REFERENCE VALUES FOR SERUM 17a-HYDROXYPROGESTERONE AND ADRENAL SIZE IN HEALTHY NEWBORNS

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INTRODUCTION

Serum 17a-hydroxyprogesterone (17OHP) and adrenal sizes are pivotal for clinical practice in both diagnosis and treatment of congenital adrenal disorders during the first month of the life. Our aims were to determine the reference ranges for serum 17OHP and bilateral adrenal gland sizes according to sex and age groups in healthy term newborns.

MATERIAL and METHODS

Healthy newborns (n= 156) were enrolled and divided into two groups. Group 1 included newborns between 4 and 7 days of age (n= 85) and Group 2 newborns between 26 and 30 days of age. Serum 17OHP concentration was measured in the morning by RIA. The adrenal glands' width, length, and depth were measured by ultrasonography and the volumes were calculated.

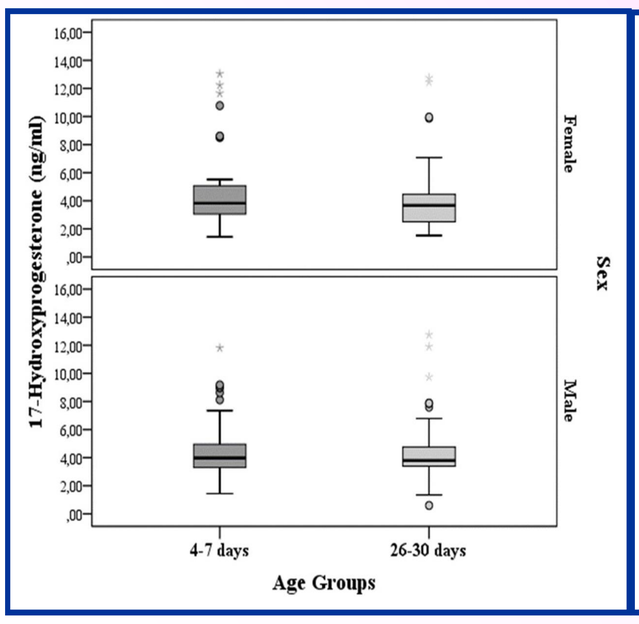
The statistical analyses were performed using SPSS.

RESULTS

The clinical characteristics, serum 17OHP concentrations, and the sizes of left adrenal gland measured by ultrasonography of the male and female newborns were similar (Fig 1a and 1b).

Table:Percentiles of serum concentrations of 17-hydroxy progesterone and volumes of adrenal glands in Group 1 and Group 2.

Percentiles	5	10	25	50	75	90	95
17OHP (ng/ml)							
Group 1	1.53	2.39	3.18	3.89	5.12	8.77	11.39
Group 2	1.53	1.92	3.04	3.79	4.76	9.36	12.12
All	1.53	2.14	3.13	3.83	4.84	8.73	11.67
Right-VAG (ml)							
Group 1	55.5	67.1	77.0	105.4	136.9	193.2	281.3
Group 2	27.1	33.1	44.9	58.7	74.2	87.1	106.8
Left-VAG (ml)							
Group 1	51.7	66.2	90.5	113.2	140.6	186.9	200.5
Group 2	32.8	37.9	47.0	59.8	69.2	99.4	119.7



Figures 1a and b: Serum 17OHP and bilateral adrenal gland sizes in newborns.

Percentiles for serum 17OHP concentration and the sizes of bilateral adrenal gland by ultrasonography according to age groups were obtained.

There was a significant decrease in adrenal sizes at the fourth week of life in both girls and boys. Volume of right adrenal gland was smaller in girls than that of boys in Group 1 ($p < 0.05$).

There was no statistically significant correlation between serum 17OHP concentration and adrenal sizes in both sex- and age groups ($p > 0.05$).

CONCLUSIONS

We have determined reference intervals for serum 17OHP and bilateral adrenal gland sizes for healthy newborns. We conclude that our results are important for congenital adrenal hyperplasia screening regarding time-dependent changes of 17OHP concentration besides diagnosis of adrenal hypoplasia or hyperplasia with ultrasonographic adrenal gland sizes.

This is the first study which was reported sex-related 17OHP reference intervals combined with bilateral adrenal sizes by US in newborns.

Our reference intervals for serum 17OHP concentration and adrenal sizes may improve clinical approach to newborns who are suspected adrenal disorder.