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Short reports

Accuracy of pre- and postnatal assessment of gestational age

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SUMMARY The gestational age at delivery in a group of 20 neonates was estimated prenatally from measurements of the biparietal diameter made by ultrasound during pregnancy, and postnatally from the newborn infant's neurological and external physical criteria of maturity using the method of Dubowitz *et al.* (1970). These two assessments were compared with the gestational age at delivery calculated from the date of the last menstrual period (LMP) in mothers certain of their dates. Gestational age derived from the ultrasound data correlated well with that derived from the mother's LMP, and much better than did gestational age derived from the postnatal scoring system.

While the date of the last menstrual period (LMP) is accepted as the most accurate assessment of gestational age, provided that the mother is certain of her dates and has a regular cycle, such information is not always available and other methods have been sought. Antenatally, measurement of the biparietal diameter (BPD) of the fetus by ultrasound is increasingly applied as a routine part of antenatal care. Postnatally, physical and neurological criteria of maturity are used to assess the gestational age of the newborn infant, the most thorough method being that of Dubowitz *et al.* (1970). In this study these two methods were used to assess the gestational age at delivery in a group of 20 neonates, and compared with the gestational age calculated from the date of the LMP.

Methods

The neonates examined were singletons in the nurseries of the obstetric wards at Guy's Hospital. They were examined by the same person and scored according to the method of Dubowitz *et al.* (1970). If bilateral signs were different the more mature score was taken. Babies were examined within a few hours of birth. The results were not separated into male and female infants as it has been shown by Parkin *et al.* (1976) that there is no significant difference between their scores.

Information about the date of the LMP was collected from the antenatal notes by persons other than the examiner, and not seen by the examiner until all the neonates in the study had been seen and scored. Cases where the LMP was a withdrawal bleed from the pill rather than a true period were excluded from the study.

The estimated date of delivery was calculated from the LMP by adding on 280 days.

BPD measurements were obtained from the ultrasound department records, and the gestational age at the time of measurement read off from the cephalometry chart compiled by Campbell and Newman (1971), the gestational age at delivery being estimated by adding on the appropriate number of days. Only those infants who had had ultrasound measurements taken before 30 weeks' gestation were included, as Lunt and Chard (1974) showed that there is an increasing error in the measurement of BPD after 31 weeks. In most babies ultrasound measurements were made between 20 and 24 weeks, in one infant at

Table *Gestational age (weeks) at delivery as estimated from the Dubowitz score, ultrasound BPD measurement, and date of LMP*

Case	*Dubowitz score*	*Ultrasound BPD*	*LMP*
1	38	39·5	39·5
2	40	41·5	41·5
3	37	40	40
4	40·5	39·5	40
5	38·5	40	40
6	38	39	39
7	38·5	37·5	38
8	38	39·5	39
9	38·5	40	40
10	37·5	40·5	40
11	39	41·5	41
12	40	42	42·5
13	38·5	36	37
14	39·5	38·5	40
15	39	38·5	38
16	38·5	40·5	40
17	39·5	42	42·5
18	38	38·5	38
19	38·5	40·5	42
20	39	41	39·5

between 27 and 29 weeks, and in two between 16 and 20 weeks.

Results

The correlation coefficient for the ultrasound BPD and LMP estimations of gestational age was +0·8837, P<0·0005. The correlation coefficient for the Dubowitz scoring system and LMP estimations of gestational age was +0·4128, P<0·05 (Table).

Discussion

When the gestational age estimated by these two methods was compared with that estimated from the date of the LMP of mothers certain of their dates, the estimation using ultrasound data correlated much more closely with that derived from the LMP than did that using the method of Dubowitz *et al.* (1970). Thus when accurate LMP data are not available, the most reliable method of assessing the gestational age is by ultrasound BPD measurement early in pregnancy. The superiority of the ultrasound method is particularly relevant in the case of sick neonates; these should be handled as little as possible and will therefore be assessed on external criteria only, although less accurate than the method of Dubowitz *et al.* (1970) which comprises neurological as well as external physical criteria.

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Breast milk and breast feeding in very low birthweight infants

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SUMMARY The feeding of 17 babies weighing <1500 g was examined retrospectively. 12 babies started breast feeding at a mean weight of 1324 g and 10 of them were fully breast fed by a mean weight of 1600 g. Their weight gains were comparable with bottle-fed babies receiving expressed breast milk. Practical aspects of breast feeding were considered to be: a knowledgeable maternal and nursing attitude, close mother and baby contact, early expression of breast milk, and early suckling. The increased incidence of breast feeding by mothers of both low birthweight and term babies ensures regular supplies of fresh breast milk. Therefore, sterilisation or storage of breast milk here is unnecessary.

Interest in feeding low birthweight infants has been revived by numerous scientific analyses of the properties of breast milk (*British Medical Journal*, 1978). Many papers are preoccupied with differences between treated and raw breast milk, and with the storage of milk in banks (Ford *et al.*, 1977; Evans *et al.*, 1978; Williamson *et al.*, 1978). While tube feeding will inevitably be required in the management of very low birthweight babies, there is a danger that the ability of babies to suckle at the breast will be ignored and there are few studies on this aspect. Very low birthweight babies are usually the most difficult ones to feed. We therefore report on the management of the last 17 consecutive babies born in this unit weighing <1500 g, with particular reference to breast feeding.

Materials and methods

The babies weighed between 750 and 1500 g (mean 1272 ± 190 SD) and 13 were appropriate for gestational age. All babies were managed in a neonatal unit. Major complications were encountered by 2