anti-epileptic medications.[8,11] Previous studies[12,13] suggested that the sequelae were minimal because the neurological deficit was not attributable to seizure attack. The majority of children with a first unprovoked seizure do not require therapy.

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Intrauterine Growth Curves for Turkish Infants Born between 25 and 42 Weeks of Gestation

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Summary

Intrauterine growth curves should be specific to each population and are needed for the Turkish population. An analysis of birthweight, crown–heel length, and head circumference in newborns between 25 and 42 weeks of gestational age was made. A total of 2481 babies were evaluated. Mean, standard deviation, and percentile values were calculated for each gestational age and smoothed curves were obtained for each parameter. In our country, the use of these new curves is more appropriate than those obtained in other countries.

Introduction

The intrauterine growth of babies is dependent upon the genetic background of the baby in particular and of the society in general, as well as on environmental factors such as the nutrition of the mother. This study was undertaken in order to depict the normal patterns of intrauterine growth in a middle-class Turkish population living at sea level.

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Materials and Methods

All babies born alive at the Department of Obstetrics at Istanbul Medical Faculty between 1 January 1999 and 31 May 2002 were considered eligible for the study. Measurements were taken within the first 2 h of birth. Because of their small number, babies who had a gestation age ≤24 or >42 completed weeks were excluded. Babies with chromosomal or metabolic aberrations were not included. Multiple births and infants born to mothers with pre-eclampsia and eclampsia were excluded. All of the mothers were from the middle class.

The gestational ages were calculated from the first day of the last menstrual period and/or by first

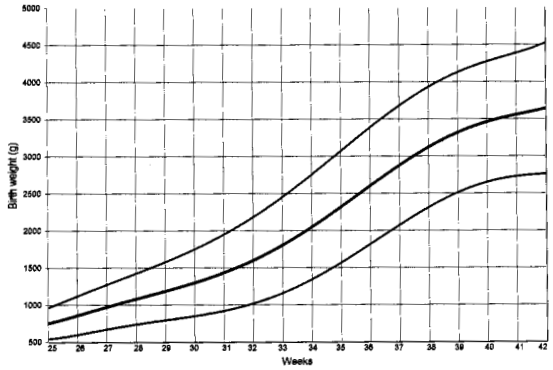

FIG. 1. Mean ± 2 SD for birthweight.

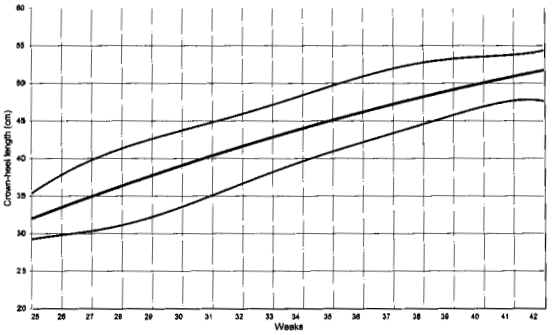

FIG. 2. Mean ± 2 SD for crown–heel length.

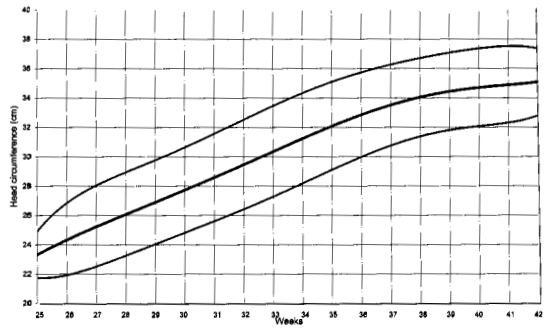

FIG. 3. Mean ± SD for head circumference.

trimester ultrasonographic evaluation. Infants delivered from 3 days before to 3 days after a completed week were considered to be that number of weeks of gestation.

Unclothed infants were weighed in the nursery by a scale (accurate to 1 g) within the first 2 h of birth. Measurements of crown–heel length (accurate to the nearest mm) were made with the infant lying supine, both knees extended and pressed to mattress, and with feet at right angles. The head measurements (accurate to the nearest mm) were made at the largest occipitofrontal circumference, with light pressure, by a paper tape.

For each week, boys and girls were calculated together. For each gestational week, mean ±2 SD and 3rd, 10th, 25th, 50th, 75th, 90th, and 97th percentiles were calculated and smoothed for each measurement by SPSS 10.0 computer program.

Results

During the two and a half year period, 2481 babies were evaluated for the purpose of this study. For each measurement, smoothed curves for mean ±2 SD were obtained. These curves for birthweight, crown–heel length, and head circumference are shown in Figs 1, 2 and 3, respectively.

Discussion

For the assessment of fetal and neonatal growth, intrauterine growth curves are invaluable. However, premature births may be biased because they are probably related to unphysiological states. Therefore, the curves submitted here should be considered to the nearest estimates of fetal growth. Correct calculation of gestational age is very important in assessing growth. In some weeks, the distribution of measurements may be asymmetrical, which is thought to be due to post-conceptional maternal bleeding mistaken for a menstrual period.[1] In our study, such values were smoothed by use of a computer program. Lubchenko, *et al.*[2] solved the same problem by excluding infants 'not compatible for birthweight'.

The mean weight of infants assessed by Lubchenko *et al.*[2] were higher than ours for gestational ages 25–37 weeks, but lower than ours after that.[1] Since that study was performed at a high altitude, the fetuses that had developed very well in the first and second trimester might have gained less weight in the last trimester. Therefore, our results should be evaluated as normal, not higher. In fact, our results are similar to those of Usher and McLean,[3] who performed their study at sea level. In their large-scale study at sea level in a high socioeconomic level class, Babson, *et al.*[4] reported a decrease in mean birthweight only after the 43rd week. On the other hand, when compared with the percentiles of babies in India as reported by Ghosh, *et al.*,[5] the mean birthweight was similar until the 36th week, but increased sharply in our study afterwards.

As for the crown–heel length, the same double trend seen in birthweights is observed in our study and that of Lubchenko, *et al.*[6] However, when compared with the data of Usher and McLean, crown–heel length was lower in all gestational ages in our study. In the Indian babies, crown–heel lengths

were comparable with those of ours after 36 weeks of gestation, but the Indian babies were longer than ours before 36 weeks. These discrepancies may be explained by the genetic and socioeconomic factors.

Head circumference reflects the growth of the central nervous system, which is one of the first systems that develop in the embryo, even at the expense of body weight and length. Therefore, it is not surprising that head circumference measurements are not very different from that of Usher and McLean.[3] However, in the Indian infants, head circumferences were greater than that of ours before 36 weeks, but were comparable thereafter.

We believe that these new curves may be used in our country for the evaluation of newborns and their problems related to growth.

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Checklist for Authors

Originality

Does the study make an original scientific contribution or new observation on the topic?

Usefulness

Are the findings likely to contribute to improved standards of care?

Would the findings have an impact on preventive/promotive care?

Design Features

Is the objective of the study clearly defined?

Is the study design appropriate for the objective?

Are the subjects for the study, their source, the method of recruitment as well as the inclusion/exclusion criteria defined?

Are the sampling methods likely to give rise to bias?

Is there a statement included about sample size?

Is the method for collection of data clearly described?

Are all laboratory methods used clearly referenced?

Are the study and comparison groups similar in all respects except for the topic of inquiry?

Is the response rate satisfactory?

Is the method of data collection likely to be open to bias?

If intervention has been used was the allocation random and blind?

Have the outcome measures been defined?

Are there any drop outs?

Was the method of outcome measurement open to bias?

Analysis and Presentation

Is the statistical procedure employed (including the software used) clearly stated?

Are the statistical tests used relevant?

Do the results adequately answer the research question?

Is the interpretation of results reasonable?

References

Are the references relevant to the study and up to date?

Are the references cited in the style required?

Ethics

Are the design and conduct of the study ethical?

Has the permission of the local ethical committee been sought and received?

Adapted from *Mother and Child Health: Research Methods* (www.tropej.oupjournals.org)