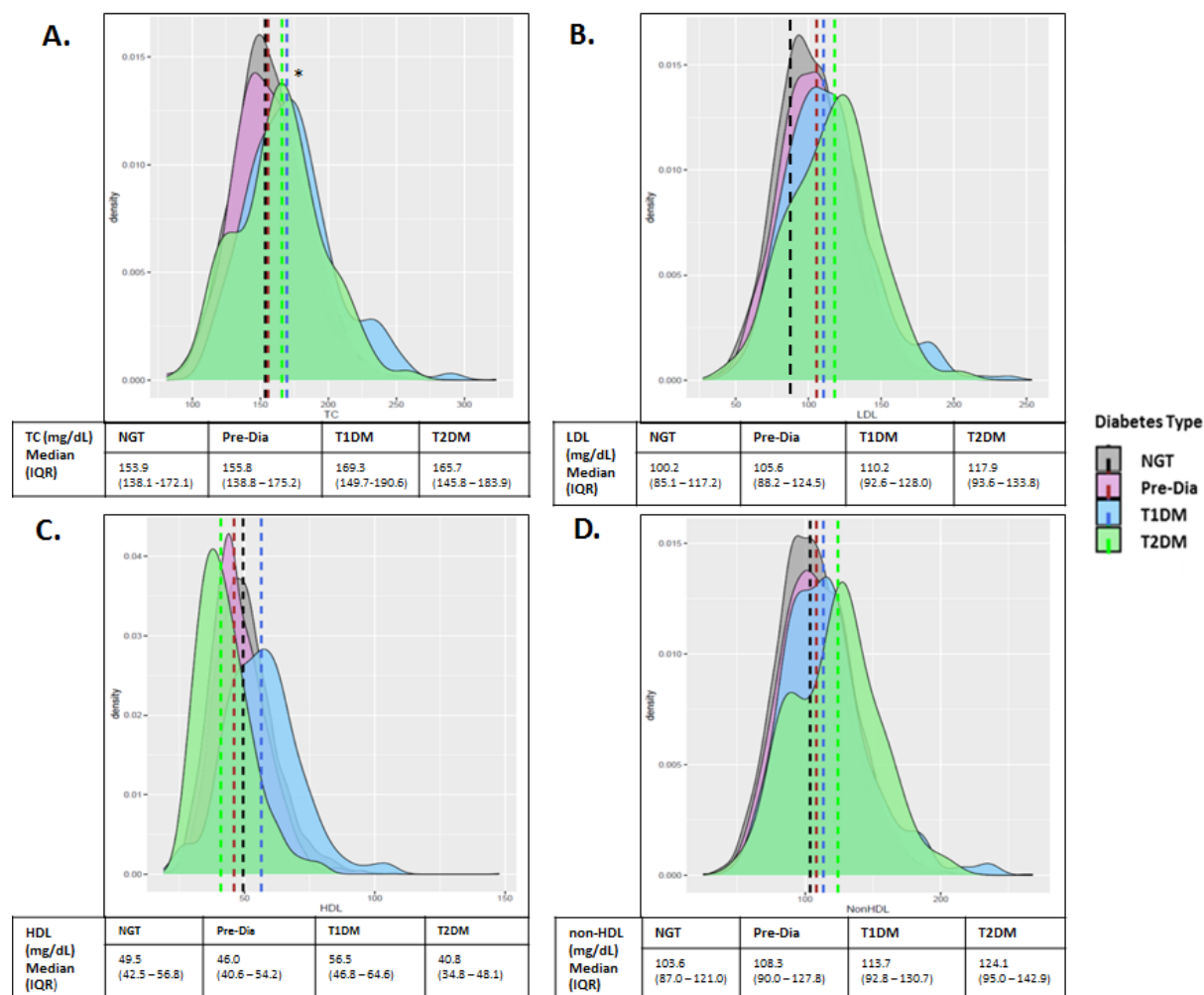


Figure 1. Lipid parameters shifts in overweight and obese children and adolescents per diabetes status. Density for various lipid parameters [A. (TC), B. (LDL), C. (HDL) and D. (non-HDL)] were plotted on ggplot on R statistical software (v3.2.2). Statistical analyses (Kruskal Wallis ANOVA with bonferoni multiple comparisons) were performed on SPSS(v24) with significance at $p\text{-value} \leq 0.001$.