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BACKGROUND

Recent studies demonstrate that children and adolescents with Congenital Adrenal Hyperplasia (CAH) may develop visceral adiposity and insulin-resistance. Data on adipocytokines are scanty and contraddictory.

OBJECTIVE

1. To evaluate leptin and adiponectin concentrations in CAH adolescents
2. To investigate the influence of glucocorticoid treatment, hormonal status and metabolic profile on Adipocytokynes.

PATIENTS AND METHODS

PATIENTS

21 classical CAH patients, aged 13.5±2.5 years
21 healthy subjects matched for age, sex and pubertal status.

METHODS

Leptin, adiponectin, insulin and HOMA were evaluated in both patients and controls

Anthropometric parameters (weight, height, waist and hip circumference, waist-to-height ratio) and hormonal status were also measured, in order to assess disease control in our patients

RESULTS

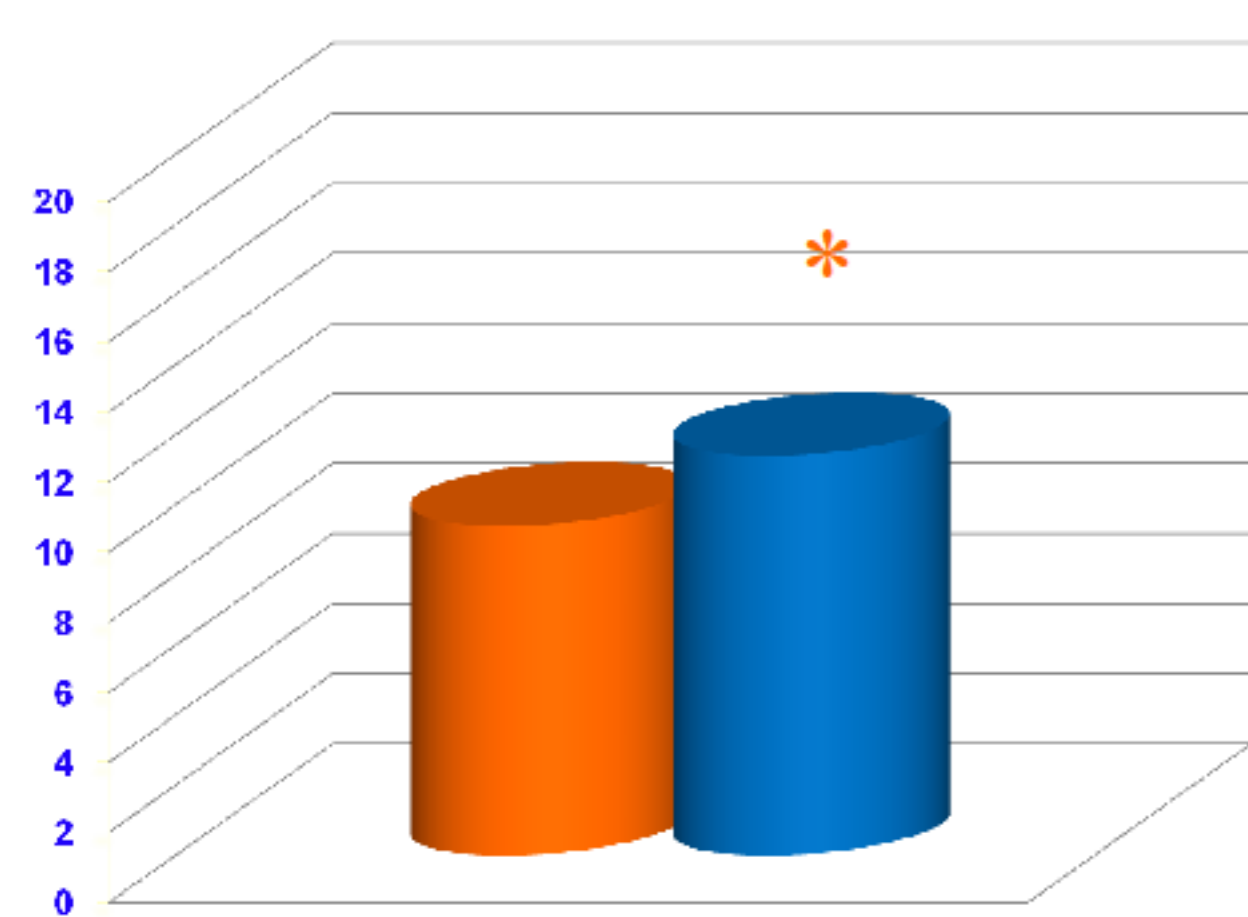
- ❖ CAH patients exhibited higher BMI SDS, waist circumference and waist-to-height ratio than controls (1±0.9 vs -0.2±1.4, p=0.002; 83.6±11vs 73±13 cm, p=0.01; 0.55±0.07vs 0.4±0.06 cm, p=0.008), thus suggesting a visceral pattern of adiposity (Table 1).
- ❖ Compared to controls, CAH patients had higher fasting insulin (11.4±7.5vs9.4±14u/ml, p=0.01) (Figure 1), HOMA (2.3±1.3 vs 1.2±0.9, p=0.05) (Figure 2), leptin (15.06±8.9 vs 7.23±6ng/ml, p=0.003) (Figure 3) and leptin/adiponectin ratio (1.9±2.2vs0.76±0.74, p=0.03). This difference in leptin and leptin/adiponectin ratio did not persist after correction for BMI SDS, but they were still significantly higher after correction for BMI SDS.
- ❖ Adiponectin levels and lipid profile were comparable between the two groups.
- ❖ Leptin and leptin/adiponectin ratio in CAH patients were positively correlated to BMI SDS (r=0.5,p=0.03 and r=0.6, p=0.007, respectively) and waist-to-height ratio (r=0.67, p=0.001 and r=0.7, p=0.0009, respectively); and negatively correlated to the current hydrocortisone dosage (r=-0.5, p=0.02 and r=-0.6, p=0.003, respectively).
- ❖ No correlation was found between leptin or leptin/adiponectin ratio and androgens or cumulative hydrocortisone dosage in the last three years

TABLE 1

	Patients (n=21)	Controls (n=21)	P
Age (years)	13.5±2.5	13.1±2.5	ns
Height (SDS)	-0.5±1.1	0.5±1.6	<0.03
BMI (SDS)	1±0.9	-0.2±1.4	0.002
Waist circumference (cm)	83.6±11	73±13	0.01
Waist-to-height ratio	0.55±0.07	0.4±0.06	0.008

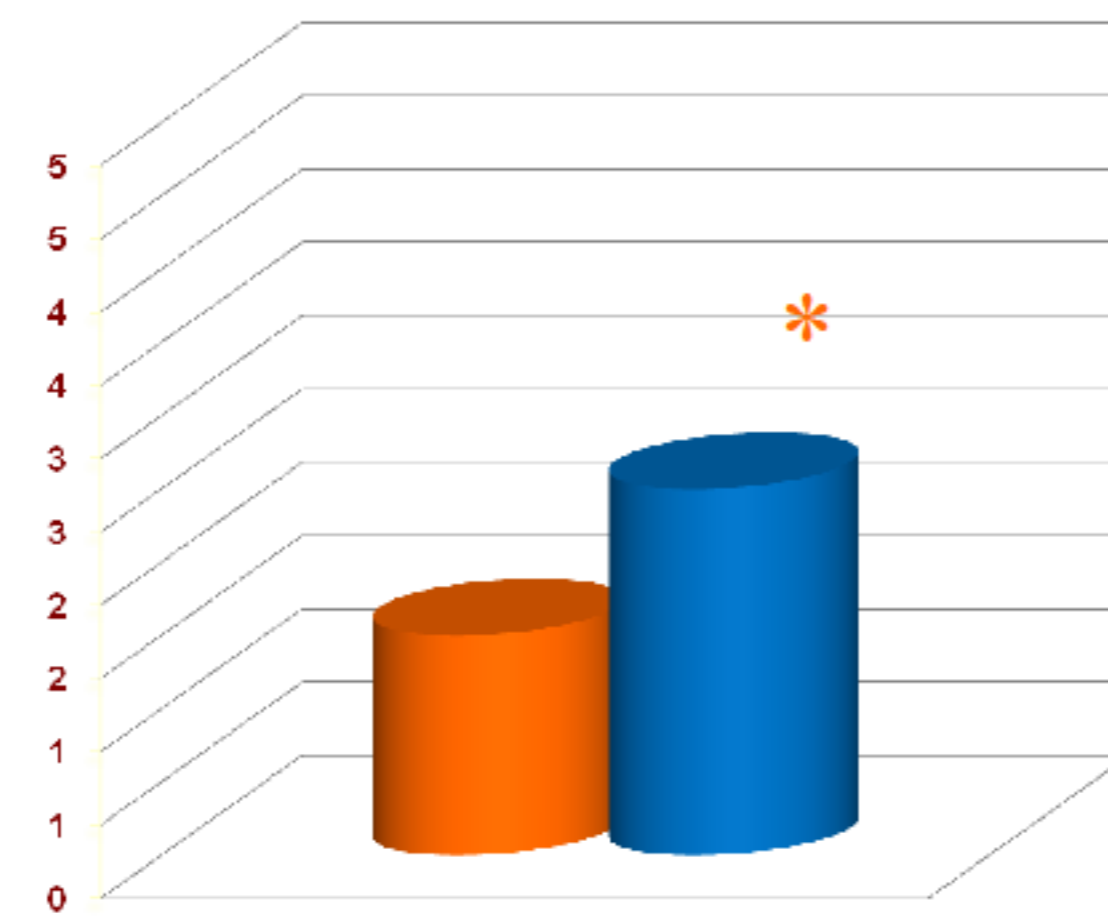
* P<0.05

Figure 1



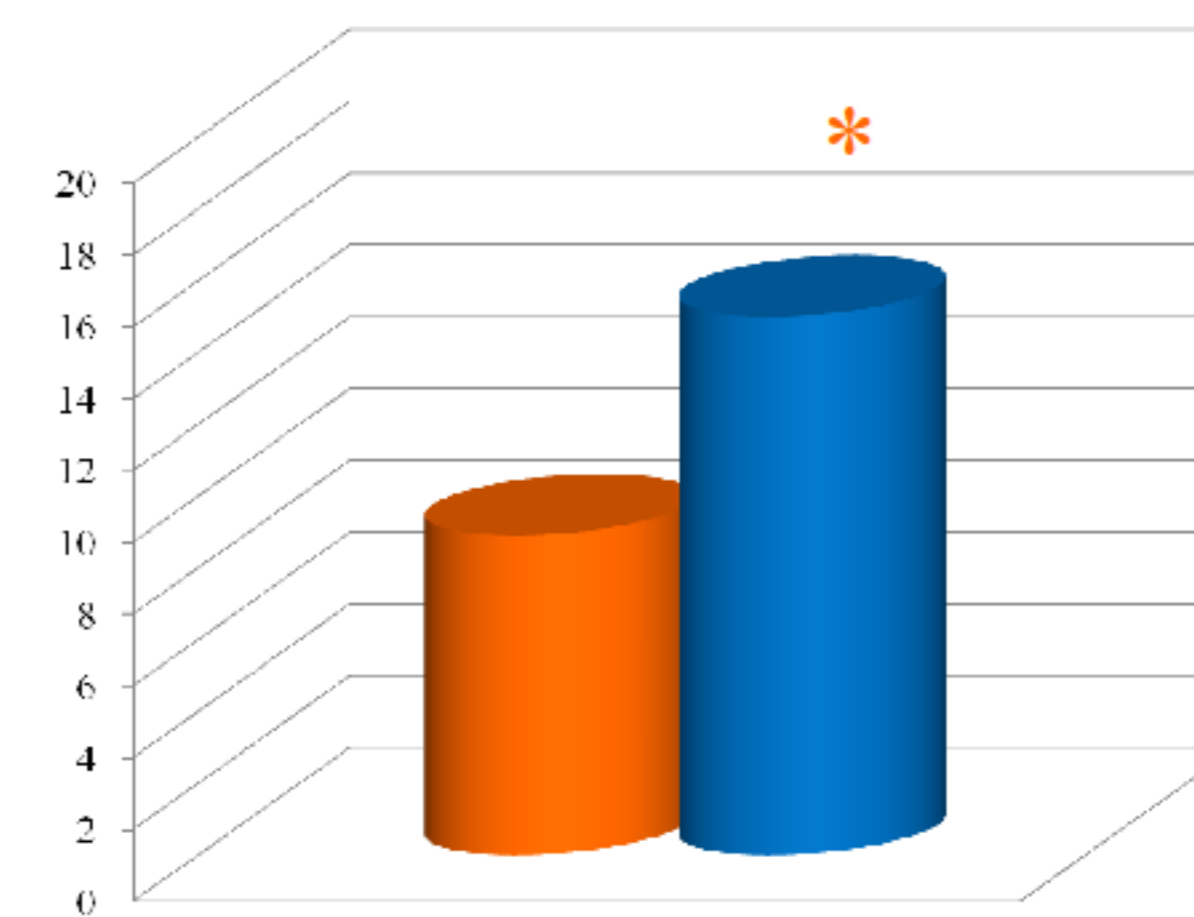
Insulin

Figure 2



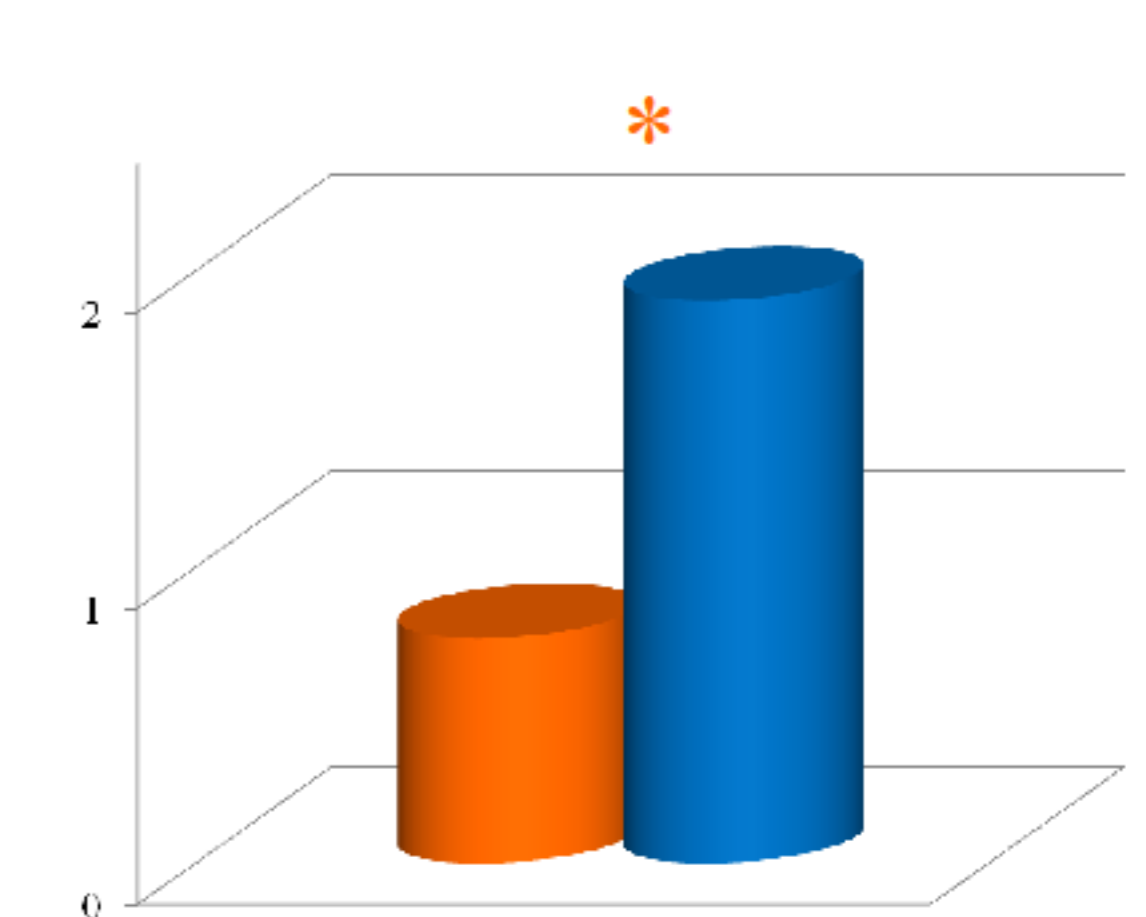
HOMA

Figure 3



Leptin

Figure 4



Leptin/adiponectin

Controls Patients

CONCLUSIONS

- ❖ Children and adolescents with CAH may develop visceral adiposity, hyperinsulinism and insulin-resistance.
- ❖ High leptin levels in CAH reflect increased adiposity.
- ❖ Long term hydrocortisone treatment does not affect leptin levels.
- ❖ The impact of sex and gender on adipocytokynes needs to be further investigated on larger cohorts.

Disclosure statement: the authors have nothing to declare

