The influence of type of delivery, skin-to-skin contact and maternal nationality on breastfeeding rates at hospital discharge in a baby-friendly hospital in Italy

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Abstract

The aim of this epidemiological study is to evaluate how type of delivery, skin-to-skin contact and maternal nationality influence breastfeeding practices of newborns at discharge in a large population of babies born in the Baby-Friendly Hospital of San Bonifacio, Verona, Italy.

Data were collected for all healthy newborns consecutively born over a period of three years, regarding type of delivery, feeding at hospital discharge, skin-to-skin procedure, and for a smaller group maternal nationality was recorded as well.

The rate of exclusive breastfeeding in a group of 6017 newborns was 82.1%, higher among babies born by vaginal delivery than in those born by cesarean section (84.9% vs 65%; P<0.001). It was higher in those who had skin-to-skin contact than in those who did not, in both vaginal delivery (85.3% vs 69.2%; P<0.001) and cesarean section (67.7% vs 55.1%; P=0.009). Also, it was found to be higher in babies born to immigrant mothers than in those born to Italian mothers (89.9% vs 79.5%).

Vaginal delivery, skin-to-skin contact and maternal foreign nationality have a positive association with breastfeeding at hospital discharge.

Introduction

World Health Organization (WHO) and United Nations International Children’s Emergency Fund (UNICEF) indicate breast milk as the only appropriate food for healthy babies until six months after birth.1 They also recommend that mothers should start breastfeeding within one hour after delivery and should continue exclusive breastfeeding over the first six months.1 To promote breastfeeding, WHO and UNICEF have established a series of procedures which are collected in the Ten steps to successful breastfeeding1,2 and have supported the spreading of Baby Friendly Hospitals since 1992. According to the International Code of Marketing of Breast-milk Substitutes, as well as feeding bottles or teats. Furthermore, it must assure the Ten steps to support successful breastfeeding, for example helping mothers breastfeeding within one hour from birth and practicing rooming-in.1,2

In Italy the very first Baby Friendly Hospital was certified in 2001, now one can count 25 of them. The overall percentage of breastfeeding mothers in Italy has increased from 81.1% in 2005 to 85.5% in 2013.3

According to Italian official public data the number of foreigners living in Italy has also increased, from about 4,052 millions in 2012 to about 5,014 millions in 2015, with about 19.4% of newborns having foreign mothers.4

Only a few studies are available that take into account the effects that variables such as type of delivery, skin-to-skin contact (STSC) and maternal nationality have on breastfeeding rates, and those studies have only been conducted on small sample groups.5-8

The aim of this study is to evaluate how type of delivery, STSC and maternal nationality influence breastfeeding practices of newborns at discharge from the hospital by observing a large population of...
healthy newborns who were born in the Birth Centre of the G. Fracastoro Baby-Friendly Hospital of San Bonifacio, Verona, Italy.

Materials and Methods

This is a retrospective observational study. The study population includes all healthy babies consecutively born over a period of 36 months in the Maternal-Infant Department of the G. Fracastoro Baby-Friendly Hospital of the Local Health Unit of Verona, Italy. This hospital provides care to a population estimated of about 160000 inhabitants including a portion of recently immigrated people accounting for approximately 13% of the inhabitants. About 1800 babies are born every year in this Baby-Friendly Hospital. In 2001, the Birth Centre of this area received accreditation as Baby-Friendly, which has been confirmed over the years until now.

Only data regarding three variables are available for the entire period, and this is a bias of our study. Such variables are: type of delivery (vaginal delivery or cesarean section); STSC procedure carried out within one hour from delivery and lasting one hour or more; type of breastfeeding for every newborn at discharge from the hospital, which is classified according to WHO standards: exclusive breastfeeding (EBF) is used for newborns who have only received mother’s milk; predominant breastfeeding (PBF) indicates babies who have been given one or more meals of glucose solution; mixed breastfeeding (MBF) refers to babies who have received artificial milk at least once; formula feeding (FF) describes newborns who have been fed only formula milk.

Another variable, maternal nationality, is available only for those babies born during the last 18 months considered in the study.

Information was recorded in the Pediatric Unit Register of Neonatal Feeding, which is filled with data taken from the medical records. A consent form to data release was signed by the babies’ parents after birth. To avoid bias all babies that spent any time in the Neonatal Pathology Unit were excluded from the study. Statistical analyses of the present study were performed using STATA software version 14 (StataCorp, Texas, USA). Data were analyzed using Chi-square test to evaluate whether there was a significant association between type of feeding at hospital discharge and the single variables considered (type of delivery, STSC procedure, and maternal nationality). Statistical significance was set at P<0.05.

Results

Over a period of 36 months 6017 healthy babies were born in the Maternal-Infant Department of the G. Fracastoro Baby Friendly Hospital: 5182 babies were born by natural delivery, 835 (13.8%)...
babies were born by cesarean section. 5698 newborns experienced STSC within an hour from delivery for at least one hour.

At hospital discharge 82.1% of newborns presented with EBF, 14.7% of babies showed MBF, 1.2% of babies presented with PBF, 2% had FF. The rate of EBF at discharge was significantly higher in babies born by vaginal delivery than in babies born by cesarean section (84.9% vs 65%; \( P<0.001 \)) (Figure 1). Newborns who experienced STSC had a significantly higher rate of EBF than newborns who did not. This was observed among babies born by vaginal delivery (85.3% vs 69.2%; \( P<0.001 \)) as well as among those born by cesarean section (67.7% vs 55.1%; \( P=0.009 \)) (Figure 2).

STSC was carried out significantly less frequently in newborns who were delivered by cesarean section than in newborns who had a vaginal delivery (78.9% vs 97.2%; \( P<0.001 \)) (Table 1). Maternal health problems, dystocic delivery, newborn’s temporary health problems and mother’s choice were the recorded reasons for missed STSC.

Regarding the last 18 months of our study information about maternal nationality was available. During that period 2142 healthy babies were born in the Maternal-Infant Department of the G. Fracastoro Baby Friendly Hospital: 1567 (73%) had Italian mothers, 575 (27%) had immigrant mothers (more precisely from Africa 10.3%, South America 1.1%, Asia 4.9%, Eastern Europe 10.6%).

The rate of cesarean section in the group of babies born to immigrant mothers and in the group of babies born to Italian mothers was similar (13.6% vs 15.7%; \( P=0.222 \)).

Similarly, there was no significant difference for the rate of cesarean section in mothers coming from Italy (15.7%), Africa (14.5%), South America (12.5%), Asia (15.2%), Eastern Europe (11.9%) (\( P=0.669 \)).

STSC was carried out with similar rates for the group of babies born to immigrant mothers and for the group of babies born to Italian mothers (93.6% vs 94.2%; \( P=0.587 \)). Likewise, dividing newborns in five groups according to the mothers’ nationality, it showed that the rate of STSC was similar between the five groups, with STSC being carried out by 93.2% of mothers coming from Africa, 100% of mothers coming from South America, 94.3% of

**Table 1. Deviance between type of delivery and skin-to-skin contact.**

| Type of delivery     | No skin-to-skin contact | %     | Skin-to-skin contact | %     |
|----------------------|-------------------------|-------|----------------------|-------|
| Cesarean section (n=835) | 176                     | 21.1  | 659                  | 78.9  |
| Vaginal delivery (n=5182) | 143                     | 2.8   | 5039                 | 97.2  |

\( P<0.001 \).
mothers from Asia, 92.9% of those from Eastern Europe, 94.2% of Italian mothers (P=0.665).

Despite that, immigrant mothers altogether had significantly higher rates of EBF compared to Italian mothers (89.4% vs 79.5%; P<0.001) (Figure 3). Similarly, there were significant differences between the single groups with different maternal nationality (P<0.001), with the rate of EBF being higher in babies born to mothers coming from Africa (93.2%) and in babies born to mothers coming from Eastern Europe (90.7%) (Figure 4).

Overall the combined rate of EBF, PBF and MFB was 98.6% in babies born to immigrant mothers, 96% in babies born to Italian mothers.

Discussion

This epidemiological study showed how type of delivery, STSC and maternal nationality are associated with breastfeeding practices at discharge from a Baby Friendly Hospital in Verona, Italy.

The G. Fracastoro Baby Friendly Hospital data regarding healthy babies born over a period of 36 months showed that the rate of EBF at hospital discharge is 82.1%. Such rate is altogether satisfying, considering that so far a 75% rate of EBF at discharge is the minimum required by UNICEF for the certification of new Baby-Friendly Hospitals.

On a deeper analysis of the data, the rate of EBF was significantly higher in the group of babies born by vaginal delivery (84.9%) than in the group of babies born by cesarean section (65%) (Figure 1). This aspect was also shown in an observational study conducted at the University of Padova on a smaller cohort of babies, about 2100. Our data, resulting from a much wider population, 6017 babies, allow us to show a similar negative association between cesarean delivery and EBF at discharge from the hospital.

Among the reasons to explain this it is important to point out that after a cesarean section, and especially an elective one, the mother lacks the physiological hormonal changes that should ready her to start lactating as soon as possible after delivery. Moreover, cesarean section undoubtedly brings the mother a greater discomfort, so that she can find it harder to keep a close contact with her baby in the earliest hours and days after the delivery as recommended to promote breastfeeding.

Every mother delivering in our hospital benefits from the rooming-in care, consisting of sharing the room with her baby thus being together at all times as recommended by WHO and UNICEF. The rooming-in seems to be overall a less consolidated practice in mothers who gave birth by cesarean delivery, often due to maternal request to be relieved from the management of the baby totally on her own right after giving birth. Therefore, we are inclined to believe that the evidences described above should be the subject of training for nurses of Birth Centres. Nevertheless, we feel that mothers delivering by cesarean section should receive care with an exceptional emphasis to the closeness and physical contact between mother and baby to enhance the early start of breastfeeding.

STSC is another procedure known to be of relevance to promote breastfeeding, consisting of placing the naked and dried baby on the mother’s torso or abdomen, with direct contact between the mother’s and baby’s skin, immediately after birth and for at least one hour. This enhances the oxytocin reflex and the baby’s early attachment to the breast, also it promotes the bonding between mother and newborn.1,5 All these arrangements have a positive influence on the initiation of breastfeeding.12,13

In addition, it is known that early STSC stimulates the stabi-
showed the same tendency found by Zuppa et al., with EBF and PBF rates being higher in immigrant mothers than in Italian mothers. On the other hand, for both Italian and immigrant mothers, the rates of combined EBF and PBF in our study were considerably higher than those observed by Zuppa et al. This is likely due to the fact that ours is a Baby-Friendly Hospital while the A. Gemelli Hospital was not, other than the fact that we only accounted for healthy newborns while Zuppa et al. accounted for unhealthy ones as well.

It is complex to understand the reasons for the great difference between the rate of EBF in Italian mothers and the rate of EBF in immigrant mothers. We believe that mostly cultural and religious other than economic factors may be involved. One possible explanation for this phenomenon is that in places such as African and Eastern European Countries breastfeeding is the norm. Immigrants from these Countries are organized in matriarchal communities in which a close contact is kept with the homelands, and traditional and established practices like breastfeeding are passed on. A support network is built around the mothers, so that they are encouraged to breastfeed their babies as their mothers did. Religious belief probably contributes too to promote breastfeeding, especially among Muslim mothers as the Corano states that every baby deserves to be breastfed and recommends for mothers to breastfeed children for the first two years of age if possible.

Several other variables may have an influence on breastfeeding rates, such as previous breastfeeding experience, economic background and mothers’ educational level. Further studies are needed to better understand the factors involved in breastfeeding practices.

Conclusions

The rate of EBF at discharge from our Birth Centre is overall satisfying (82.1%).

There is a positive association between vaginal delivery and breastfeeding at hospital discharge. The STSC procedure is positively associated with EBF at discharge in both babies born by vaginal and by cesarean delivery. Maternal nationality affects type of breastfeeding at discharge: the rate of EBF is higher in immigrant mothers (89.4%) than in Italian mothers (79.5%).

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