Conclusions: The study shows that socioeconomic inequalities, unhealthy lifestyle, and metabolic syndrome (including obesity and hypertension) are significant predictors of dyslipidemia. LightGBM and XGBoost emerged as the most reliable models for predicting dyslipidemia. Their ability to manage imbalanced data while maintaining high predictive accuracy makes them suitable for early detection and prevention strategies. These findings underline the potential of machine learning to enhance dyslipidemia screening.

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Poster Topic: ***AS03 DYSLIPIDEMIA AND RISK FACTORS / AS03.02 Epidemiology of dyslipidemias***
The impact of COVID-19 on lipid profiles: Exploring variations in the pediatric population of the Dominican Republic

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Background and Aims: Lipid profiles of the pediatric population may have undergone significant changes across the pre-pandemic (PRE, 2013–2019), pandemic (2019), and post-pandemic (POST, 2020–2022) periods, particularly in triglyceride (TG) and total cholesterol (TC) levels. These shifts are likely associated with physical inactivity and increased caloric intake during the pandemic.
Methods: This analysis provides a descriptive assessment of all variables, including the mean, standard deviation, and interquartile range. Subgroup analyses compare PRE and POST data in the Dominican Republic to identify changes in lipid behavior based on age, biological sex, and demographic distribution.
Results: The mean age of children was 10.3 ± 5.2 years PRE and 9.8 ± 5.2 years POST (Table 1). Hypertriglyceridemia was the most common lipid abnormality both PRE and during the pandemic, while elevated TC became more prevalent POST (Table 1). Notably, 37.8% of children during the pandemic, compared to 29.6% POST, had elevated TC levels at ages 6-8 years (Table 2). Equivalently, average TG levels for children aged 10-18 improved slightly from 207.0 ± 98.1 mg/dL PRE to 192.2 ± 92.6 mg/dL POST (Table 1). Throughout the study period, all children had high-density lipoprotein cholesterol (HDL-C) levels below 40 mg/dL (Figures 1 & 2). Sex-based differences in apolipoprotein A1 levels became more pronounced POST, particularly in males (Figures 3 & 4).

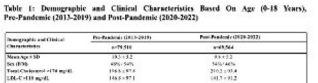
Table 1: Demographic and Clinical Characteristics Based On Age (0-18 Years), Pre-Pandemic (2013-2019) and Post-Pandemic (2020-2022)


Table 2: Abnormal Lipid Test Based On Age (0-18 Years), Pre-Pandemic (2013-2019) and Post-Pandemic (2020-2022)

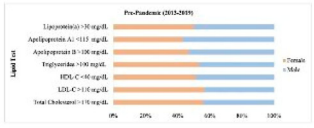

Figure 3: Abnormal Lipid Test Based On Biological Sex, Pre-Pandemic (2013-2019)

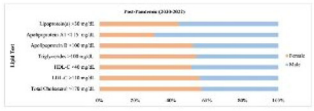

Figure 4: Abnormal Lipid Test Based On Biological Sex, Post-Pandemic (2020-2022)

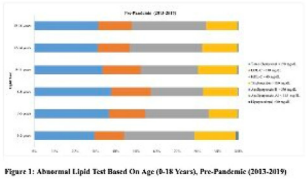
Figure 1: Abnormal Lipid Test Based On Age (0-18 Years), Pre-Pandemic (2013-2019)

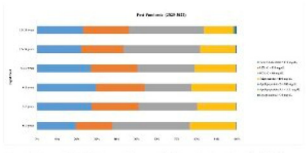
Figure 2: Abnormal Lipid Test Based On Age (0-18 Years), Post-Pandemic (2020-2022)

Figure 5: Geographic Distribution of LDL-C Tests (>110 mg/dL), Pre-Pandemic (2013-2019) and Post-Pandemic (2020-2022)

Conclusions: The pandemic had a significant impact on lipid profiles among children, likely due to a sedentary lifestyle, which contributed to elevated TG levels and reduced HDL-C. These changes were further amplified by dietary shifts, increased stress, and lifestyle disruptions, particularly in urban areas (Figure 5). Lipid profiles may have improved post-pandemic as children reintegrated into social environments, with increased physical activity playing a key role.

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Poster Topic: ***AS03 DYSLIPIDEMIA AND RISK FACTORS / AS03.02 Epidemiology of dyslipidemias***
Lp(a) levels in individuals with metabolic-dysfunction associated steatotic liver disease

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Background and Aims: Metabolic-dysfunction associated steatotic liver disease (MASLD), the most common chronic liver disease, is associated with accelerated atherosclerosis. Aim was to evaluate Lp(a) levels and a Lp(a) polygenic risk score (PRS) in a cohort of individuals, consecutively enrolled in a primary prevention program for candidate blood donors in Milan, Italy, focused at early diagnosis of hepatic and extra-hepatic complications of MASLD.
Methods: The Liver-Bible-2022 Biobank cohort included healthy subjects in the presence of at least three criteria of metabolic dysfunction defining MASLD. Hepatic fibrosis and steatosis were non-invasively estimated by liver stiffness measurement (LSM) and controlled attenuation parameter (CAP). Extracranial carotid arteries echo-color-doppler. Turbidimetric test for Lp(a). PRS was developed by fitting in multivariable linear regression effects of rs6938647, rs3798220, rs41272114, and rs10455872 variants on Lp(a) levels adjusting for age, gender, and statins.
Results: Among 803 individuals (mean age 53 y), 85% were males. 361 showed CAP ≥275 dB/m, 16 had LSM ≥8 kPa (>11.9 kPa in two). 326 subjects had hypercholesterolemia, 62 were on lipid lowering therapies, 211 showed increased Lp(a) levels, considering 21 mg/dl as threshold. Lp(a) concentrations were independently positively associated with LDLc and statin treatment, irrespective of age and sex. Participants with lower Lp(a) displayed an increased MASH score (p=0.03), which considers insulin, albumin, AST and *PNPLA3* genotype. Lp(a) values predicted the presence of ASCVD (estimated by (bulbar plaques) independently of other cardiovascular risk factors. Although the Lp(a) PRS was positively associated with circulating Lp(a) levels ($p=2.92*10^{-48}$) and LDL2 subclass, no associations were found with the hepatic functionality, also in carriers of the most common predisposing MASLD variants.
Conclusions: Lp(a) levels were inversely associated with MASH score, making Lp(a) less reliable in evaluating CV risk in these individuals. Lp(a) was confirmed as independent CV risk factor considering the presence of carotid plaques and the association of PRS with LDL2 subclass.

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Poster Topic: ***AS03 DYSLIPIDEMIA AND RISK FACTORS / AS03.02 Epidemiology of dyslipidemias***
Low-dose rosuvastatin plus ezetimibe versus standard-dose rosuvastatin: The effect on the carotid atherosclerosis of patients with hypercholesterolemia for two years

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Background and Aims: It is unknown whether the addition of ezetimibe to satin therapy affects carotid atherosclerosis. Aim of the present study is to compare the effects of combination therapy of low-dose rosuvastatin plus ezetimibe in slowing the progression of intima-media thickness (IMT) of patients under treatment with low-dose rosuvastatin for hypercholesetromia.
Methods: Sixty hypercholesetromic patients with LDL-C levels ≥120mg under treatment with low-dose rosuvastatin (2.5mg) were randomized to ezetimibe