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Establishment of Reference Ranges for Prolactin in Neonates, Infants, Children and Adolescents

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Summary: Prolactin was determined in the sera of 686 healthy neonates, infants, children and adolescents (age range 5 days to 18 years), using the IMx from Abbott Laboratories. The applied test was a microparticle enzyme immunoassay (MEIA). The proband collective was divided into 9 age groups, and each age group into males and females. In accordance with the recommendations of the International Federation of Clinical Chemistry, the 95% scatter range was taken as the reference range. Only a few reference groups showed a normal *Gauss*ian distribution. In addition to the 50th percentile, the 2.5th and 97.5th percentile were calculated for all reference groups, and the minimal and maximal values were also reported. From the age of 12 years onwards, significant differences were found between males and females. The U-test of *Mann & Whitney* was used to test for significant differences between individual reference groups. Groups showing no significant differences were combined, and the corresponding reference ranges for serum prolactin were then calculated.

Introduction

Serum prolactin is measured in childhood mainly as a means of establishing the presence or absence of increased prolactin secretion.

The causes of hyperprolactinaemia are complex. Particularly important are pituitary tumours or other encroachments on space, which compress the pituitary stem and prevent inhibitory factors from reaching the site of prolactin secretion (1–3).

Excessive prolactin production may not be clearly evident from the basal serum prolactin concentration alone. In such cases, a provocation test is performed, in which prolactin secretion is stimulated by thyrotropin releasing hormone (1).

In view of the numerous modern determination methods for serum prolactin, the reference ranges for any study should be determined with the method adopted for that study (4, 5).

The aim of the investigation was:

1) to determine the reference ranges for serum prolactin in healthy neonates, infants, children and adolescents;
2) to test for significant sex differences in serum prolactin concentration within the reference groups; and
3) to test for significant differences in serum prolactin concentration between the reference groups.

Materials and Methods

Prolactin was determined in the sera of 686 healthy neonates, infants, children and adolescents (age range 5 days to 18 years). In the course of routine screening for hypothyreosis venous blood was taken from 5-day-old neonates. For all other probands blood samples wer taken after written consent was obtained from their parents, who were informed as to the purpose of the tests. The Ethics Commission of the Medical School of Erfurt gave its agreement for this purpose. The age composition