paper that the interpretation and treatment of measurements of plasma proteins in the preterm infant is greatly underrated, and I think that Cartlidge and Rutter have done paediatrics a service in drawing attention to the curiously large scatter of plasma proteins concentrations in preterm and newborn infants.

J D BAUM
Royal Hospital for Sick Children,
Bristol BS2 8BJ

Drs Cartlidge and Rutter comment:
We were sorry to discover that Professor Baum has carried out so much work in the field of neonatal oedema to which we made no reference. This was no intended slight (we were unaware of his work), but his disappointment is understandable. When we set out to perform the study we carried out a search of the published works through Index Medicus, using the preterm infant, oedema, and albumin as key words, and choosing papers that seemed relevant by their titles. We knew of the study from 1971 on colloid osmotic pressure in the fetus and newborn infant,2 but as it contains no data on albumin concentrations or oedema in preterm infants we did not refer to it. The study on colloid osmotic pressure in erythroblastosis fetalis does contain data on albumin concentrations in preterm infants but the title gives no clue to this.3 The most important reference, the monograph Oedema in the newborn,4 certainly contains a lot of information on oedema and albumin concentrations in the preterm infant, some of which we have duplicated. It does not appear in Index Medicus, however, and is not referred to in any article that we have come across. We regret that we were unaware of it, but the exponential rise in the volume of medical publications (to which these letters will contribute) makes such rediscovery of the wheel more likely.

We have since read and enjoyed Oedema in the newborn.4 The chapter on oedema in the preterm infant provides data on cord albumin concentrations at different gestational ages from 33 weeks onwards. Our values are somewhat lower, perhaps because they were all obtained after birth, but show a similarly large scatter—our findings on infants below 33 weeks’ gestation further emphasise the important influence of gestation on serum albumin. Baum suggests that oedema in preterm infants is not looked for now compared with the earlier days of neonatology, except in very immature infants. Our data strongly supports this. We do not know why very immature infants develop oedema—it does not seem to relate to illness or serum albumin. Clearly, we have both shown that subcutaneous oedema is not simply due to a low colloid osmotic pressure produced by a low serum albumin concentration. Baum has found that levels of colloid osmotic pressure in preterm infants without oedema are often below 20 cm of water, levels that would produce generalised oedema in a child with the nephrotic syndrome. Perhaps the low mean arterial pressure of the preterm infant results in a low hydrostatic pressure and therefore protects against severe oedema. Whatever the reasons are for oedema, the message seems to be that hypoalbuminaemia of prematurity is a usual finding, not a disorder that needs treatment.

Cystic fibrosis and diabetes mellitus

Sir,
Cystic fibrosis is associated not only with chronic supplicative lung disease and exocrine pancreatic insufficiency but also with endocrine dysfunction of the pancreas, leading to impaired glucose tolerance, decreased insulin production, and diabetes mellitus in some children. Measurement of glycosylated haemoglobin (HbA1c) has been shown to be useful for assessment of children with impaired glucose tolerance.

We measured stable HbA1c concentrations by a modification of the Corning electrophoresis method2 in 21 children with cystic fibrosis, aged 1–16 years, regularly attending our clinic, and in 50 normal children, aged 1–16 years. Three of the children with cystic fibrosis were receiving insulin for clinical diabetes mellitus. The mean (SD) HbA1c concentration in the remaining 18 children was 8·1 (1·5)% (range 6·0–11·3%) compared with 6·0 (0·8)% (range 4·3–7·7%) in the normal group (p<0·001). All of the children with cystic fibrosis had HbA1c concentrations equal to or greater than the mean of the normal group and in 55% the HbA1c concentrations were more than two standard deviations greater than the normal group mean.

The degree of glucose intolerance may be relevant to morbidity and problems of growth in children with cystic fibrosis and requires further study. Treatment with prednisone has been shown to improve pulmonary function in such children,3 and although that study detected no change in HbA1c concentrations, careful monitoring of glucose tolerance would seem to be indicated if this treatment is begun.

We suggest that HbA1c concentrations will be of value for monitoring children with cystic fibrosis and if repeated at six to 12 month intervals would indicate any progressive impairment of glucose tolerance. This would allow earlier detection and treatment of associated diabetes mellitus.

References

References
3. Auerbach HS, Williams M, Kirkpatrick JA, Colten HR.