

# CARDIOVASCULAR RISK IN CHILDREN WITH PRIMARY ADRENAL INSUFFICIENCY (PAI) : PRELIMINARY DATA

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## INTRODUCTION

Increased risk of cardiovascular disease and increased subclinical atherosclerosis have been reported in CYP with PAI when compared to healthy children.

Carotid intima media thickness (CIMT) can be used as an early marker of cardiovascular disease.

The severity of adverse metabolic profile has been related to the total hydrocortisone dose and duration of treatment.

## AIM

To assess the prevalence of increased CIMT, an early marker of cardiovascular risk, in children with PAI.

## METHOD

Children with primary AI treated with hydrocortisone (HC) attended the CRF. Demographics were recorded, as was height, weight and blood pressure.

Measurements for CIMT were taken approximately 0.5cm distal from the carotid bulb on the right carotid artery.

Average measurements were taken of these images.

Two sitting blood pressure measurements were taken from the left arm and an average was ascertained.

Children > 10 years also had 24-hour ambulatory blood pressure recorded when tolerated.

## RESULTS

17 Children (aged  $9.9 \pm 4.1$  years) participated in the cardiovascular aspect of the study.

3 children had Addison's, 14 had congenital adrenal hyperplasia (9 of whom had salt wasting).

2 children could not tolerate ultrasonography.

Parameter (n = 17)	Mean $\pm$ SD
Height SDS	$0.81 \pm 1.34$
BMI SDS	$0.13 \pm 1.21$
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BMI SDS	$0.13 \pm 1.21$
Length of time since diagnosis (years)	$6.06 \pm 4.05$
Hydrocortisone dose (mg/m <sup>2</sup> /day)	$10.8 \pm 3.93$

Table 1. Patient characteristics of children with PAI who had CIMT performed.

Table 2. Average sitting blood pressure in children with PAI treated with hydrocortisone

Blood pressure measurements	
Systolic blood pressure centile (percentile)	$75.6 \pm 34.2$
Diastolic blood pressure centile (percentile)	$59.0 \pm 25.3$

7 children showed evidence of hypertension on sitting blood pressure (>95<sup>th</sup> centile)

4 children showed evidence of diastolic BP >95<sup>th</sup> centile.

Children with BP readings >95<sup>th</sup> centile were on HC doses 5.6-10.8mg/m<sup>2</sup>/day and fludrocortisone doses 0-175 mcg/day.

Doses were reviewed and adjusted in those with hypertension. These measurements will be repeated at their next clinic appointment.

One child has hypertension of unknown cause who is currently being investigated.

Photograph highlighting correct assessment of CIMT<sup>1</sup>

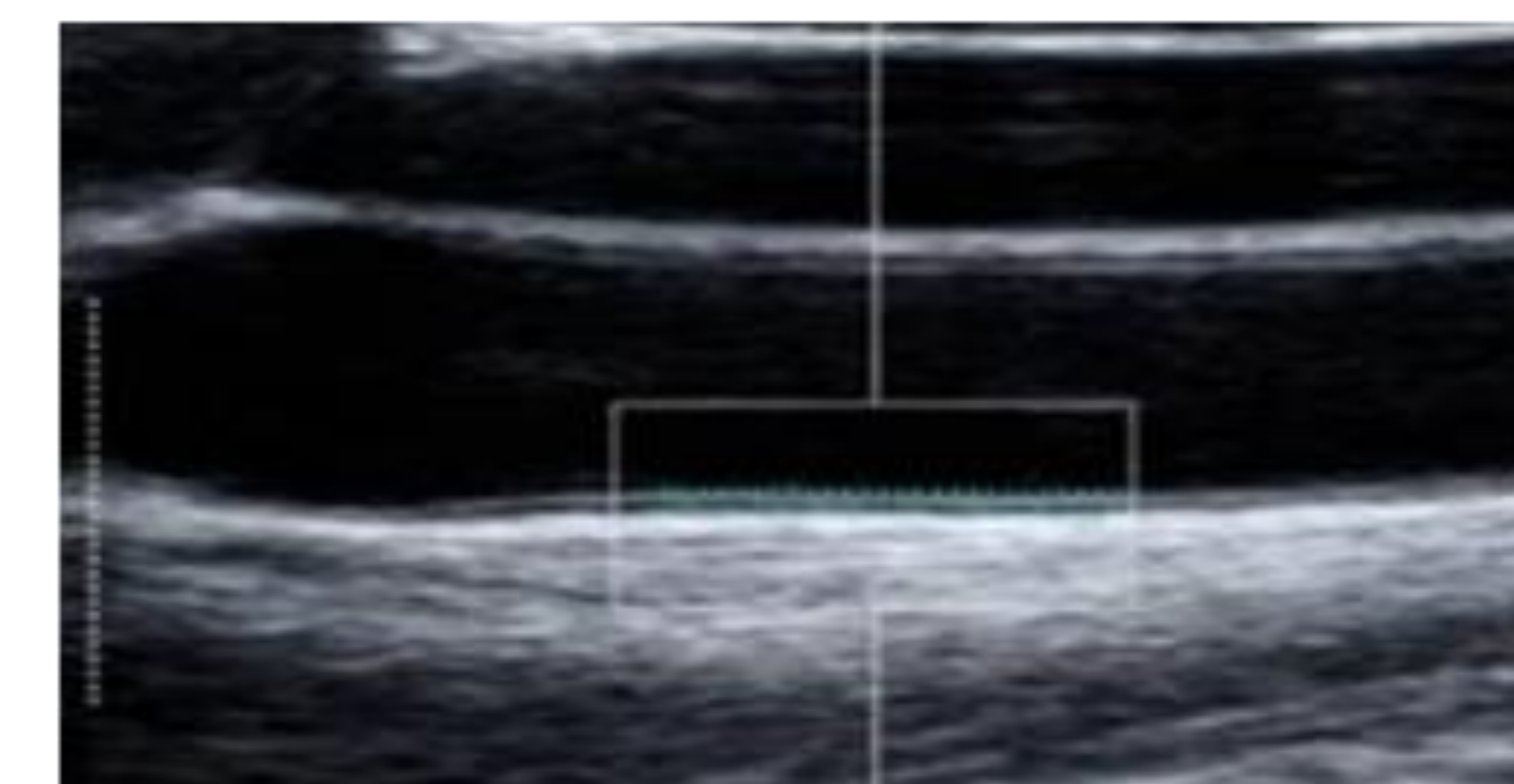


Table 3. Carotid intima media measurements in children with primary adrenal insufficiency

	Median, IQR
CIMT measurement (mm)	0.41 (0.40-0.48)

CIMT measurements were within normal limits when compared to that of healthy children.<sup>1</sup>

Linear regression analysis, adjusted for age, length of time since diagnosis/start of hydrocortisone treatment and dose of hydrocortisone taken did not show an association with CIMT values.

## CONCLUSIONS

These preliminary data show CIMT measurements that are in the normal range, in this cohort of CYP with PAI.

Hypertension is evident within this population.

Contrary to historical data, early subclinical atherosclerotic changes have not been identified.

This may reflect good clinical practice. Hydrocortisone doses are reviewed and adjust regularly, guided by both clinical and biochemical parameters.

## REFERENCES

(Dalla Pozza, Ehringer-Schetitska et al. 2015)

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