

# PostScript

## LETTERS

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### Prevention of postnatal cytomegalovirus infection in preterm infants

Preterm infants can acquire cytomegalovirus (CMV) from the breast milk of their CMV seropositive mothers. Postnatal CMV infection may be asymptomatic, but infants may develop pneumonitis, or sepsis syndrome. Hamprecht *et al*<sup>1</sup> recently studied the transmission of cytomegalovirus from CMV seropositive mothers to preterm infants who were exposed to maternal breast milk. Some 96% of seropositive breastfeeding mothers had selective re-activation of CMV in their breast milk with an incidence of acquired CMV infection in the neonatal unit of 22%. This rate of CMV acquisition in the neonatal unit appeared to be high in comparison with the experience of our own unit, which takes preventive measures against CMV.

We therefore performed a prospective study from 1 July 1999 to 30 June 2000. All infants born to mothers who booked at St George's Hospital at less than 32 weeks gestation and who were admitted to the neonatal unit were included. CMV seronegative and leuco-depleted blood products are used routinely for transfusions. All banked expressed breast milk is treated by pasteurisation and stored at -20°C. Maternal expressed breast milk is frozen at -20°C before use whenever possible. The CMV serostatus of all the mothers was checked at the time of booking as a part of another study. All infants were prospectively followed with monthly urine testing for CMV culture. The detection of immediate early antigen by fluorescent foci (DEAFF) test was performed within two weeks of each baby's admission to the neonatal unit and at monthly intervals until their discharge. Ethical committee approval was obtained.

During one year, 38 mothers and 40 preterm infants were studied. The median gestational age was 28 weeks (range 24-31). The proportion of CMV seropositive mothers was 74%. Thirty infants were born to seropositive mothers. Twelve infants were excluded

**Table 1** Correlation of umbilical cord weight and length with placental and birth weight using Pearson correlation coefficient

Umbilical cord parameters	Correlation (r)	p Value
Cord weight v placental weight	0.2692	0.008
Cord weight v birth weight	0.3069	0.002
Cord weight v cord length	0.3523	0.000
Cord length v birth weight	0.2558	0.012
Cord length v placental weight	0.3356	0.001
Placental weight v birth weight	0.5339	0.000

from the study either because they were formula fed or because of early discharge from the neonatal unit. The remaining 18 uninfected infants were exposed to the breast milk of their CMV seropositive mothers for a median of 34 days (range 11-74). These 18 infants were under CMV surveillance in the neonatal unit for a median of 67 days (range 30-192). Only one of 18 (5%) infants born at 24 weeks gestation became positive for CMV by culture from a urine sample on day 62 of life. This baby was clinically asymptomatic.

No case of congenital CMV was detected in this study.

Hamprecht *et al*<sup>1</sup> have reported that 52% of mothers in their study were CMV seropositive, and 22% of uninfected infants exposed to CMV infected breast milk acquired the virus. The only difference in CMV specific preventive measures taken between these studies was the routine freezing of mother's milk at -20°C in our neonatal unit when an excess of milk was available. This milk was then used at a later date, usually after 72 hours of freezing at -20°C. A study by Friis and Anderson<sup>2</sup> has previously shown that freezing of breast milk at -20°C for more than 72 hours reduces CMV viral titres by 99%. A further study showed that overnight freezing of breast milk at -20°C reduces CMV infectivity of milk by 90%, and storage over seven days reduces CMV infectivity by 100%.<sup>3</sup>

We believe that routine freezing of breast milk at -20°C may reduce transmission of CMV from breast milk of seropositive mothers to their uninfected preterm infants. A randomised clinical trial would be needed to confirm this hypothesis.

We would like to thank the Birth Defects Foundation for sponsoring this project, the staff of the neonatal unit for cooperation in completing the project, and Professor Anthony Williams for valuable suggestions.

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### References

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### Correlation of umbilical cord weight with birth weight

It is not uncommon to see wasted umbilical cords in growth retarded babies, or bulky cords in macrosomic infants, but there are no published data on the weights of the umbilical cords.

We measured the weight of the umbilical cord of 96 consecutive healthy term (37-40 weeks) infants soon after birth. The length and weight of the cord excluding the first 5 cm from the infant's abdomen was measured after it had been emptied of blood by manual squeezing. Table 1 shows the results.

Mean (SE) weights of umbilical cord, placenta, and the infant were 41.4 (1.7), 590.1 (12.4), and 3445 (42.9) g respectively. There was a significant positive correlation between cord weight and length and placental weight and birth weight.

This is the first known study to measure umbilical cord weight and examine its correlation with placental and birth weight. It supports the common observation that the appearance of the umbilical cord is proportional to the baby's size at birth. Total cord weight is dependent on cord length, which in turn is greatly influenced by fetal movements.<sup>1,2</sup> The value of the study would be enhanced by including parallel data on the weight of the cord per unit of its length.

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