LETTERS TO THE EDITOR

Survival and place of treatment after premature delivery

Sir,—Dr Field et al are not justified in concluding from the data presented that there should be a more centralised service for babies of 28 weeks' gestation or less. 1 They found that babies of 28 weeks' gestation or less treated in large centres had higher survival rates than those treated in smaller units. It is likely that this is due to selection in the smaller units of appropriate babies to refer to the large centres.

Data from our unit, which is in the Trent region, were included in the report. We have a policy of transferring babies of 28 weeks' gestation or less to a regional centre. Two categories of babies are not transferred: firstly babies who are so ill that they do not survive long enough to be transferred or are not likely to survive transfer, and secondly babies who are considered preivable. During the time of the study, three babies of 28 weeks' gestation or less were not referred from our unit to a large centre, but remained in our unit for terminal care. These were a second twin of 26 weeks' gestation with severe birth asphyxia and asystole at birth who died at 1 hour 20 minutes after unsuccessful resuscitation attempts, an infant of 24 weeks' gestation, and an infant of 21 weeks' gestation.

During the same period we referred postnaturally 12 babies of 28 weeks' gestation or less to a large centre for neonatal intensive care. Four of these babies died. Clearly the difference in outcome for these two groups of babies is due to selection bias.

It is likely that similar decisions were taken in other smaller units in the region and comparison of survival in the two types of units is therefore not valid.

We believe that it is in the interest of selected very immature babies in our unit that we should transfer them to a large neonatal centre for intensive care. The results of this policy will be that those infants of 28 weeks' gestation or less who we do not transfer may well be receiving terminal care in our unit. It must not be concluded that these babies would have had a better chance of survival or better care had they been transferred to a large centre.

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Dr Field and colleagues comment: We thank Dr Salfield and his colleagues for their comments. Clearly we were concerned that the weight might retain an excess of babies who were considered to have little chance of survival. It was for this reason we employed a method of disease severity scoring. 1 This approach (as reported in the paper) did not indicate that the group of babies treated in small units were at greater risk of death. However more sophisticated methods of disease severity scoring are now being developed and these should allow this finding to be confirmed. In addition it will then be appropriate to compare mortality in other gestation groups after correction for disease severity.

1 Patterson CC, Halliday HL. Prediction of outcome after delivery for the very low birthweight (<1500 g) infant. Paediatric and Perinatal Epidemiology 1981;2:221-8.


Atrial natriuretic peptide and blood volume during red cell transfusion in preterm infants

Sir,—Rascher et al conclude that a slow transfusion of less than 10 ml red cells/kg body weight does not cause volume expansion in the postnatal period. They derived by subtracting the red cell mass from the total blood volume. The total blood volume was estimated from the red cell mass divided by the packed cell volume. The accuracy of the plasma volume estimations is obviously not only dependent on the accuracy of the red cell mass measurements but also on the accuracy of the packed cell volume measurements. The authors state that in adults whole blood packed cell volume is usually calculated by multiplication of the measured venous packed cell volume by 0.9. In preterm infants the authors agree the whole body: venous packed cell volume may also vary but do not correct for this. The published conversion factor for neonates is in fact 0.87. 1,2 Furthermore the measurement of packed cell volume is liable to further error due to trapping of plasma between red cells which is dependent on the flexibility of the red cells. Even a mechanised system, such as a Coulter counter, for measuring packed cell volume by deriving a value from the mean corpuscular volume and red cell count is subject to error.

The method used to measure red cell mass is as described by Phillips et al, 3 which depends upon the dilution of fetal haemoglobin by an infusion of adult haemoglobin. The magnitude of the resulting changes in concentrations of fetal haemoglobin is not specified in either work, although the coefficient of variation of the actual assay technique for measuring fetal haemoglobin is stated to be <3.6%. 3 One wonders how accurately the small changes in concentration of fetal haemoglobin can be measured.

The study of Rascher and colleagues would have been more reliable if direct measurements of red cell mass and plasma volume had been made independently of each other. As the study stands the estimation of red cell mass is open to question and the measurement of plasma volume is flawed. A simple measurement of a change in the packed cell volume would have been as informative as the calculated changes in derived plasma volumes.

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