The study included 25 CPP (7±0.8 years), 35 PT (6.8±0.7 years) and 30 controls (6.7±0.7 years). BA, BA/CA ratio, basal LH, peak LH were significantly different between CPP and PT groups (p<0.05). Serum kisspeptin and neurokinin B levels were detected as (2.36±0.47 pg/ml and 2.61±0.32 ng/ml) in CPP, (2.23±0.43 pg/ml and 2.24±0.23 ng/ml) in PT and (1.92± 0.33 pg/ml and 2.03±0.24 ng/ml) in controls. Kisspeptin and neurokinin B levels were significantly higher in CPP and PT group compared to controls (p<0.05). While neurokinin B

Serum Neurokinin B level can be used to differentiate central precocious puberty from premature thelarche.

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AIMS and OBJECTIVES

The aim of the present study was to investigate the diagnostic role of kisspeptin and neurokinin B in central precocious puberty (CPP) and premature thelarche (PT).

METHODS

The girls who presented with breast development (between 5-8 years) were included in the study. All cases underwent bone age (BA) assesment. Basal serum FSH, LH and E2 and peak FSH, LH were measured after GnRH test. Patients who had peak LH > 5mIU/mL (ICMA) and a bone age/chronological age (CA) ratio >1.1 were diagnosed as CPP, while cases who did not have these criteria were as PT. Organic pathologies were excluded. Healthy, similar age prepubertal girls were included as control group. Neurokinin B and kisspeptin levels were measured by ELISA method.

RESULTS

The study included 25 CPP (7±0.8 years), 35 PT (6.8±0.7 years) and 30 controls (6.7±0.7 years). BA, BA/CA ratio, basal LH, peak LH were significantly different between CPP and PT groups ($p<0.05$). Serum kisspeptin and neurokinin B levels were detected as (2.36±0.47 pg/ml and 2.61±0.32 ng/ml) in CPP, (2.23±0.43 pg/ml and 2.24±0.23 ng/ml) in PT and (1.92± 0.33 pg/ml and 2.03±0.24 ng/ml) in controls (Table 1).

Kisspeptin and neurokinin B levels were significantly higher in CPP and PT group compared to controls ($p<0.05$). While neurokinin B level was significantly different between CPP and PT groups ($p<0.01$), no significant difference was found in kisspeptin level. Neurokinin B value of 2.42 ng/ml provided the most appropriate level with a sensitivity of 84% and specificity 77.1% differantial diagnosis of CPP and PT (Figure 1).

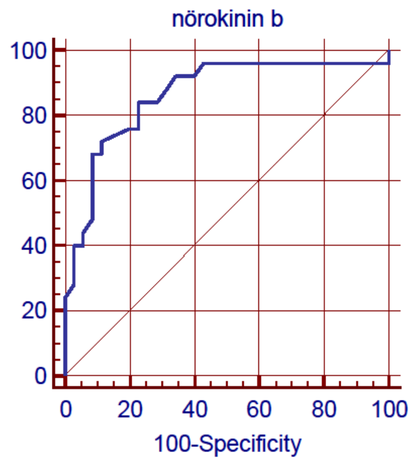

Figure 1: ROC analysis of NKB value

Table 1: Clinical and laboratory findings of cases

	CPP (n: 25)	PT (n: 35)	Control (n: 30)	p
CA (year)	7±0.8 (5.3-7.9)	6.8±0.7 (5-7.8)	6.7±0.73 (5-7.9)	0.37
BA (year)	8.5±1 (6.5-11)	6.8±0.8 (5-8)	-	**0.001**
BA/CA	1.21±0.08 (1.13-1.43)	0.99±0.06 (0.86-1.11)	-	**0.001**
Hieght- sds	0.91±0.78 (-0.5-2.8)	0.57±0.9 (-1-2.2)	0.56±0.5 (-0.5-1.6)	0.26
BMI-sds	0.03±0.7 (-1-1.9)	0.31±0.7 (-0.85-1.44)	0.15±0.36 (-0.59-1)	0.38
Basal LH	0.55±0.49 (0.1-1.98)	0.31±0.22 (0.04-0.92)		**0.04**
Basal FSH (mIU/mL)	3.24±2.38 (0.11)	2.18±1.62 (0.25-9.2)		**0.04**
Peak LH (mIU/mL)	9.98±6.37 (5-32.5)	3.13±1.76 (1-8.2)		**0.001**
Peak FSH (mIU/mL)	14.5±4.84 (6.9-26)	13.84±5.7 (2-31)		0.79
Peak LH/FSH	0.72±0.46 (0.25-2.5)	0.25±0.18 (0.01-0.79)		**0.001**
Kisspeptin (pg/mL)	2.36±0.47 [a] (1.77-3.41)	2.23±0.43 [b] (1.49-3.3)	1.92±0.33 (1.35-2.57)	**0.02**
Neurokinin B (ng/mL)	2.61±0.32 [a,c] (1.56-3.2)	2.24±0.23 [b] (1.7-2.77)	2.03±0.24 (1.46-2.53)	**0.001**

a: p<0.05 (Central precocious puberty- Control),
b: p<0.05 (Premature thelarche-Control)
c: p<0.05 (Central precocious-Premature thelarche)

DISCUSSION and CONCLUSION

Kisspeptin (Kiss1), Neurokinin B (NKB) and Dynorphin play a key role in the puberty. Kiss1/Kiss1 receptor and NKB (TAC3)/TAC3 receptor systems interact to control GnRH releasing.

In literature reported that gonadotropic axis is responsive to NKB stimulating before puberty onset, increased level of serum LH secretion is response to NKB receptor agonism predominates and NKB stimulate Kiss1 to initiate a GnRH pulse.

In recent study,

1) Increased serum levels of NKB and Kiss1 in patient with CPP and PT suggest that they play main role during the initiation of early puberty and may be useful as an tool in the diagnosis of CPP and PT.

2) NKB was found to be significantly higher in CPP than PT while there was not any significant differences at Kiss1 decided that NKB could be used to differentiate with CPP from PT.

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