

The Effect of the HNF1-α G319S Polymorphism on Kidney Health of Children in the Next Generation Cohort Exposed to Type 2 Diabetes in Utero

Priscilla Irabor¹, Allison Dart^{1,2}, Elizabeth Sellers^{1,2}, Stephanie Goguen¹, Yash Rawal¹, Brandy Wicklow^{1,2}

¹Children’s Hospital Research Institute of Manitoba, University of Manitoba; ²Pediatrics and Child Health, University of Manitoba



- INTRODUCTION**
- The HNF1-α G319S polymorphism is a risk factor for developing childhood-onset type 2 diabetes (T2D), however, its association with kidney outcomes is unknown.
 - For children with T2D, in utero exposure to T2D is associated with increased risk of albuminuria often present at diagnosis.
 - Detection of early markers of glomerular and tubular injury could inform early detection, intervention and treatment of kidney disease.

- OBJECTIVE**
- We sought to evaluate markers of kidney health of children exposed to T2D in utero with and without the HNF1-α G319S polymorphism.

- METHODS**
- We included 142 participants from the Next Generation birth cohort study who were exposed to T2D in utero, between 5-11 years of age and had HNF1-alpha polymorphism data.
 - Urine samples were tested for albuminuria (ACR≥3mg/mmol) and glycosuria.
 - Blood pressure readings were interpreted based on the American Academy of Pediatrics 2017 guidelines.
 - Descriptive statistics, Wilcoxon and Chi-Square tests were employed.

RESULTS

Table 1: Characteristics of children exposed to T2D in utero with (S/G or S/S) and without (G/G) the HNF1-α G319S polymorphism.

	G/G	S/G or S/S	P value
n	67	75	
Female %	46.3%	57.3%	0.250
Age (mean (SD))	9.14 (1.90)	8.84 (1.92)	0.336
BMI z-score (median [IQR])	2.16 [1.71, 2.42]	2.25 [1.79, 2.51]	0.425
A1C (median [IQR])	5.40 [5.30, 5.60]	5.50 [5.30, 5.80]	0.118
ACR (median [IQR])	0.50 [0.30, 0.92]	0.6 [0.30, 0.90]	0.616
Albuminuria%	4%	0%	0.136
Glycosuria*%	0%	0%	-

*n=17

- CONCLUSIONS**
- We observed no glycosuria and low rates of albuminuria.
 - There were high rates of hypertension in both the wild type and variant group.

RESULTS

Blood pressure status

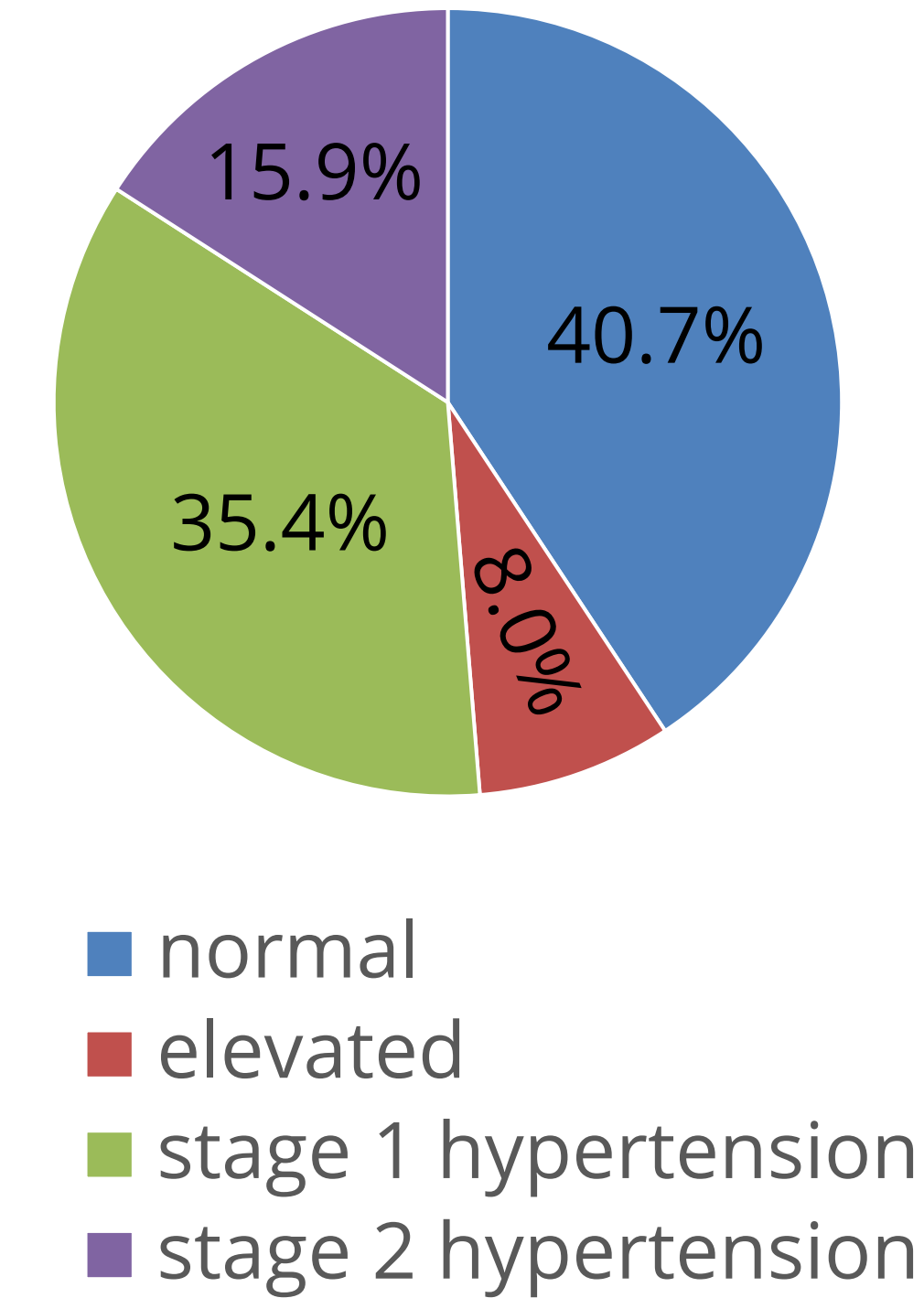


Figure 1: Overall blood pressure status of participants within the sub-cohort

- FUTURE DIRECTIONS**
- Further investigation to determine the association of hypertension with exposure to T2D in utero.
 - To measure other potential early biomarkers of kidney health in the cohort.

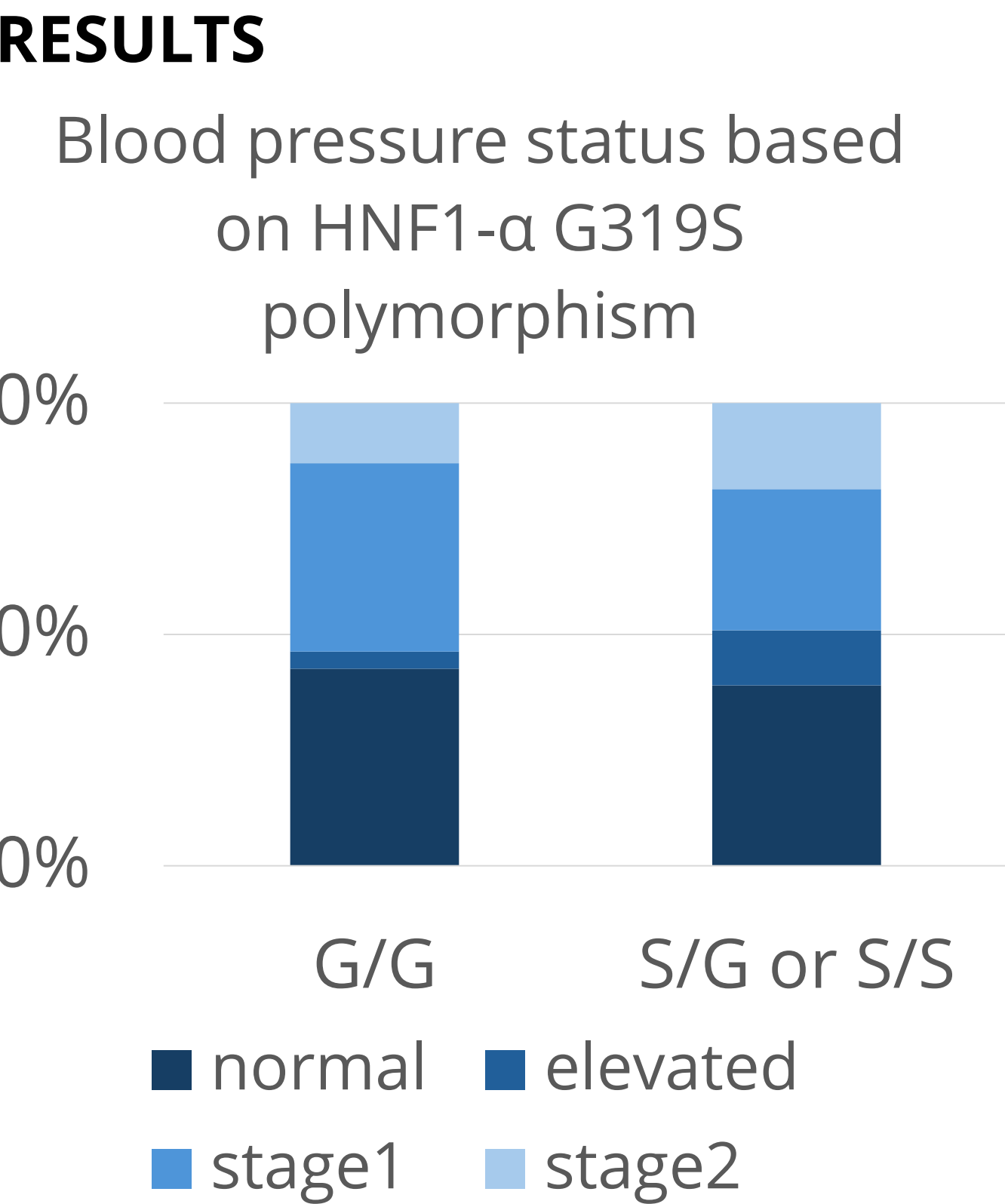


Figure 2: Blood pressure status of participants with and without the HNF1-α G319S polymorphism.

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