CHRD 2024: Abstract Submission Form

Presenter Name
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Presenter Status
Undergraduate Students

Role in the project
Design
Analyze Data
Write Abstract

Research Category
Clinical

Title
Childhood Onset Type 2 Diabetes in A High-risk Cohort: General Cohort Description and Influence of Maternal Metabolic Factors

Background
Exposure to pregestational diabetes is a significant risk factor for childhood-onset type 2 diabetes (T2D). This study analyzes data from the Next Generation birth cohort, a prospective cohort consisting primarily of First Nations mothers with and without pregestational T2D and their offspring.

Objective
Study aims include to: (a) report metabolic outcomes of offspring in two age groups (7-9.9 and 14-16.9 years), and (b) explore the association between maternal metabolic factors and offspring T2D at ages 7-17.

Methods
Clinical and biochemical data for mothers and offspring were extracted from the Next Generation birth cohort. Descriptive statistics were used. Chi-squared and Wilcoxon rank sum tests were employed for comparative statistics. Multivariate logistic regression analysis was conducted to identify associations between main effects.

Results
The cohort includes 654 offspring, with 58 (8.9%) diagnosed with T2D between the ages of 7-17 years. Of the total cohort, 402 (61.5%) were born to mothers with pregestational T2D. Offspring aged 7-9.9 years had higher median BMI z-scores (2.31 [IQR 1.57, 2.58] vs 1.76 [1.08, 2.08], $p<0.001$) median total cholesterol concentrations (4.10 mmol/l [IQR 3.70, 4.40] vs 3.60 [2.91, 4.20], $p=0.03$), median AST levels (29.00 U/l [IQR 24.00, 36.00] vs 18.00 [15.00, 32.00], $p<0.001$), and hypertension rates (57% vs 24.1%, $p<0.001$) compared to those aged 14-16.9 years. Mothers of offspring with T2D compared to mothers of offspring without T2D were younger at delivery (21.56 years [IQR 19.54, 25.18] vs 23.97 [20.06, 29.63], $p=0.004$), had lower median first trimester BMI (27.11 kg/m2 [IQR 25.39, 30.32] vs 29.26 [25.30, 35.18], $p=0.013$), and higher gestational HbA1C levels ($p\leq0.01$). Multivariate analysis found no significant associations between maternal metabolic factors (HbA1c, lipids, smoking, BMI, gestational weight gain) and childhood-onset T2D.

Conclusion
Offspring of mothers with pregestational T2D exhibit high rates of metabolic dysfunction, suggesting need for early screening and intervention.

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No

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