

Prevalence of organic lesions in males with central precocious puberty.

Stefania Pedicelli¹, Sara De Matteis², Giuseppe Scirè², Marco Cappa¹ and Stefano Cianfarani^{2,3}

¹Unit of Endocrinology and Diabetes, "Bambino Gesù" Children's Hospital, IRCCS, Rome, Italy

²Molecular Endocrinology Unit, "Bambino Gesù" Children's Hospital-Tor Vergata University, Rome, Italy

³Department of Women's and Children's Health, Karolinska Institutet, Stockholm, Sweden



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Background

Organic lesions in males with central precocious puberty (CPP) have been reported in **40% of cases**. This high prevalence decreases to **20-29%** when patients with previously diagnosed **alterations of central nervous system (CNS)** are **excluded**.

Reported **predictors** of organic lesions are **age** at puberty onset, **bone age**, **BMI**, **LH peak** response and **testosterone** levels.

Objectives

1. to determine the **prevalence and type of intracranial lesions** in males with CPP
2. to identify **clinical and biochemical predictors** of brain abnormalities.

Methods

All males diagnosed with **CPP** at a tertiary pediatric center, through pubertal gonadotropin response to a GnRH stimulation test, were included.

Patients with known CNS alterations, genetic syndromes or known endocrine disorders were classified as having **secondary CPP (sCPP)**; the remaining as **isolated CPP (iCPP)**.

All patients underwent **hypothalamus-pituitary MRI** and the findings were classified as: **normal**, **incidentalomas** or **organic lesions**.

Results

64 boys were included in the study; **iCPP** was diagnosed in **78.1%** of cases (50/64).

sCPP patients had congenital adrenal hyperplasia (n=3), adrenal insufficiency (n=1), previous ependymoma (n=1), epileptic herpetic encephalopathy (n=1), hydrocephalus (n=1), hypothalamic dysfunction (n=1), type 1 neurofibromatosis (n=1), X-fragile syndrome (n=1), Prader-Willi syndrome (n=1), Fryns syndrome (n=1) and other genetic syndromes (n=2).

The comparison between iCPP and sCPP showed that **iCPP** patients had **higher height SDS** at diagnosis (p=0.014), **higher BMI SDS** (p=0.037) and **lower prolactin** levels (p<0.001), probably related to the underlying diseases in sCPP patients.

	<i>iCPP</i>	<i>sCPP</i>	<i>p</i>
Height at diagnosis (SDS)	1.01 ± 1.31	-0.34 ± 2.09	0.014
BMI at diagnosis (SDS)	0.84 ± 1.09	1.76 ± 1.81	0.037
Prolactin (ng/ml)	6.68 ± 4.13	33.8 ± 20.0	<0.001

iCPP males showed **normal MRI** in **78%** of cases (39/50), **incidentalomas** in **10%** (5/50) and **organic lesions** in **12%** (6/50).

	<i>iCPP</i>	<i>sCPP</i>
Incidentalomas	Pituitary hypoplasia (n=3) Lipoma of the tuber cinereum (n=1) Ectopic neurohypophysis (n=1)	
Organic lesions	Pituitary microadenoma (n=3) Hypothalamic hamartoma (n=2) Ganglioglioma (n=1)	Glioma (n=1) Ependymoma (n=1)

As **2 of 3 microadenomas** were **not confirmed** at a second evaluation and this type of lesions are often considered **incidentalomas** in pediatric population with CPP, after their exclusion the prevalence of **organic lesions** decreased to **6%** (Fig.1).

No predictive parameter of organic lesions was found. Radiological follow-up of the organic lesions showed **no evolution** after **2-years follow-up**.

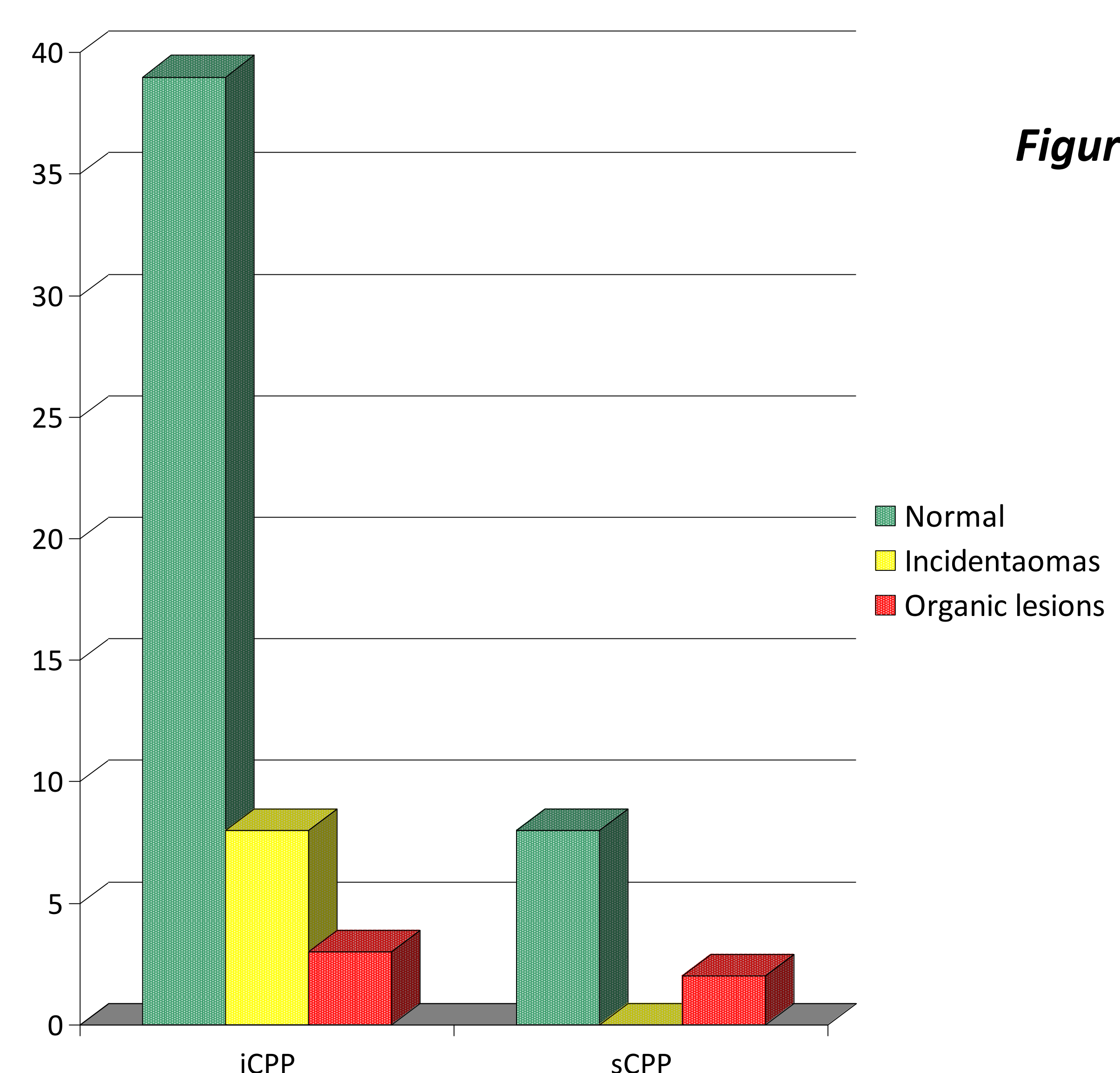


Figure 1

Conclusions

In males with CPP the prevalence of organic lesions is lower than previously reported after excluding patients with known predisposing conditions.