Establishment of an intermediate care ward for babies and mothers

Sir,

Dear and McLain have shown clearly how the establishment of an intermediate care ward reduced the admission rate to their neonatal unit.¹ Although such a ward may be useful in some hospitals, a similar admission rate has been achieved at this hospital by different means.

In 1979 the admission rate to the neonatal unit was 15.7%. Seven years later it had fallen to 5.2% of babies delivered at the hospital. This was achieved by nursing all babies who fulfilled the criteria described by Dear and McLain for admission to their transitional ward on the postnatal wards. Some babies weighing <1700 g were also nursed with their mothers on the postnatal wards, but all babies with respiratory distress or who required intravenous fluid replacement were admitted to the neonatal unit.

The policy of nursing babies with special needs on the postnatal wards was effected by allowing all midwives of staff nurse grade and those newly appointed as sisters to spend six month periods on rotation to the neonatal unit. Thus expertise and familiarity with the problems of small babies were spread through the whole hospital.

This policy of rotating midwifery staff had two additional advantages. Firstly, staff from the lying in wards were able to help out in the neonatal unit when required and, secondly, because all nursing staff had personal experience of the problems of the neonatal unit, this maternity hospital functioned as an integrated unit rather than the needs of special babies being separated from others.

Reference

- ¹ Dear PRF, McLain BI. Establishment of an intermediate care ward for babies and mothers. *Arch Dis Child* 1987;**62**:597-600.

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from a vein or artery, rather than a capillary vessel, to avoid error in interpretation.

The cause for the increased neutrophil count in capillary blood is not clear from this study. One important possibility is that a rise in the blood neutrophil count during the prolonged capillary sampling may occur, induced by the pain it causes. This may also explain the higher variability found in the neutrophil counts in capillary blood.

A significant rise in white cell count from the marginal granulocyte pool may follow exercise or injection of epinephrine, and occurs with remarkable speed.² Counts of 35 000 cells/mm have been recorded after a 400 m run completed in one minute.

We have recently studied the white cell count in venous blood before and 10 minutes after lumbar puncture in 20 neonates. There was a significant ($p < 0.001$) increase in the white cell count from a mean (SD) of $9.6 (3.4) \times 10^9/l$ before, to $13.4 (3.7) \times 10^9/l$ after the procedure, caused by a rise in the neutrophils and lymphocytes. There is a reason to believe, therefore, that the higher neutrophil counts found in the samples from capillary blood were associated with the order of sampling used in the study and not necessarily with the site itself.¹ If that is the case, venous and arterial sites will also fail to give reliable counts if samples are taken during or after stressful events. This question could have been answered if a third blood sample had been taken through the umbilical artery catheter after the capillary sampling, or if the order of sampling had been randomised.

References

- ¹ Thurlbeck SM, McIntosh N. Preterm blood counts vary with sampling site. *Arch Dis Child* 1987;**62**:74-5.
- ² Weitzman M. Diagnostic utility of white blood cells and differential cell counts. *Am J Dis Child* 1975;**123**:1183-9.

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Preterm blood counts vary with sampling site

Sir,

Thurlbeck and McIntosh have recently studied the changes in neutrophil counts at different sampling sites.¹ In their study, 0.5 ml of blood was drawn through an umbilical artery catheter, and then 0.5 ml was obtained by free flowing heel prick ($n=13$) or peripheral venepuncture ($n=21$). The average difference between the capillary compared with the arterial neutrophil counts was +1800 cells/mm. The difference in neutrophil counts between venous and arterial blood samples was not significant. They therefore concluded that it is important to sample

Dr Thurlbeck comments:

Dr Shohat's interesting letter raises points which would have been discussed more fully had space allowed. Arterial sampling, which does not disturb the infant, was performed first because of the effect of painful procedures on the neutrophil count in term infants which has already been described.¹ This could well be a reason for the difference which we observed but it is of note that venous sampling, which is presumably painful too, had no effect. It is inaccurate to describe the observed difference as being due to the order of sampling as such, if the higher neutrophil counts with capillary sampling are, as Dr Shohat suggests, induced by demargination of granulocytes because of release of adrenaline caused by the pain of the sampling procedure itself.

Ethical considerations precluded capillary sampling both before and after arterial sampling, and a direct comparison