
PUBLISHED ABSTRACT

Pediatric Dyslipidemia in a Minority Mostly-Immigrant Inner City Population

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Background

Childhood dyslipidemia and obesity have been associated with increased risk of lifelong atherosclerosis and adverse cardiovascular outcomes. Age appropriate universal or risk-based selective lipid screening is now recommended for early disease identification. Despite screening, the true burden of pediatric dyslipidemia has been masked by paucity of published data.

Aim

To compare the prevalence of dyslipidemia and obesity in the South Bronx pediatric population to national prevalence and to explore the association between childhood obesity and risk of dyslipidemia.

Method

We conducted a retrospective chart review of children aged 3–21 years who had lipid screening at the Bronx-Lebanon Hospital Center pediatric outpatient clinic from June 2012 to June 2017. Study was IRB-approved and data was obtained using ICD-9 and 10 codes for key words. Dyslipidemia was defined as any derangement in total cholesterol (Tc), non-high-density-lipoprotein-cholesterol (n-HDLc) or low-density-lipoprotein-cholesterol (LDLc) levels. We calculated mean serum levels for Tc, n-HDLc, LDLc, and Triglycerides (TG), while BMI was categorized based on age and gender specific percentiles. Serum lipid cut-offs were based on AAP Expert Panel recommendations, while data on national prevalence was based on NHANES and CDC data. Chi-square test of proportions and Logistic regression were used to compare prevalence and test associations at $\alpha = 0.05$ significance level using SAS 9.3®.

Results

Records for 8644 children were reviewed – half were male (50.1%) and mean age was 13 years. Majority (82%) identified as Black or Hispanic, with 47% of the population having BMI \geq 95th percentile.

In general, compared to national data, South Bronx pediatric population showed a significantly higher prevalence of dyslipidemia (29% vs. 20%, $p < 0.0001$) and Obesity (47% vs. 21%, $p < 0.0001$) (**Table 1**). Compared to subjects with normal BMI, obese (OR = 1.6, 95% CI = 1.46–1.75) and overweight (OR = 1.08, 95% CI = 0.96–1.21) subjects had increased likelihood of dyslipidemia. About 1% (86/8644) required use of statins or immediate referral to a specialist due to very high LDL or TG levels.

Conclusion

There is a higher prevalence of dyslipidemia in the South Bronx pediatric population compared to national prevalence, placing this population at risk of adverse cardiovascular health outcomes. Targeted public health and patient-level interventions are needed to reduce the risk of adverse cardiovascular events in this population.

Table 1: Proportion of patients with deranged serum lipid compared (N = 8644).

Parameter	Average	% of patients (South Bronx vs. National)			
	Mean (s.d)	Variable mg/dl	South Bronx	National	P-value
Tc	160.9 ± 32.9	Tc ≥ 200	11.1%	7.4%	<.0001
TG	101.6 ± 68.2	TG ≥ 130	25.4%	12.0%	<.0001
HDLc	52.6 ± 14.3	HDLc < 40	17.3%	13.0%	<.0001
LDLc	88.0 ± 29.2	LDLc ≥ 130	7.5%	7.0%	0.026
n-HDLc	108.3 ± 32.8	nHDLc ≥ 145	12.0%	8.0%	<.0001
Tc-HDL ratio	3.3 ± 1.0	Dyslipidemia	28.8%	20.0%	<.0001

Total cholesterol (Tc); non-high-density-lipoprotein-cholesterol (n-HDLc); low-density-lipoprotein-cholesterol (LDLc); triglycerides (TG), high-density-lipoprotein-cholesterol (HDLc); standard deviation (s.d).

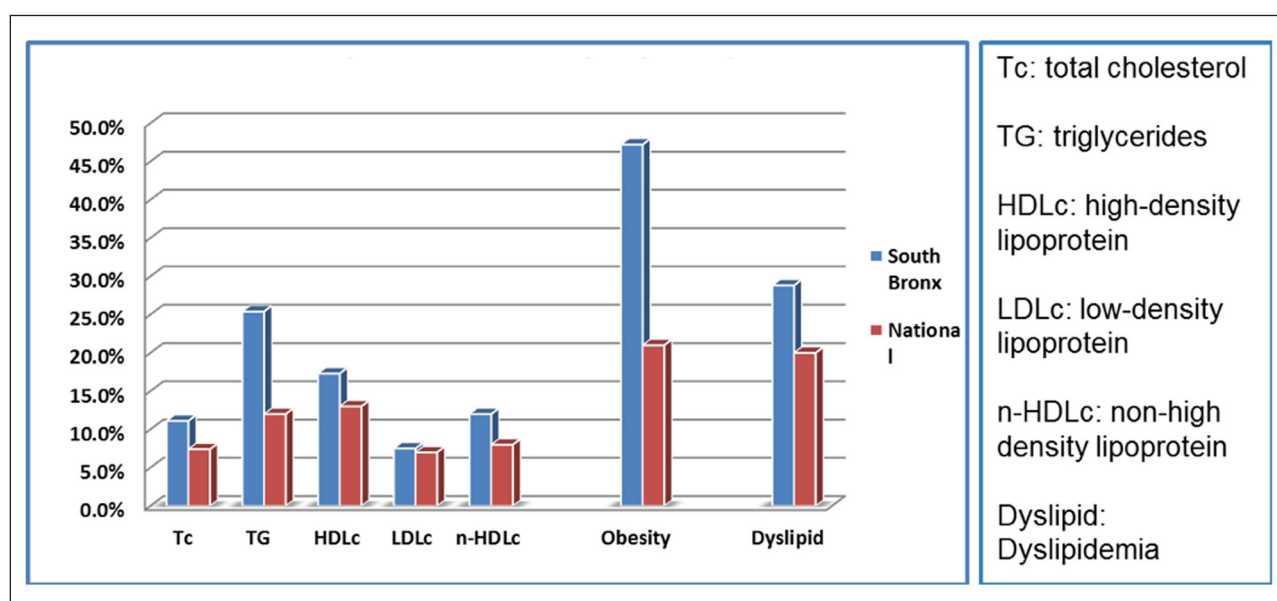


Figure 1: Comparing S. Bronx to National Prevalence.

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