

Case Report

The mother was an unmarried primigravida of 21 years; pregnancy was uneventful throughout. Labour occurred spontaneously at 40 weeks, and there was an assisted breech delivery of a male infant weighing 2050 g. Apgar score was 4 at 1 minute, rising to 9 at 5 minutes following oxygen by face mask. He appeared to be a healthy small-for-dates baby, and oral feeding was started within the first hour of life. At 5 hours of age, routine Dextrostix recording was 65 mg./100 ml. At 12 hours of age the baby was noticed to be pale and jittery, with separated cranial sutures and a tense anterior fontanelle; head circumference was 35 cm. A Dextrostix recording at this time was more than 200 mg./100 ml. An umbilical venous catheter was inserted, and a sample of blood was withdrawn. Analysis of this revealed: blood glucose—430 mg./100 ml.; plasma NEFA—370 μ M/litre; plasma insulin (radioimmunoassay)—20 μ U/ml.; plasma calcium 7.8 mg./100 ml. The baby was given 20 ml. of mannitol and 5 mg. lasix intravenously, and oral feeding was discontinued. The clinical condition of the baby improved dramatically after these measures. At 24 hours of age there was no jitteriness, and the anterior fontanelle was soft; OFC 34.5 cm.; blood glucose 120 mg./100 ml. Oral feeding was started again at this time with diluted breast milk. At 36 hours of age the blood glucose was 65 mg./100 ml., and remained around this level subsequently. There was no further cerebral irritability, and at 6 months of age developmental progress appeared normal.

Maternal investigation failed to reveal any abnormality of carbohydrate metabolism.

Discussion

Previously reported examples of temporary neonatal hyperglycaemia have invariably been in babies small for their gestational age, and the presenting feature has been jitteriness (Lewis and Mortimer, 1964; Geefhuysen, 1966; Chance and Bower, 1966; Ferguson and Milner, 1970). Furthermore, the plasma insulin level was low at the time of the hyperglycaemia, as has been recorded by Gentz (1969) in 2 affected babies. In these respects this baby is not unusual. However, most previous reports have indicated that the condition persists for some weeks. In this respect this baby is unusual. Of particular interest is the presence of widely separated sutures and a tense fontanelle, with a dramatic response to mannitol and lasix. This suggests that cerebral oedema was the cause of the symptoms, and that it interfered with cerebral control of glucose homeostasis.

Summary

A case of temporary neonatal hyperglycaemia is described, which differs from previous reports in

being of very short duration. It is suggested that underlying cerebral pathology was responsible for the hyperglycaemia in this case.

I wish to thank Dr. B. D. Corner for permission to study this case.

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Cord Serum IgG Levels in 'Small-for-dates' Babies

A linear relation exists between gestational age and the logarithm of the serum concentration of IgG at birth (Hobbs and Davis, 1967), a fact that has been amply confirmed for the period up to the 35th week of pregnancy (Yeung and Hobbs, 1968; Berg, 1968; Jones, 1969; Berg and Nilsson, 1969), though there is evidence that the rate of increase of fetal serum IgG is much less rapid after that time (Berg and Nilsson, 1969; Gusdon, 1969).

It has also been claimed that in 'small-for-dates' babies serum levels of IgG at birth are lower than in normal-weight babies of the same gestational age (Yeung and Hobbs, 1968). The babies studied in that report had, by Gruenwald's (1966) standards, birthweights 2 SD or more below the mean for gestational age, that is under approximately the 3rd centile. However, less stringent criteria for the diagnosis of 'smallness-for-dates' have now become customary in an attempt to include all babies who may become ill in the neonatal period as a result of intrauterine growth failure: thus for clinical purposes the term 'small-for-dates' has been defined as applicable to babies whose birthweights are at or below the 10th centile (American Academy of Pediatrics, 1967). The present study was undertaken to assess the serum IgG status of such babies.

Methods

Cord blood was obtained from babies born at this hospital and the sera stored at 4 °C. IgG levels were measured by a modified Mancini method (Hobbs and Davis, 1967).

Gestational age was calculated from the first day of the last menstrual period. Only those babies whose mothers claimed to be certain of their dates were included in the series, and many were discarded because of the mothers' uncertainty. In most of those retained the gestational age was checked by the author using neurological examination (Robinson, 1966).

The gestation and birthweight standards used were derived from the National Birthday Trust's Perinatal Mortality Survey of 1958, supplemented at the lowest gestational ages by the data of Gruenwald (1966).

Results

No significant difference is seen between the serum IgG concentrations in 27 'small-for-dates' babies and babies of normal weight at comparable gestational ages (see Fig.). 4 of the group of 27 babies were 'very-small-for-dates' being more than 2 SD below the mean birthweight for their gestation. The IgG levels of these 4 were similar to those of the other babies.

Discussion

It has been argued that babies born before the 32nd week of gestation are likely to develop very low levels of IgG during the first 6 months of

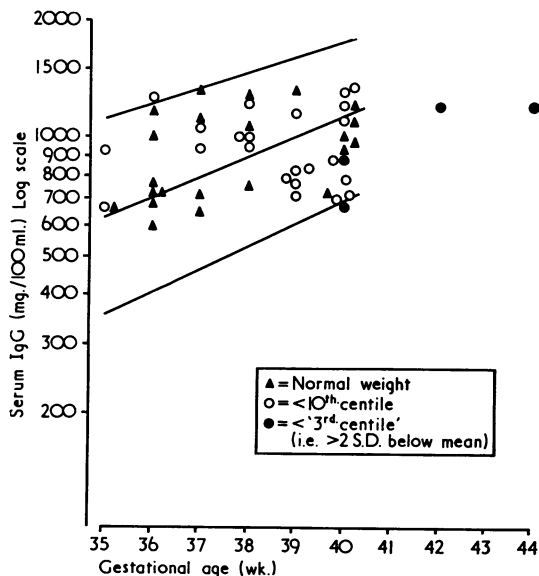


FIG.—Cord serum IgG levels in 27 'small-for-dates' and 22 normal babies. The lines for mean +2 SD are for normal singletons (Yeung and Hobbs, 1968)

extrauterine life and might benefit from injections of commercially available γ -globulin (Hobbs and Davis, 1967). This argument was tentatively extended to include 'very-small-for-dates' babies where low IgG levels were shown at birth (Yeung and Hobbs, 1968).

The present study, using a less restrictive definition of 'small-for-dates', does not show a depression of serum IgG levels in such babies. Only 4 babies fell within the definition of 'small-for-dates' used by Yeung and Hobbs (1968). These babies also had normal levels of IgG for their gestational ages.

This study shows that the finding of low IgG levels in the sea of 'very-small-for-dates' babies (Yeung and Hobbs, 1968) does not apply to the majority of 'small-for-dates' babies seen by the paediatrician, i.e. those whose birthweights fall below the 10th centile but within approximately the 3rd centile.

Summary

Cord serum IgG levels were measured in 27 small-for-dates newborn babies, whose birthweights were at or below the 10th centile for gestational age, including 4 with birthweights below the 3rd centile; and in 22 normal newborn babies whose birthweights were between the 10th and 90th centiles. Babies of comparable gestational age had similar IgG levels irrespective of their weights.

The author wishes to thank Professor J. P. M. Tizard and Dr. J. R. Hobbs for advice, and Miss C. M. Miller, Sister J. Cushney, and the midwifery staff of the labour ward, Hammersmith Hospital, for practical help.

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