Human Milk Bank in a Rural Setup – A Success Story

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Abstract

Background: This article describes the experience of a rural human milk bank, with the problems faced in the first 6 months including the coronavirus disease (COVID) crisis and interventions leading to success. Methods: The study included individual counselling by dedicated counsellors, focused counselling of primipara mothers seeking the help of obstetricians, counselling of pre-term mothers by neonatal nurses, periodically delivered information in post-natal wards, and counselling of grandmothers and husbands. Results: The COVID crisis was dealt with donations from reverse transcriptase–polymerase chain reaction-negative mothers with social distancing and mask use. Younger, educated, working mothers with normal delivery and from middle-income families were easy to counsel. Periodic announcements in wards significantly increased awareness about milk banks and donation. Pre-term mothers could be motivated when their baby was nil by mouth or they saw other babies in need of milk. Lactation support to mothers with breast problems, especially in primipara, helps in getting more donors. Counselling of fathers was easier than that of grandmothers. Conclusions: Structured awareness programs and counselling strategies along with education of grandmothers and husbands were very effective in increasing human milk donation.

Keywords: Human donor milk, human milk bank, milk donation

Background

Our milk bank is situated in a village of Maharashtra, India, attached to a rural medical college. When it was 6 months old, it had already provided life to many newborns who were unfortunate not to get their own mother’s milk.

Whenever a new milk bank is opened, it is a challenge to get enough donors to fulfill the requirement, especially in a rural setup, where it may have to survive among religious and cultural oppositions from the society. In some under-developed countries such as Bangladesh, milk banks had to be closed down because of agitation of people against this concept.[1] Donors, who volunteer, have to be physically fit with required blood investigations (hepatitis B, human immunodeficiency virus, and venereal diseases research laboratory) already completed.[2] We also have to see that the mother provides enough milk to her own baby and then donates the excess milk. From March 2020, there was coronavirus disease (COVID) crisis, and we had to make sure that the mother was negative for COVID-19.

There are many concerns with potential donors. In the initial days after delivery, mothers may need support for establishing lactation, only after which they are in a position to donate milk. Mothers in rural areas usually have to seek permission from their husband or senior members in the family. The education of the mother and relatives may have an influence too. Visit to milk banks may cause inconvenience because of episiotomy stitches or a cesarean section. The mother and family members may get influenced by visitors and neighboring patients.

The rural setup of milk banks made us expect additional problems as a result of the lack of awareness and cultural, social, and religious issues.

The objectives of the present study were to analyze the problems we faced in the first 6 months (December 2019 to June 2020) and find the solutions to overcome them. They aim to help newly starting milk banks.

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Practices and policies
To start with, it was planned to publicize the milk bank in the post-natal wards; hence, a dedicated medico-social worker and two nurses were appointed for the same. They were trained to counsel the mothers and educate them about breastfeeding, breast milk advantages, and milk donation.

A weekly meeting was planned, which included medico-social workers and nurses involved in counseling, a pediatrician in charge of the milk bank, other pediatricians, and obstetricians. The counselors and nurses in the milk bank presented data about milk collection, donation, and any problems regarding donors, recipients, and working of the milk bank. The problems were discussed; solutions were sought and were implemented by milk bank staff [Flow chart 1].

All the details of donor mothers were entered in a pre-validated proforma.

Problems and interventions
The problems analyzed and solutions implemented are presented in Table 1.

Social and cultural problems
1. Some grandmothers inquired about the caste and creed of the donors before accepting the milk for the baby. They were told that the milk of mothers is pooled and as we do not ask for the caste and creed for getting blood from donors, we do not ask during milk donation as well. Most grandmothers were satisfied.
2. Three grandmothers raised the question of milk kinship and suggested if the donor mother should give milk to the same sex recipient as her own baby. They were told that the milk is pooled, so it is not possible; moreover, breast milk is like medicine for the baby, so this issue should not be raised. One grandmother refused donor milk for this reason.
3. Some educated mothers of better socio-economic classes were doubtful about the hygiene of the donor mother. They agreed to receive milk when they were told about and shown asepsis in the bank and informed about pasteurization.

Other helpful steps
At least three grandmothers helped counsellors to counsel other grandmothers. They eventually volunteered and motivated many mothers and their husbands. It was relatively easy to counsel husbands.

Effect after interventions
Although the total number of mothers did not increase much (45 donors), donations suddenly increased to 148 with an average of 4–5 donations per day. The number of pre-term mothers also increased and remained high because of counselling in NICU (neo-natal intensive care unit) and as pre-term deliveries increased during the COVID period. Longer stay of pre-term babies and their mothers also increased pre-term milk.

From June 2020, the number of patients increased as donation started in COVID-19-negative mothers with social distancing.

Flow chart 1: Methodology

Table 1: Problems, solutions, and impacts on donors and donation of milk

| Time period | Problems | Solutions | Donor mothers no. (pre-term/term) | Amount ml | donations |
|-------------|----------|-----------|-----------------------------------|-----------|-----------|
| December 2019 | New start in a rural setup, making mothers aware | individual and group counselling in the post-natal ward | 4 (all term) | 140 | 7 |
| Jan 2020 | less donors, inadequate counsellors, inadvertent negative counselling by paramedics. | Focused counselling of primipara by obstetricians, multiple counselling sessions, education of paramedics, jingles on radio | 43 (6,37) | 8210 | 87 |
| Feb 2020 | Need of counselling of other family members, less pre-term milk | Periodic announcements in the ward, counselling of pre-term mothers in NICU, counselling of relatives (group), meeting with groups of ladies | 45 (14,31) | 15930 | 148 |
| March 2020 | COVID crisis | Donation with care | 41 (30,11) | 11500 | 196 |
| April 2020 | difficulty in counsellors, difficulty in donor selection, doubts of milk safety, less patients, movement restriction | Social distancing, N95 mask by counsellors, mothers, donation by RT-PCR-negative mothers, milk bank sanitization, more pre-term donors, one mother at a time | 40 (33,7) | 10140 | 127 |
| May 2020 | | 33 (21,12) | 8780 | 115 |
| June 2020 | Crisis continued, but the team was better organized. | Previously taken steps re-started with COVID care | 42 (24,18) | 18610 | 176 |
| Total | | | 248 (120,128) | 73310 | 856 |
and use of masks. Counsellors also went to post-natal wards for counselling with masks and social distancing.

Total donations and milk collected increased. It was sufficient to support recipient babies. The steps decided before the crisis were continued with social distancing and the use of masks. Donors continuously increased thereafter.

**Donor characteristics affecting donations and counseling**

Demographic factors of donors were correlated with the “difficulty level” of counseling [Table 2].

**DISCUSSION**

Our milk bank is unique because of its rural location.

The location of milk banks all over the world varies from one attached to a hospital and serving to its neo-natal unit only to others not attached to a hospital and serving milk to the whole region. Irrespective of location, they follow the common guidelines for establishment and functioning with some local changes country-wise.[3,4] In middle- and low-income countries, milk banks are usually attached to a hospital, and post-natal mothers donate the milk used mainly for the babies in the neo-natal unit and other areas such as neo-natal surgery and cardiothoracic units as in our hospital.[5] In China, as per local rules, the staff of the hospital donate the milk.[6] Some hospitals encourage donation from the well-baby clinic and out-patient department.[7] Similar to other developing countries, our milk bank is attached to a hospital.

In a rural setup, mostly mothers are not much educated and are not aware of the concept of milk banks, although grandmother or aunt breast feeding the baby (wet nursing) is traditionally accepted. There are more chances that religious and cultural issues may pop up in rural setups as in our bank. The steps taken by us initially in our milk bank were mainly keeping the above fact in mind and promotion was in the post-natal ward as the bank was attached to a hospital.

Counselling of grandmothers and husbands was very useful; it also cleared some social issues. Grandmothers helped in counselling others, and counselling by them was more effective. We used radio jingles and Mahila mandals to increase general public awareness.

Similar to other authors, we felt that it was important to take feedback from counsellors and nurses about facilitators and barriers[7] and the need for knowledge update.[8] Hence, frequent meetings were held and steps to be taken were decided based upon the problems faced by service providers.

Looking at the resistance from the primipara mothers in milk donation, we felt that they can be better motivated by obstetricians and post-natal ward nurses to visit the milk bank where the counselor can educate them about the techniques of breastfeeding and its advantages. In the bank, they could be shown that their milk can be donated to other babies if in excess. This was a major step in enhancing the donation. This led to “mother to mother” counselling and was effective for the accompanying person as well (grandmothers or husbands).

From the third month, repeated announcements about milk banks in the wards were of additional benefits. Mothers could be motivated well if they knew about the milk bank beforehand. The same was noticed by other authors too.[7,9] It allowed the mothers to discuss with other mothers in the ward and family members. This step also sensitized grandmothers and husbands who in turn influenced mothers positively. Other authors also thought that it was important to educate family members who influence mothers.[7]

Until the third month, we were short of pre-term milk. In NICU, nurses started encouraging mothers to donate their milk when the baby was kept nil by mouth. Mothers were explained that if they continue to donate the milk, they will be ready to feed when their baby needs. They were also shown the babies in NICU who needed milk. This was also a very effective step. Gelano et al.[9] reported that mothers are twice more likely to donate if they visited NICU. This step was also effective with grandmothers who otherwise were not in favor. In our setup, eventually, more milk was collected from mothers with babies admitted in NICU and especially mothers of pre-term babies. A longer duration of stay of sick pre-term babies also increased pre-term milk collection.

With the above drives, our milk bank started running full-fledged from the fourth month. Although March to May 2020 was a difficult period because of the COVID-19, it resumed in June 2020 when we accepted milk from RT-PCR-negative mothers and had a better understanding of the precautions for COVID-19.

The problems which we faced during the COVID crisis were felt all over the world. Different guidelines were followed in

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**Table 2: Factors affecting counselling and donation (n=248)**

| Factors                        | Easy counselling * n=119 (48%) | Difficult counselling * n=77 (31%) | Very difficult counselling * n=52 (21%) |
|--------------------------------|--------------------------------|-------------------------------------|----------------------------------------|
| Age of the mother (yrs)        | 20-25 yrs (81.68%)             | 26-30 yrs (48.62%)                 | >30 yrs (30.58%)                      |
| Education                      | >10th std (77.65%)             | 5-10 std (45.59%)                  | Illiterate/less than 5th std (34.66%) |
| In-born/out-born               | In-born (108, 91%)             | Out-born (68,88%)                  | Out-born (47,90%)                     |
| Working status                 | Working mothers (105, 88%)     | House wives (50,65%)               | House wives (37,70%)                  |
| Socio-economic status          | Middle-income group (105,88%)  | Low-income group (60,78%)          | High-income group (46,89%)           |
| Delivery type                  | Normal (71,60%)                | Normal (40,52%)                    | LSCS (47,90%)                         |

* Counselling was considered easy if a mother could be counseled after one or two sessions. If three counselling sessions were needed, it was considered difficult; if the mothers needed four or more counselling sessions, it was considered very difficult.
Difficult counselling for less educated mothers was noticed by other authors as well.[7,13] 60% of mothers in China and 79% of mothers in Taiwan had college education (614). In the present study, 68% of mothers were between 20 and 25 years, similar to another Indian study;[8] the mean age of donors was higher in China, Taiwan, and Italy.[6,14] Our 50% of donors were pre-term mothers. Balachandran et al. and Sushma Nangia et al.[5,15] had 42% and 65% pre-term mothers, respectively. In China and Taiwan, more than 91% of mothers were full term.[6,14]

Mondkar et al.[7] found that fathers of babies in NICU were happy with the human milk bank concept, whereas other fathers opposed it. We did not face difficulty with fathers. Husbands in our study were comfortable about wives donating the milk, but grandmothers (mothers or mothers in law) doubted whether milk will be sufficient for their own baby. Similar findings were noted by others.[5,7] In our bank, maximum donors were from the middle-income group, whereas Katke et al.[13] did not find any relation with socio-economic status.

Once it became a routine for primipara mothers and mothers in need of lactation support to visit the milk bank, they motivated other mothers as well for visits to the bank and milk donation. We had more primipara donors as lactation support is mainly needed by them. A similar observation was made by other authors as well.[9]

Conclusions and Recommendations

Whole-hearted efforts are needed to motivate donor mothers. Problem-based solutions are needed, which are possible by coordinated efforts of pediatricians, obstetricians, obstetric ward nurses, and neo-natal unit nurses and sincere efforts of medico-social workers and milk bank staff. Help from motivated mothers, their husbands, and grandmothers goes a long way in human milk bank success. Social and cultural issues can be solved by proper explanations and allowing mothers to know the working of milk banks.

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Conflicts of interest

There are no conflicts of interest.

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