

Correspondence: the donation of human milk during the COVID-19 pandemic

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“Donating breast milk is safe. All the control procedures have been activated within our milk banks both on donors and on the milk itself. Therefore, we invite Italian mothers to continue to show their generosity, donating their milk for those babies who need it most, especially preterm babies”

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Dear Editor,

Ours is one of the 38 Human Milk Banks (HMBs) in Italy, coordinated by AIBLUD (Italian Association of Human Milk Banks), which has been active since 2010 and has so far collected around 3,000 liters of milk, generously donated by more than 700 virtuous mothers donors [1]. This is an HMB that scrupulously follows all the recommendations that regulate this activity [2]. It is also very active in promoting breastfeeding and feeding premature babies with their mother's milk, a real health elixir since, thanks to its numerous and important bioactive factors, it compensates for the developmental and immune limits of the newborn, especially if preterm, and this is all the more true the lower the gestational age.

The whole Italian territory has been severely affected by the pandemic from SARS-CoV-2 (COVID-19 pandemic) [3], and although Puglia has not been among the Italian regions to pay the greatest tribute to this unexpected world emergency, it has nevertheless been involved significantly. In Italy, we have experienced 2 months of lockdown, and the restrictive measures are obviously continuing.

Moreover, our hospital was dedicated to patients with SARS-CoV-2 disease. In the Neonatal Intensive Care Unit (NICU), only mothers have been allowed entry, so women, already more sensitive immediately after childbirth, have been psychologically proven by isolation from the rest of the family. The mothers' particular emotional state could have represented a negative feedback on milk production and breastfeeding also compromising milk donation.

This condition would have caused premature babies to be exposed to the risks associated with the non-use of human milk (increased exposure to serious conditions such as necrotizing enterocolitis or sepsis) [4-9]. The donated human milk is pasteurized, and Holder pasteurization is effective in inactivating SARS-CoV-2 [10].

Breastfeeding is also recommended to positive mothers, with the necessary precautionary measures to contain the infection through saliva droplets.

In other epidemics, both during the acute respiratory syndrome (SARS) of 2003 and the respiratory syndrome (MERS) of 2012 [11], no viral load was detected in breast milk. During SARS-CoV-2 pandemic very few cases have been studied. Literature data available documented the presence of the virus in breast milk from positive women in only 2 samples, of 18 tested in 3 different

trials by RT-PCR [12, 13]; the authors underline the limits of this finding and suggest that further studies involving lactating women are needed to confirm the possible virus transmission via breastfeeding and that it remains unclear whether SARS-CoV-2 can be shed into breastmilk and transmitted to a child through breastfeeding. It would also be useful to understand whether the bioactive factors of human milk play a defending role and modulate the clinical expression of SARS-CoV-2 positivity in the newborn.

Taking into account the small number of data and the few certain information already known, breast milk can be considered protective against this infection. WHO, UNICEF, ISUOG, RCOG and ABM promote breastfeeding in this SARS-CoV-2 pandemic as well as the Italian Society of Neonatology (SIN) [2], the Spanish Society of Neonatology (SENeo) and the Union of European Neonatal and Perinatal Societies (UENPS) [14-21].

In all phases of HMB's activity, from the collection to the treatment and distribution, all the precautionary measures have been adopted; also, for the delivery and transport of milk donated from home to the HMB, through the hospital transport service, as happens for the collection of donated blood. Both donations were most helpful in this situation, so it was important not to be interrupted during the pandemic period. The hygiene instructions, usually recommended in writing and verbally to mothers who breastfeed and donate their own milk, have become particularly stringent. It should also be noted that, from the beginning of the pandemic, an accurate and systematic history of SARS-CoV-2 risk to each donor has been made.

With great pleasure, we found that the restrictive measures did not represent a reason to limit donation nor breastfeeding. We have been close to nursing and donating mothers, providing constant support from the HMB and NICU staff, with practical advice and psychological closeness.

In particular, in the February-May period, the crucial one of the pandemic, 15 donors donated 91.25 liters. In comparison with the average of previous years of donation data to the HMB, the balance is even in favor of the current year. In fact, in 2019, in the same period, 12 mothers were recruited and 58.7 liters were collected and, in 2018, the donor women were 10 but they donated 119.5 liters. In addition, even in these months, as for 10 years, all infants weighing less than 1,800 grams have been fed exclusively with human

milk: donated milk until the milk of one's mother is available and subsequently breast milk, through gavage, until the sucking and swallowing skills are reached, and bottle. Nothing has changed in this aspect of NICU care, which has become a priority for the health and well-being of fragile babies.

On the occasion of the World Day for the Donation of Human Milk, which was celebrated on May 22, the SIN reaffirmed the importance of this practice, reassuring mothers about the safety of donation at the HMBs, also in this pandemic period. "Donating breast milk is safe – said prof. Fabio Mosca, President of the SIN – All the control procedures have been activated within our milk banks both on donors and on the milk itself. Therefore, we invite Italian mothers to continue to show their generosity, donating their milk for those babies who need it most, especially preterm babies".

It has been estimated that the extensive use of breast milk can save millions of babies from dying and dying from infection [22]. Each year the lives of over 800,000 babies could be saved if mothers around the world had the opportunity to adhere to the recommendations of the WHO which recommends exclusively breastfeed babies for the first 6 months, and then to continue to accompany solid foods with breast milk until they reach 2 years of age and, for premature babies, to favor feeding with human milk. It should be remembered that, for the first time in history, overcoming infections, the number one killer of newborns becomes premature birth, a global epidemic that causes 1 million deaths a year. Many of these are preventable and, of all known approaches, the one with the greatest impact on survival and development is nutrition in the first hours, days and months of life with human milk, precisely because of the extraordinary protective effect against infections [22-24].

Specifically, breast milk contains antiviral factors that play a role in various infections [25-36], anti-inflammatory substances (lactoferrin, HMO, lipids, proteins) and hundreds of immunoregulatory factors. In SARS-CoV-2 disease, the most serious aspects seem precisely related to the inflammatory storm, to the dysregulated immune response, as well as to the direct effects of the virus. Various practical applications [37] for the prevention and therapy of bacterial, viral and fungal infections by breast milk components have been studied and validated. In previous epidemics, it has been shown that the

use of breast milk represents one of the first crucial measures to be taken in emergencies [38-42].

As manager of the HMB, I found it useful to report the experience of our HMB and our NICU on this specific aspect, and I hope that other HMBs can do the same. I believe that these testimonies can represent an element of hope, encouragement and reflection. Solidarity did not end with the lockdown, and I am convinced that having fed newborns with human milk, especially the most fragile infants, has been a protection factor for this infection and also for others that can come in the future, in short, an important health opportunity to be pursued for all the children of the world.

Declaration of interest

The Author declares that there is no conflict of interest.

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