

Pituitary-Ovarian Axis in Patients with Isolated Premature Thelarche



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BACKGROUND

Isolated premature thelarche (IPT) is characterised by precocious breast development without any other signs of puberty

THE OBJECTIVE

The aim of the study was to analyze hormonal activity of the pituitary – ovarian axis in girls with IPT.

PATIENTS AND METHODS

102 girls with IPT (Tanner stage 2–3),
mean age 2 ± 1.4 years (0.04–7 years),
mean weight 12.3 ± 4.3 kg,
mean height 85.0 ± 13.6 cm (45±31 percentile),
mean BMI 16.4 ± 1.7 (46.38±27.5 percentile).

The patients were divided into two groups depending on the time of stating the enlargement of mammal glands:

- group 1 before finishing 1 year of age
- group 2 after finishing 1 year of age.

Blood was drawn in the morning in fasting condition.

The concentration of inhibin B, estradiol, FSH, LH, prolactine, TSH, FT4, insulin, lipids and liver enzymes was estimated.

The analysis of serum biochemical parameters and hormones was performed immediately. The concentration of all hormones with the exception of Inhibin B was measured by LIA (DPC, USA). Serum for estimation of Inhibin B was frozen, and subsequently measured by ELISA (DSL, USA).

RESULTS

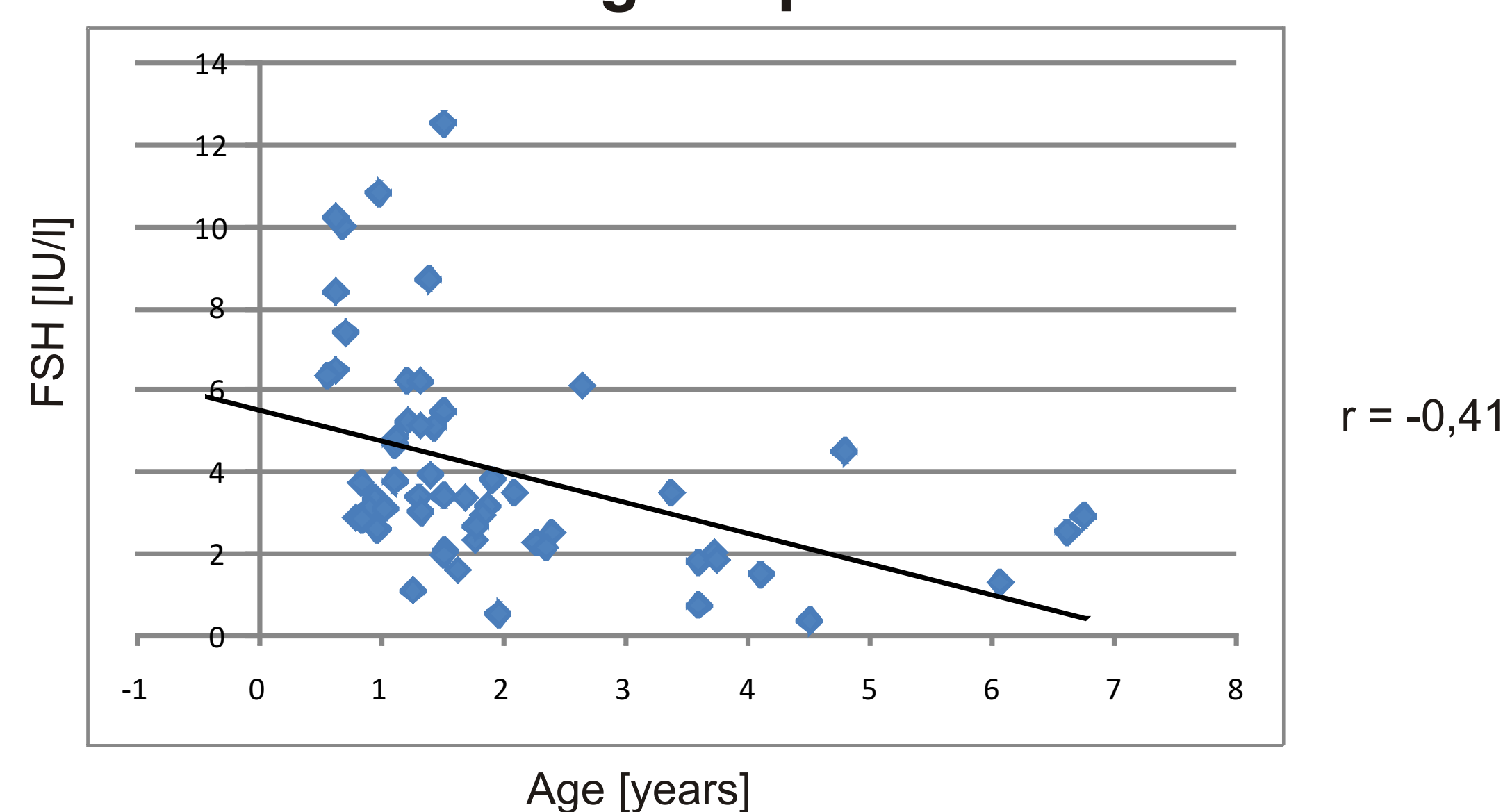
All of the patients had normal thyroid hormones levels.
Oestradiol concentration was below estimation threshold in 88% of them.
Mean inhibin B level was 6.3 ± 10.6 pg/ml, LH 0.15 ± 0.07 IU/l, FSH 4.2 ± 2.7 IU/l, prolactine 15.1 ± 12 ng/ml.

No significant differences were observed in both groups of patients.
There was a negative correlation between FSH and the age of patients, positive correlation between FSH and inhibin levels.
There was also a positive correlation between estradiol and insulin but not inhibin B and insulin levels.

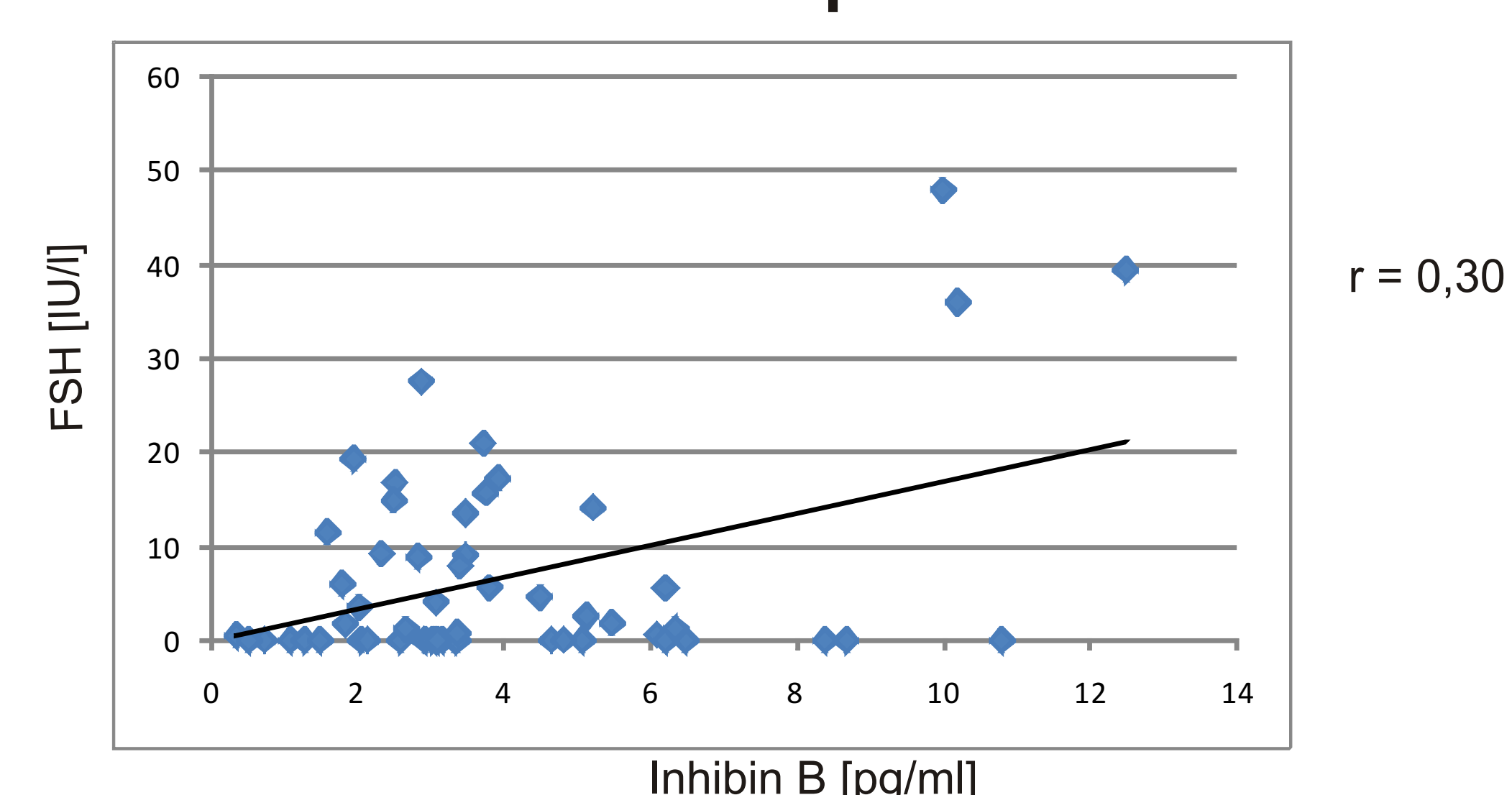
The characteristics of the groups of patients with IPT

		1 group	2 group	
Age	Years	1.8	2.2	Ns
Height	cm	83.1	89.8	0.04
Height SD		0.28	0.37	ns
Weight	kg	11.5	12.6	ns
BMI	kg/m ²	16.4	16.2	ns
BMI SD		-0.4	-0.1	ns
TSH	mIU/l	2.8	2.1	ns
FSH	mIU/l	4.4	3.7	ns
LH	mIU/l	0.16	0.14	ns
Prolactine	mIU/l	15.1	14.0	ns
Estradiol	ng/ml	0.76	0.5	0.03
Inhibin B	pg/ml	7.96	5.75	ns
Insulin	pg/ml	3,6	4,1	ns

Correlation of the concentration of FSH and the age of patients with IPT



Correlation of the concentration of FSH and Inhibin B of patients with IPT



CONCLUSIONS

Inhibin B is produced by granulosa cells under the influence of FSH.

The activity of this axis decelerates during first months of age.

The synthesis of oestradiol and insulin in patients with IPT is mutually dependent.