between day-to-day fluctuations in sputum viscosity and changes in the results of pulmonary function tests during the period of study.

Discussion

In the 5 patients studied, sputum viscosity was strongly negatively correlated with pulmonary function. Because patients producing the most viscous sputum also produced the most purulent specimens, the presence of infection may have influenced the results. However, as Cases 1, 4, and 5 produced the same number of purulent specimens, and significant differences have been shown between the viscosities of sputum samples from different patients regardless of purulence (Feather and Russell, 1970b), it seems likely that purulence is not the only factor involved.

It is of interest to note that all of the 5 patients studied showed, at some time, evidence of reversible airways obstruction, which some workers have found to be absent (Cook et al., 1959; Beier et al., 1966). Our patients were selected in that they were all able to produce sputum, and this could be related to Mearns's (1968) suggestion that reversible airways obstruction might be indicative of insidious infection. This author noted response to isoproterenol to be most frequent in the group with a FVC of 60–79% of that predicted; the FVC of our patients ranged from 36–92% of the predicted values.

The relation between sputum viscosity and dynamic lung volumes could have arisen either because patients with the highest sputum viscosity eventually develop the most severe pulmonary lesions, or because sputum viscosity increases as the severity of the respiratory disease progresses. Though no correlation could be shown between day-to-day changes in respiratory function and changes in sputum viscosity in individual patients over a four-week period, it would be of interest to study more patients over a longer period of time.

Summary

A significant negative correlation between dynamic lung volumes and sputum viscosity has been shown in five patients with cystic fibrosis.

We would like to thank Dr. K. N. V. Palmer for the use of the viscometer; Dr. Gordon Hems for statistical help; and the Cystic Fibrosis Research Foundation Trust for financial help.

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Temporary Neonatal Hyperglycaemia

Since the description by Hutchison, Keay, and Kerr (1962) of the clinical syndrome of congenital temporary diabetes mellitus, sporadic reports of neonatal hyperglycaemia have appeared. A further example is reported here, which differs from previous accounts in that the condition had resolved within 24 hours, and is thus most probably of different aetiology.
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. A 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 μM/litre; plasma insulin (radioimmunassay)—20 μU/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; Geefhuyseyn, 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; Gudson, 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.