REVIEW

Breast feeding twins and high multiples

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Breast feeding offers major health advantages for all infants, whether born singleton or from multiple pregnancy. Adequate quantity and quality of milk production has been documented even for high multiples. Combined efforts of parents, close family, friends, and the medical team can help to make either full or partial breast feeding of multiples possible.

Many studies show the superiority of human milk for human infants over that of other species. Breastfed infants show better neurodevelopment^{1–3} and fewer episodes of common infections such as gastroenteritis, upper respiratory tract infection, sepsis, otitis media, urinary tract infection, and meningitis.^{4–8} Epidemiological studies have revealed a reduced incidence of chronic childhood diseases such as lymphoma, insulin dependent diabetes mellitus, Crohn's disease, obesity, and allergies.^{9–11} In addition, breast feeding appears to be inversely associated with blood pressure in children and young adults.^{12–13}

Multiple pregnancies are often associated with prematurity and low or very low birthweight infants. Premature infants are prone to develop postnatal complications including: recurrent episodes of sepsis (16–30% of very low birthweight; <1500 g), necrotising enterocolitis (1–12%), and retinopathy of prematurity (20–50%). Use of breast milk is associated with decreased incidence of these complications.^{14–15} Despite their aim of encouraging the use of human milk, medical care providers often find difficulties in providing advice and support to these families. In this review, we will try to address some of the main issues on breast feeding multiples.

BREAST FEEDING MULTIPLES: RATE OF SUCCESS

There has been an increase in the rate of breast feeding multiples over the years. A study of members of a mothers of twins club in southern California showed a rate of breast feeding initiation of 23.7% in 1975 as compared with 48% in a national mothers' survey in 1990.^{16–17} This increase is parallel to the increased rates of breast feeding singletons, which probably reflects the increased awareness of mothers to the advantages of human breast milk.

Indeed, mothers of multiples may achieve very high breast feeding initiation rates as shown in two studies of mothers from mothers of twins clubs with rates of 70–90%.^{18–19} This, however, may well represent the rates that can be achieved

in a highly motivated select group and stresses the importance of support groups.¹⁸

By comparison, population based statistics present a different picture. In Wales in 2004, the rate of initiation of breast feeding was 52% for singletons, 40% for twins, and only 15% for triplets.²⁰

REASONS FOR NOT BREAST FEEDING OR EARLY DISCONTINUATION

The reasons for not starting breast feeding multiples as reported by Addy¹⁶ were that the mother simply did not want to breast feed in 36%, maternal or infant illness in 7.6% and 9.1% respectively, physician advice against in 9.1%, insufficient milk supply in 7.6%, and not enough time in 10.6%.

Reasons for introduction of supplements were inadequate quantity of breast milk in 28%, failure of the twins to thrive in 13%, local illness such as breast engorgement, retracted nipples, or abscess in 14.7%, maternal illness in 7.4%, and, only in 1.8% of the cases was an illness of the twins reported to be the cause for stopping breast feeding.²¹

HOW CAN BREAST FEEDING RATES BE INCREASED?

In a study that explored the major factors that influence breast feeding, it was shown that the most important reasons for initiating breast feeding among singleton mothers included benefits to the infant's health, naturalness, and improved mother-infant bonding. The same study showed that extensive education on the benefits of breast feeding must be provided. Both parents may benefit from obtaining information from their doctor, nurse, or other sources before pregnancy or within the first trimester.²²

Czeszynska *et al*²³ studied this question in mothers of twins. The main reason for the mothers to initiate breast feeding was because breast milk was a "better food" for the baby. They showed that women with prior counselling started breast feeding in greater numbers than those were not counselled ($p = 0.026$). These data show the need for special efforts in promoting breast feeding among mothers of multiples. Friedman and coworkers²⁴ have shown that providing women with impending preterm singleton or multiple delivery with a prenatal consultation that includes information on the importance of breast milk clearly increased the initiation and duration of breast milk feeding.

IS THERE ENOUGH FOR EVERYBODY?

A consistent finding in the media or in internet sites dealing with multiples is the concern of

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mothers as to whether there is enough milk for more than one baby. An historical answer may come from “wet nurses”, who could be viewed as having been the historical intermediate alternative between maternal breast milk and artificial formula. In foundling homes in France during the 17th century, each wet nurse fed three to six infants, who were often of different ages and with different daily requirements.^{25 26}

Indeed in isolated cases, mothers may be able to breast feed even quadruplets. A case report described by Mead *et al*²⁷ described quadruplets born at 34 weeks gestation and birth weight range 1820–2240 g who were breast fed 12–34 times a day, and, while receiving exclusively breast milk, the mean daily weight gain varied from 30 to 54 g. This was believed by the authors to indicate adequate maternal milk supply.

Saint and coworkers²⁸ studied the volume and composition of milk produced by mothers of singletons, twins, and triplets. The milk yield of mothers was determined by measuring the decrease in the mothers’ weight, by beam balance at each feed over a period of 24 hours. Mothers of twins consistently released twice the volume of milk as mothers of singletons. Mothers of triplets were capable of producing up to a remarkable volume of more than 3 litres/day when the infants were aged 2.5 months. The concentrations of lactose, protein, and mixed fat in the milk were variable but adequate in all groups of mothers. Thus both the volume and the content of breast milk can be adequate to feed multiples, and therefore mothers may be advised that the more they nurse, the more adequate the milk supply will be.

HOW TO INCREASE THE MILK SUPPLY?

Do’s and don’ts

Evidence based recommendations in breast feeding are somewhat limited. Here we have attempted to offer advice for nursing mothers of multiples that is supported by scientific data.

- Resting adequately, although sometimes seemingly impossible, is important. When examined among the Negev Beduin Arab Women in Israel (a society in which the women multitask continuously), it was shown that when “help” was available, the odds of maintaining exclusive breast feeding were greater.²⁹
- Drinking at least 1800 ml fluids—“in order to increase milk production, you must drink more”—is a common piece of advice given to nursing women. In a carefully planned, crossover study of breastfeeding mothers, an increase of at least 25% in fluids intake had no effect on mean daily milk production.³⁰
- Eating a nutritious diet, nursing frequently, and choosing a night-time sleeping arrangement that allows the best sleep for all involved are important issues that are often overlooked.

The “don’ts” of breast feeding include smoking, which has been shown to reduce prolactin. However, suckling induced acute increments in prolactin and oxytocin linked neurophysin were not influenced by smoking.³¹ The lactational pattern was normal, but smokers weaned their babies significantly earlier than non-smokers.³¹ Wearing a tight bra or a sling pressing on the breasts, taking allergy drugs, and sleeping prone are all recognised “don’ts”.

Nutrition

It is possible to calculate the energy cost of milk production by assessing three factors: the average quantity of milk produced, the energy content of the milk, and the efficiency of milk production.^{32 33} The total amount of breast milk

Figure 1 “Double football” position for simultaneous breast feeding. The mother has given consent for publication of this photograph.

produced can be up to 1.2 litres a day during the first month after delivery and 2 litres a day in the second month. The average energy content is 280.5–314 kJ (67–75 kcal) per 100 ml, and the efficiency of production is 80–90%. Thus, at the end of the second month of nursing twins, the mother will require about 5025–6280 kJ (1200–1500 kcal) a day.

Current recommendations for energy supplementation during breast feeding are 2100–2500 kJ (500–600 kcal) per baby per day.³⁴ A mother nursing multiples will thus use a combination of reserves stored during pregnancy and increased intake during nursing. The diet should be well balanced (protein 20% of total calories, carbohydrates 40%, and fat 40%) and include vitamin supplements. Many mothers may benefit from the help of an expert, such as a dietician.

Extreme vegetarian or vegan diets may result in inadequate intake of specific nutrients and may influence the content of human milk.^{35 36} Stress is also believed to interfere with lactation performance via a number of mechanisms. However, psychological studies have failed to show a consistent correlation between measures of stress and lactation performance. Despite this, stress reducing interventions, such as skin to skin contact between the mother and the infant and relaxation therapy, have been shown to improve lactation performance and prolong breast feeding.^{37 38}

Galactagogues

Fenugreek seeds are used by traditional medicine for diabetes, high cholesterol, wound repair, and more. It is a widely used galactagogue, which was shown to be effective in a study of 75 lactating women in Indonesia.³⁹ Other herbal galactagogues that are available commercially include fennel, rescue remedy, ignatia 6x, and others.⁴⁰

Domperidone and metoclopramide are peripheral dopamine antagonists that are indicated for upper gastrointestinal motility disorders. As a side effect, they stimulate milk production, probably by increasing prolactin secretion. These drugs should be saved as the last resort after excluding all the factors that may result in insufficient milk supply (such as correcting the baby’s latch and sucking problems and using milk compression after feeds to increase supply). Other transient side effects include headache, abdominal cramps, and dry mouth.⁴¹ We prefer the use of domperidone because it crosses into the brain and into the breast milk to a lesser extent than metoclopramide, decreasing the risk of toxicity to both mother and infant and possibly making it an attractive alternative.⁴⁰

Figure 2 “Double cradle” position for simultaneous breast feeding. The mother has given consent for publication of this photograph.

MANAGEMENT OF BREAST FEEDING: TIME, SIDES, AND POSITIONS

Time

Twins may be breast fed in any of three modes: simultaneously, separately on an individual demand schedule, or separately on a modified demand schedule where one infant is fed on demand and then the other immediately afterwards. Simultaneous breast feeding saves time and also has a physiological advantage in that the more vigorous baby on one side may stimulate the letdown reflex for the other twin.³⁸ However, the most common practice is to start breast feeding each baby individually as it takes time for the mother to recover from the delivery, the infants do not necessarily have the same sucking ability, and the new situation is often quite overwhelming for the parents. Many mothers and infants adapt rapidly and the mothers can soon choose their preferred schedule.

Sides

Another issue is whether to alternate breasts between the babies or to assign each baby to the same breast? It is preferable to alternate breasts when breast feeding twins. This ensures that each breast receives balanced stimulation from the different babies and that the milk yield for each baby will be the same.

Positions for simultaneous breast feeding

There are three commonly used positions for simultaneous breast feeding.^{17 42}

1. “Double football”. As shown in fig 1, an infant’s head is supported in each of the mother’s hands (or on a pillow) with an infant’s body lying under each of mother’s arms. Many mothers use this position initially before they gather more experience.
2. “Double cradle”. In this position each infant is held like a singleton, in the cradle position. The two infants cross on the mother’s abdomen (fig 2). This position is often used when the mother is more experienced and the infants have better head control.
3. Combination of cradle with football. One infant is held in the cradle position and the second in the football position (fig 3).

Mothers of triplets or quadruplets who intend to provide their infants with some exposure to human milk may choose between the various possible combinations.

Figure 3 Combination of cradle with football positions for simultaneous breast feeding. The mother has given consent for publication of this photograph.

IN REAL LIFE DOES IT WORK?

Leonard studied breast feeding patterns in families with high order multiples.⁴³ The parents that participated may not be representative of all families. Nonetheless, the information obtained provides a rare insight into their daily reality. The author conducted in-depth discussions with nine breastfeeding mothers and two fathers. Exclusive breast feeding was achieved in five out of the nine families, and the others breast fed one or two infants and pumped after feeding and gave a combination of breast milk and formula.

The women talked about the ongoing struggles with the sheer intensity of the process of breast feeding. A major factor in the decision of how much breast feeding was given was the length of time required to feed each baby, as most infants needed 45 minutes a feed even at the age of 3–4 months. Overall, breast feeding demanded most of the mothers’ waking time as each session of nursing could last between 45 minutes and two hours, every three to four hours. During periods of accelerated growth, such as during the second month of life, nursing became almost continuous. After several weeks, most women became stressed by demand feeding and changed to scheduled feeding. Night-time requires special preparation and always more than one person. Regardless, most of the mothers preferred to feed their triplets consecutively rather than simultaneously as they felt they could devote more attention to each infant. When asked about the effects of breast feeding on their health and wellbeing, the women reported that they were considerably more thirsty and hungry. All were chronically tired and discussed the need to get away to seek adult company. The triplets put a special burden on the marriage and its intimate character, but parents in this small study mostly managed to handle it. The duration of breast feeding was between five weeks and six months.

CONCLUDING REMARKS

Human milk is the best available source of nutrition for singletons and multiples alike. In order that multiples should obtain maximum benefit from this natural resource, mothers need much support and guidance. This may include nutritional and other advice during pregnancy and intensive support during the early stages of establishment of breast feeding. In addition, many mothers require assistance during the frequent trials and tribulations that are part of the potentially profound experience of breast feeding multiples.

Finally, it must be remembered that, despite the many potential advantages of breast feeding multiples, this is a difficult and stressful challenge, which should be approached with appropriate sensitivity and understanding. However, it is important to recognise that even partial breast feeding may be beneficial.

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The mother has given consent for publication of figs 1–3.

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