

EARLY BLOOD PRESSURE ABNORMALITIES RELATED TO CARDIOVASCULAR RISK IN OBESE CHILDREN AND ADOLESCENTS



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Introduction

Emerging data suggest that **ambulatory blood pressure monitoring for 24 hours** may be efficient in the diagnosis of hypertension in adults, children and adolescents. Additionally, in adults, it may predict the existence of some **early blood pressure abnormalities** related to **cardiovascular risk**: (1) **Elevated BP load** (>25%) (2) **Non-dipping** (BP decrease in night-time <10%).

OBJECTIVES

- To evaluate the presence of **early BP abnormalities** related to **cardiovascular risk** in obese children and adolescents.
- Contrast its prevalence with non-obese counterparts.

METHODS

CASE-CONTROL STUDY:

	NORMAL -WEIGHT IMC [18,5-25] Kg/m ² (IOTF, 2000) N=77	OBESE IMC ≥30 Kg/m ² (IOTF, 2000) N=77	p-value
•Age (years)	Mean(SD) 11.5 (2.1)	Mean(SD) 11.6(2.1)	0.833
•Body mass index (Kg/m ²)	18.2(2)	28.8(3.9)	<0.001*
•Waist circumference (cm)	63.2(7)	86(9.6)	<0.001*
	(%)	(%)	
•Sex (male/female)	53.3/46.7	53.3/46.7	1
•Tanner stage (I/II-III/IV-V)	33.7/39/27.3	33.7/39/27.3	1

*Student's T test., Significance if p<0.05

a) Definition of BP load

Percentage of ABP readings ≥ 95th percentile for sex and height (AHA 2014)

Elevated (pathological) if > 25%



b) Definition of Nocturnal blood pressure dipping

(Daytime BP mean - Nocturnal BP mean) /Daytime BP mean x100

Pathological if < 10%

BLOOD PRESSURE ASSESSMENT:



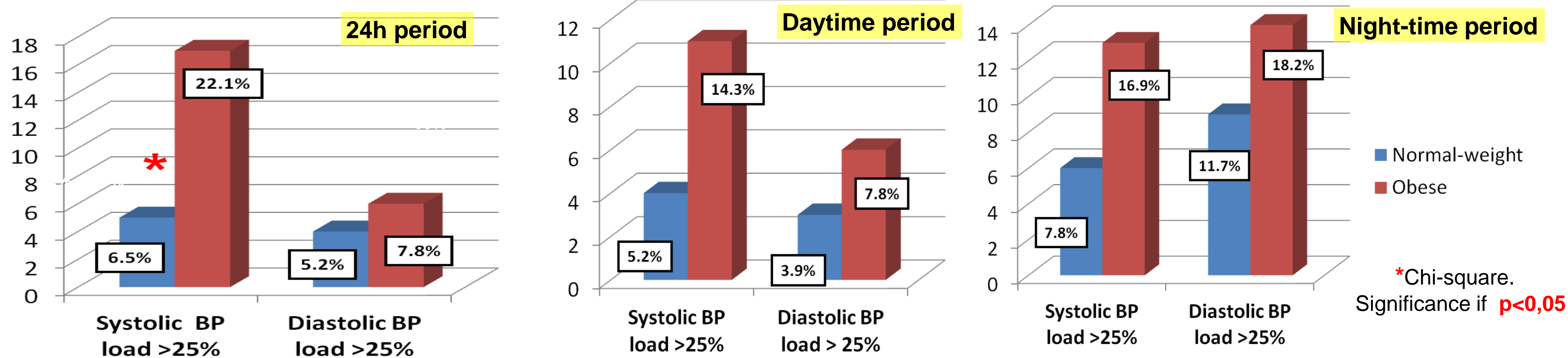
•24h Ambulatory Monitoring (Watch BP 03®)

Blood Pressure Parameters		
24H Blood Pressure	Daytime Blood Pressure	Night-time Blood Pressure
24H Systolic BP mean (mmHg)	Daytime Systolic BP mean (mmHg)	Night-time Systolic BP mean (mmHg)
24 H Diastolic BP mean (mmHg)	Daytime Diastolic BP mean (mmHg)	Night-time Diastolic BP mean (mmHg)

RESULTS

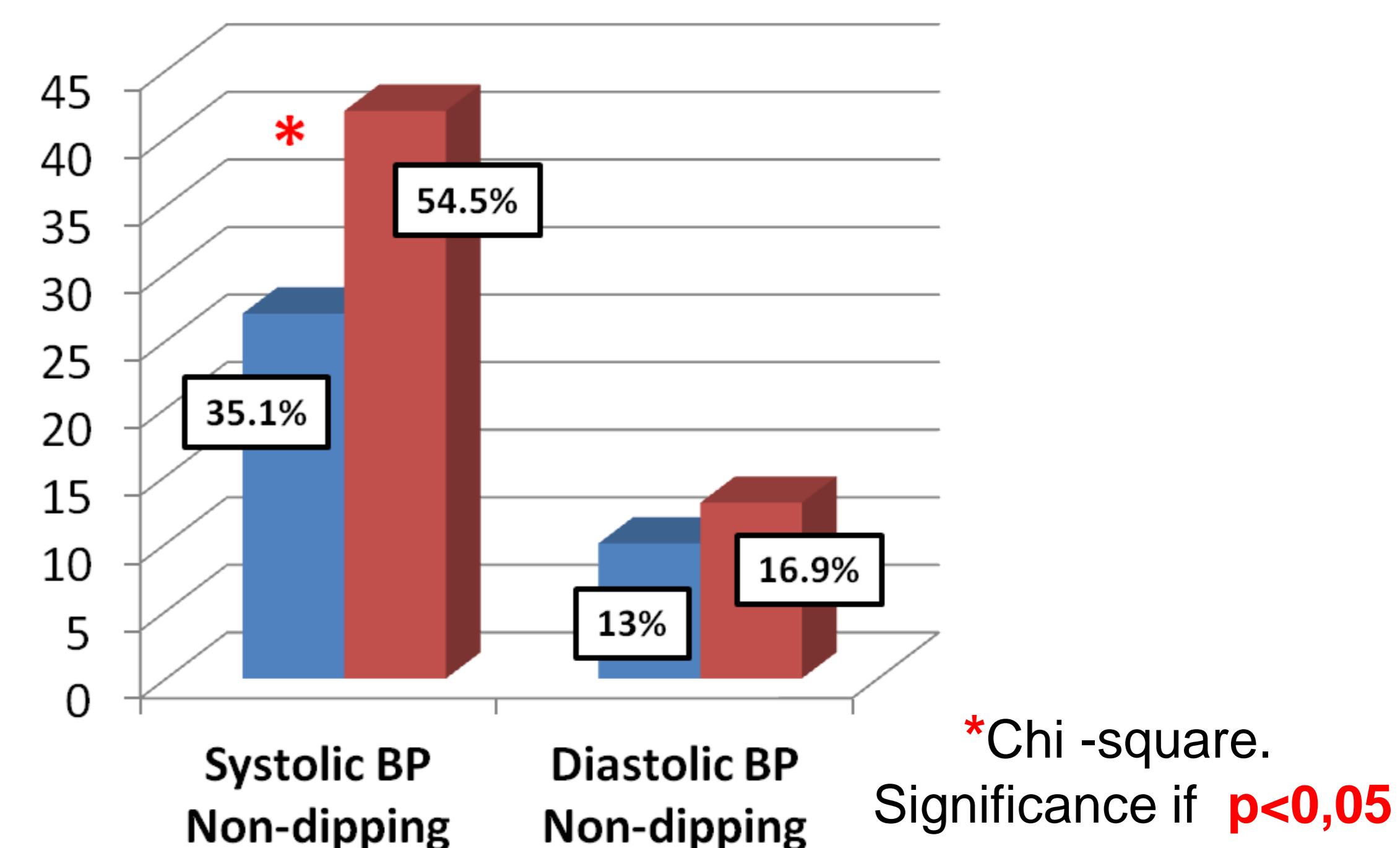
Prevalence of early BP abnormalities related to cardiovascular risk

1. Elevated Blood pressure load (>25%)



2. Blood pressure dipping

Mean value of:	Normal-weight	Obese	P-value
•SBP dipping (%)	12.1	9.8	<0.001
•DBP dipping (%)	18.1	16.9	0.374



Conclusions: The current study shows a high prevalence of early BP disturbances in obese children and adolescents. It would be interesting to extend the study adding analytical and echocardiography markers related to cardiovascular risk.

