

Donor Milk Economical for VLBW Babies

A healthier supplement than formula, donor milk also saves this Connecticut hospital money.

BY LAIRD HARRISON

FROM THE ANNUAL MEETING OF THE AMERICAN ACADEMY OF PEDIATRICS

SAN FRANCISCO – Providing donor milk to infants with very low birth weights is proving both inexpensive and practical, according to researchers from the University of Connecticut.

“You save money, and you end up with healthier babies,” said Dr. Kathleen A. Marinelli, a neonatologist in the department of pediatrics at the university.

She estimated the cost of supplementing a very-low-birth-weight (VLBW) baby’s diet with donor milk at \$5,400 per year per infant.

Many previous studies have established the benefits of human milk for VLBW babies, and recent research has shown that donor milk is a healthier supplement than is formula when mothers can’t provide all the milk their own children need.

One study of 207 extremely premature infants weighing 500-1,250 g at birth showed a 50% reduction in necrotizing enterocolitis and an almost 90% reduction in surgical necrotizing enterocolitis in infants whose mothers’ milk

was supplemented with human donor milk, compared with those whose mothers’ milk was supplemented with bovine formula (J. Pediatr. 2010;156:562-7.e1).

Many mothers of VLBW infants can’t produce all the milk their babies need. In particular, many can’t express colostrum for the first few days.

To determine the practicality of supplementing the diets of these children with donor milk, Dr. Marinelli and colleagues at the Connecticut Children’s Medical Center, Hartford, studied 32 babies who were born at the hospital with weights of less than 1,500 g for a period of 6 months.

They aimed to follow the NICU protocol of initiating enteral feeds by 48 hours of life, unless there was a reason for a delay. In practice, the mean hours to first feed was 61 +/- 45 hours, even after excluding those for whom feeds were intentionally held.

“My colleagues were very wrong when they said that we were following the protocol to the T,” said Dr. Marinelli, who is director of lactation support services at the hospital.

The problem, said Dr. Marinelli, is that babies born overnight may be well

into their third day of life before rounds are made, and feeds are ordered and initiated.

The hospital has a strong breastfeeding culture, and of the 32 babies, only three of their mothers refused to try expressing milk. Another six tried without success or stopped for medical reasons.

The diets of 17 of the babies (53%) were at least 99% their mother’s own

Overall, the mothers were able to provide an average of 85% of the milk their babies needed. The babies in this study consumed an average of 74.2 ounces of donor milk and 523.3 ounces of formula. If all the babies who needed to supplement their mother’s milk got donor milk, they might need 1,200 ounces a year, which at \$4.50 per ounce would cost \$5,400, the researchers estimated.

Dr. Marinelli and her colleagues at Connecticut Children’s Medical Center estimated that the total cost to the hospital would be about \$38,448 per year. Arguing that human milk has the potential to save the hospital much greater costs because healthier babies would need less care, they were able to convince administrators to make human milk the standard of care for babies born either weighing less than 1,800 g or at 34 weeks’ gestational age, starting Aug. 1, 2010.

Dr. Marinelli said that donor milk is safe because donors are screened, and the milk is tested much in the same way that blood donations are screened and tested. But in addition, the milk is pasteurized. “There’s never been an untoward effect,” she said. “It’s cost effective, and it’s life saving.” ■

VITALS

Major Finding: Thirty-two VLBW babies consumed an average of 523.3 ounces of formula and 74.2 ounces of donor milk over a period of 6 months. If all the babies who needed to supplement their mother’s milk got donor milk, they might need 1,200 ounces a year, and at \$4.50 per ounce, the researchers extrapolated an annual cost of \$5,400 per year.

Data Source: Analysis of data on 32 VLBW babies at one hospital.

Disclosures: Dr. Marinelli said she had nothing to disclose.

milk. Of the four babies who received donor milk, one got 100% donor milk, one got 51%, one got 50%, and one got 21%, with the remainder of their milk coming from their mothers. Six babies fed on at least 99% formula, and six received a mixture of formula and their mother’s milk.

Freezing Maternal Breast Milk Didn’t Cut CMV Transmission

BY SUSAN LONDON

FROM THE ANNUAL MEETING OF THE PEDIATRIC ACADEMIC SOCIETIES

VANCOUVER, B.C. – Freezing and thawing maternal milk before feeding it to extremely preterm infants does not reduce either transmission of cytomegalovirus or the severity of infection when it occurs, according to the findings of a Swedish trial that is the first to look at this issue in a randomized fashion.

Overall, only 8% of infants whose mothers were producing breast milk testing positive for cytomegalovirus (CMV) became infected. The rate of infection in infants fed only freeze-thawed milk (11%) was no lower than that in infants fed both fresh and freeze-thawed milk (6%).

None of the infections was symptomatic, and the laboratory abnormalities observed were transient and equally common between groups.

“Today, in Sweden at least, we think the benefits of giving fresh maternal milk override the risks of CMV

see the long-term consequences,” she added, noting that emerging data suggest that CMV infection can cause changes in the white matter of the brain that may become clinically important later in life.

Some Swedish neonatal units routinely freeze maternal breast milk before feeding it to extremely preterm infants because they believe it reduces CMV transmission, according to Dr. Omarsdottir.

Indeed, laboratory data have shown that freezing can reduce both the viral titer and viral activity in milk. And smaller, nonrandomized studies suggest that freezing may reduce transmission to infants.

At the same time, intake of fresh milk early in life may be important. “We think that it may have benefits for the baby to colonize the gut flora with maternal breast milk very soon after birth,” Dr. Omarsdottir said at the meeting.

She and her colleagues enrolled in the trial 140 extremely preterm infants born at less than 28 weeks’ gestation and their 127 mothers. The infants were randomized in nearly equal numbers to be fed only freeze-thawed maternal milk or both freeze-thawed and fresh maternal milk until they were 32 weeks of age.

When milk was frozen, it was kept at -20° C for at least 3 days. If mothers did not produce enough milk, it was supplemented with banked milk that was pasteurized and therefore virus

monitored for CMV infection by urinary PCR and culture performed for the first 6-12 weeks post partum.

According to study results reported in a poster session at the meeting, the mean gestational age of infants was 26 weeks in the group fed only freeze-thawed milk and

26 weeks in the group fed both fresh and freeze-thawed milk. The mean birth weights were 846 g and 836 g, respectively.

Of the 140 infants, 37 of those fed only freeze-thawed milk and 34 of those fed both fresh and freeze-thawed milk had mothers who were producing CMV-positive milk. Overall, 8% of these infants be-

came infected, with no significant difference between groups (11% vs. 6%).

“The numbers of babies are too small to say it is more risky to freeze the breast milk,” Dr. Omarsdottir commented in an interview, and the infection rate was unexpectedly low. “We thought it is not ethical to continue the study just to get enough power to really compare [outcomes] better.”

None of the CMV infections were symptomatic. In each group, half of infected infants had transient alterations in liver function.

From the maternal perspective, 33 mothers in the freeze-thawed milk group and 29 in the combined fresh and freeze-thawed milk group were producing CMV-positive milk (49% overall), and most of these women also had positive CMV serology. The percentage whose infants became infected was not significantly different (12% vs. 7%).

“In our study, we did not see that routine freezing of maternal breast milk could reduce the risk of CMV transmission,” Dr. Omarsdottir concluded. ■

VITALS

Major Finding: Among extremely preterm infants whose mothers’ breast milk contained cytomegalovirus, the rate of infection was 11% in those fed only freeze-thawed milk, compared with 6% in those fed both fresh and freeze-thawed milk, a nonsignificant difference.

Data Source: Randomized trial of 140 infants born at less than 28 weeks’ gestation and their 127 mothers.

Disclosures: None was reported.

infection,” said lead investigator Dr. Soley Omarsdottir, a pediatrician at the Karolinska University Hospital in Stockholm.

“But of course we have to follow these infants and

free.

The mothers provided blood for CMV serology testing and breast milk for CMV testing by polymerase chain reaction (PCR) and viral culture. The infants were