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Breastfeeding in the context of Covid19: Benefits for mothers

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Abstract

Coronavirus 19 disease can cause short as well as long-term effects on human health and function. In particular, its response measures affect breastfeeding and pregnant women in general, resulting in a variety of issues such as changes in breastfeeding practices and increased stress levels. However, the World Health Organization (WHO) recommends exclusive breastfeeding at least for the first six months of a child's life, even if the mother herself is ill, and only if her health condition allows it.

In this paper, we provide general information about Covid 19 disease, how it affects breastfeeding, and what benefits will be visible to the breastfeeding mother in a direct or indirect way.

Keywords: Breastfeeding; Covid 19 and Breastfeeding; Skin to Skin; Benefits of Breastfeeding; SARS-Cov-2; Mother and Infant Separation

1. Introduction

Coronavirus 19 disease first emerged in Wuhan city, Hubei province, China, and by 17 November 2019 had spread worldwide [1]. It is caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). SARS-CoV-2 coronavirus is a neurodisturbing virus capable of triggering a cytokine storm and hyper-inflammation with possible effects on the central nervous system [2]. The virus spreads through droplets and causes a variety of symptoms that primarily affect the respiratory system but also affect other body systems [3,4]. The most common symptoms are headache, fever, anorexia, ague, dysgeusia and cough [5,6]. In particular, in pregnant women who were symptomatic, laboratory findings consistently revealed lymphopenia, thrombocytopenia and leukopenia. C-reactive protein (CRP) levels were elevated, as were D-dimer levels. Chest computed tomography (CT) scans of the pregnant women showed abnormal imaging findings, specifically ground glass opacities [6].

This pathogenetic progression of the acute immune response, together with acute respiratory dysfunction, may cause immediate and long-term consequences on cognitive and neuropsychological function. Furthermore, such emerging infectious diseases and its management measures (i.e. isolation, quarantine and social distance) have a terrible impact on people's lifestyles and have caused high-level psychological distress [2].

According to current research, pregnant women are at no greater risk of contracting SARS-CoV-2 than the general population, and there is a low risk of SARS-CoV-2 transmission through delivery of less than 1% [6,7] and breastfeeding [6]. The World Health Organization (WHO) recently stated that there has been no evidence of COVID-19 transmission through human milk or breastfeeding [8]. SARS-CoV-2 can be transmitted to the newborn after birth by the mother's illness and other caregivers [7]. Based on these findings, new guidelines for the pregnancy, labor, and postpartum periods have been developed [4].

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The WHO recommends direct mother-infant contact after delivery and breastfeeding as a basic precautionary measure, as the benefits of these practices significantly outweigh the potential risks of mother-to-infant transmission [7,9]. These include the use of masks, strict hand hygiene and breast cleansing [4]. When pumping breast milk, all parts that come into contact with human milk should be washed thoroughly. The breast pump should be properly disinfected according to the manufacturer's instructions, as should the bottle used to feed the infant. According to the WHO, in severe cases of women with Covid 19 and whose condition does not allow them to breastfeed, it is recommended that the infant be fed with pumped breast milk, donor breast milk or a substitute [4,10].

This pandemic also had a drastic impact on hospital activity. In many countries, such as Italy, several departments were closed to create dedicated COVID-19 wards, other clinical activity was reduced and contact with patients was kept to a minimum [11]. Although obstetric-nursing institutions have not reduced their work activity, there have been changes in local and hospital care. Some screening tests are performed less frequently due to reduced patient access or difficulties in service delivery [11]. The presence of family members and partner during important moments, such as ultrasound examinations, childbirth and hospitalization, has been reduced for safety reasons [11].

Reduced support from family and friends may negatively affect women's perceptions and experiences of childbirth, motherhood, breastfeeding, and their ability to overcome practical challenges related to infant care. It is also likely to have an impact on women's relationship with their infant [7, 12].

A study conducted in the United States reported lower rates of breastfeeding both in hospitals and at home, particularly when mother and newborn were separated during hospitalization due to maternal infection [13]. Given the impact of Covid 19 on breastfeeding, WHO, UNICEF and other international health organizations recommend exclusive breastfeeding for 6 months and continued breastfeeding for at least a year or more, as desired by the mother-infant dyad, in combination with complementary foods [9,14].

2. How Covid 19 affected breastfeeding

Lactation is a distinguishing feature of mammals, during which milk is secreted through biochemical and neuroendocrine processes. It should be noted that the mother begins to secrete milk as early as 16 weeks of gestation [4]. Breastfeeding has short as well as long-term benefits for both mother and newborn (17). Through breastfeeding, passive immunity of the newborn is achieved, i.e., the direct transfer of antibodies to the non-immune newborn [10, 16,18]. This protection lasts long enough for the baby's immune system to mature and develop antibodies against infection [16]. According to Walker Karen et al [16], antibodies have been detected in human breast milk after maternal vaccination with Pfizer-bioNTech COVID-19 vaccine [16].

The associations between breastfeeding behavior and health outcomes of infants and breastfeeding mothers are the subject of a large body of literature that, despite limitations, establishes breastfeeding as the "gold standard" against which other foods should be evaluated [14].

A woman's decision on how to feed her infant and her commitment to her choice is influenced by social and cultural norms [19]. In low- and middle-income countries, exclusive and continuous breastfeeding has higher rates, while formula feeding is more common in Western Europe, Australia and North America [20]. In addition to culture and sociodemographic conditions, the decision to breastfeed is also influenced by other psychosocial and political factors, reinforcing the decision to breastfeed (e.g., increased maternity leave, perception of partner support in newborn care tasks) or against breastfeeding (e.g., precarious work). In addition, breastfeeding is often a challenging experience for mothers due to difficulties or discomfort during lactation (e.g., nipple pain) [7,20].

The extensive physiological changes that occur during the perinatal period include unprecedented hormonal fluctuations that increase women's vulnerability to neuropsychiatric disorders. Mental health disorders in the perinatal period are also associated with poverty, physical health, quality of relationship with partner, violence, extended family support, and other forms of sociodemographic disadvantage, conditions that are widely inflated across countries during periods of global pandemics such as COVID-19 [20].

The coronavirus 19 pandemic's lockdown had a significant impact on mothers' mental health, citing anxiety, depression, isolation and loneliness [22,23]. They were unable to see their family, highlighting the lack of practical support and the sadness that family members missed the opportunity to see the new baby. In particular, they highlighted the lack of social support from their friends and not participating in mother and baby groups and activities, lack of face-to-face visits to General Practitioners (GPs) and health visitors. Several women reported that their experience of pregnancy,

birth and early motherhood was completely different from what they expected. They and their extended family lost precious moments and experiences that could never be replaced [7,19,21].

In the study by Wang et al [2], it was reported that even after the end of the ten four-day quarantine period in mothers who became ill, almost half of the mothers continued to separate with their babies due to fear of uncertain infection, along with a low rate of breastfeeding in the first few months. In addition to early cessation of breastfeeding, early mother-infant separation is also associated with negative effects on infant brain development, psychological and mental well-being, and the parent-infant bond [2].

Although more than half of new mothers reported a negative influence on baby management and more than a third of them reported a negative influence on their breastfeeding experience, the breastfeeding rate is stable or even higher than before the pandemic [21].

Research by Stampini et al [21] reported that lockdown made it difficult for pregnant women to exercise for 150 minutes per week, as recommended by the American College of Obstetricians and Gynecologists (ACOG).Reducing physical activity will affect pregnant women's quality of life, abilities to labor and deliver a healthy baby in a clinically, culturally, and psychologically safe environment with continuity of practical and emotional support from a birth attendant and with kind, sensitive clinical staff providing reassurance and technical competence [21].

3. Positive effects of Covid 19 on the nursing mother

According to Brown et Shenker [24], confinement had both positive and negative influences on breastfeeding and maternal psychosocial well-being [24]. Among the benefits they reported were:

- More time to focus on their baby This was particularly beneficial for mothers who experienced issues, such as nipple capture by the newborn.
- Fewer visits For some mothers, fewer visits meant more time to relax, focus on their baby and their recovery from childbirth. If they had visits, they would have to 'attend to' guests, hear unwelcome comments and be unable to adequately respond to their baby's care.
- More privacy A common cause of breastfeeding cessation is the shame women feel about breastfeeding in front of others. Because of quarantine, the mother felt freer and more confident to breastfeed topless and with skin-to-skin contact.
- Increased response to baby's call to feed Because of extra time and lack of pressure, mothers responded immediately to the baby's hunger cues and breastfed on demand rather than on a schedule.
- Greater support from their partner Due to the confinement, the partner was home for longer periods of time and this resulted in providing breastfeeding support, helping the mother to recover from childbirth and strengthening the bond between father and newborn.
- Delayed return to work Due to quarantine many mothers took more days of parental leave or telecommuted. This resulted in not sending the infant to daycare. As a consequence, mothers did not reduce breastfeeding, felt calmer and had more contact with their child. For mothers who had more children, increased bonding with their other children was observed [7,24].

4. Breastfeeding and the mother

During pregnancy, placental progesterone inhibits the synthesis of milk. After birth, the drop in progesterone levels causes milk production to begin. Breastfeeding the infant stimulates the release of prolactin and oxytocin, which regulate milk synthesis and secretion. Cortisol, thyroid hormones, insulin and growth hormone further support milk synthesis [2]. Oxytocin may also help to reduce anxiety by having a positive effect on maternal mood and socialization [7,16,23,25]. Increasing oxytocin levels increases the thresholds of pain tolerance by reducing maternal distress, which leads to her feeling loving and caring for her baby [25]. Breastfeeding mothers enjoy better short-term health and are less likely to get sick in the future [14]

4.1. Immediate and early benefits for the mother

4.1.1. Bonding / Skin to skin contact

Skin-to-skin contact is the best preparation for the transition of the mother and infant to the new life together and should be performed immediately after birth [17]. It has been suggested that an increase in maternal oxytocin in the first hour after delivery is associated with the establishment of mother-neonatal bonding [14,17,18,20,25]. Benefits to the newborn include reduction of the negative effects of 'birth stress' (reduced cortisol levels) [26], optimal thermoregulation, less crying [27] and development of the newborn's microbiome from the mother's flora which is beneficial particularly during the pandemic [17,26]. According to Lubbe et al [17], skin-to-skin contact increases glucose levels 75-90 min postpartum and improves cardiorespiratory stability of the newborn [17,26]. Skin-to-skin contact also acts as a non-pharmacological analgesic for neonates [26]. The mother benefits from faster placental abruption, reduced bleeding, increased breastfeeding self-efficacy, and reduced maternal stress levels [17,26,27].

4.1.2. Amenorrhea due to lactation

Exclusive breastfeeding suppresses ovulation naturally, thus acting as a natural contraceptive for up to 6 months (or as long as the woman is exclusively breastfed and menstruation has not resumed) [14]. The hyperprolactinemia observed during breastfeeding inhibits gonadotrophin secretion, apparently due to a negative effect on GnRH secretion impulses, thus causing anovulation and lactation amenorrhea [25]. Some studies, however, show that exclusive breastfeeding is not always associated with inhibition of ovulation [28].

4.1.3. Weight loss after childbirth

Childbearing is associated with long-term weight gain and weight maintenance after childbirth has been associated with adverse outcomes in subsequent pregnancies [28]. Postpartum weight retention is a predictor of future overweight and obesity and is associated with obesity-related diseases such as type 2 diabetes mellitus and cardiovascular disease of ovulation [28]; breastfeeding, in contrast, is associated with postpartum weight loss [14]. Studies have shown that exclusively breastfed mothers were thinner than mothers who breastfed until the first month of life. Weight loss due to breastfeeding also helped the mother emotionally and reduced the risk of diabetes mellitus [25].

4.1.4. Depression and anxiety

The incidence of postpartum depression is high (10-15%) and depression during pregnancy usually continues after childbirth (within 12 weeks after delivery). Postpartum depression has a direct impact on mothers. It carries long-term risks to their mental health and can also have a significant negative impact on the cognitive, social and physical development of their children [25,28]. Postpartum depression is due to the lower oxytocin levels found in these women. Oxytocin is a fundamental element in stimulating the bond between mother and child. Breastfeeding may also act on a mechanism to regulate daily cortisol secretion, with a stable concentration of the hormone and possibly reduce the risk of postpartum depression. Studies have shown that women who do not initiate or maintain breastfeeding have a higher risk of postpartum depression. Lactogenic hormone, oxytocin and prolactin may have anxiolytic effects. This mitigates stress through neuroendocrine responses, since breastfeeding is associated with reduced levels of adrenocorticotrophic hormone (ACTH) and cortisol. Breastfeeding and skin-to-skin contact activate this process and the longer the duration of this contact, the lower the cortisol levels [14,22,23,25].

4.2. Long-term maternal benefits of breastfeeding

4.2.1. Diabetes, metabolic and cardiovascular risk

Pregnancy is associated with changes in glucose and lipid metabolism that support the developing fetus; however, these changes can be detrimental to the mother's health. These metabolic changes can cause diabetes and may increase the risk of type 2 diabetes later in life [14,23,25]. The risk of diabetes mellitus is 50% higher for women who never breastfed or breastfed spasmodically [23,25]. Breastfeeding, on the other hand, is associated with favorable metabolic changes [14]. Oxytocin reduces insulin resistance. Longer duration of breastfeeding reduces the risk of developing type 2 diabetes mellitus by 32%, and it also decreases by 4-12% with each additional year of lactation [25,28,29].

Pregnancy is also a hyperlipidemic condition, with elevated blood cholesterol and triglyceride concentrations; in contrast, lactation promotes favorable effects on maternal blood lipids (14). Studies have found that breastfeeding is associated with a lower risk of long-term metabolic risk factors and cardiovascular disease [14,25]. Breastfeeding mothers were less likely to develop hypertension, diabetes, hyperlipidemia, and cardiovascular disease [14,25,29]. Breastfeeding women were less likely to develop metabolic syndrome [25].

4.2.2. Cancer

A reduction in the risk of reproductive cancers has been observed among breastfed women [14]. Breastfeeding has a protective effect against breast cancer. Possible biological mechanisms include that protection may occur through pregnancy-specific changes in levels of circulating hormones such as estradiol, prolactin and growth hormone, as each has been associated with breast cancer risk [28]. The drop in estrogen levels during the breastfeeding phase results in a decrease in mammary gland cell proliferation and differentiation [25,28]. With tissue sloughing and epithelial apoptosis at the end of the lactation process, the chances of these cells differentiating into cancerous cells are reduced. In addition, the risk of breast cancer is reduced by 4.3% for each year of breastfeeding, suggesting that longer breastfeeding duration may increase protection against breast cancer [14,25].

Breastfeeding reduces the risk of ovarian cancer. Longer duration of breastfeeding suppresses ovulation for longer and causes suppression of gonadotropins, especially luteinizing hormone, resulting in reduced plasma estradiol production, which is considered a possible causative mechanism of ovarian cancer when present at high levels [25,28]. Thus, low estrogen concentration, gonadotropin suppression, amenorrhea and anovulation-induced anovulation are factors that protect women from developing ovarian cancer. The risk of developing ovarian cancer for each month of breastfeeding is reduced by 2%. Breastfeeding for more than 12 months was also associated with a 35% reduction in ovarian cancer, compared to women who had not breastfeed [3,9, 25,28].

According to several epidemiological studies, the risk of endometrial cancer decreases as breastfeeding duration increases [14,25].

4.2.3. Endometriosis

Endometriosis is a common gynecological disease affecting more than 10% of women of reproductive age. Exclusive breastfeeding significantly reduces the risk of endometriosis because the amenorrhea of breastfeeding exerts a protective - curative effect [25].

4.2.4. Osteoporosis

Any woman who is pregnant and breastfeeds for at least 1 month significantly reduces the likelihood of developing osteoporosis compared to both pregnant women who have not breastfeed and women who have never been pregnant. Breastfeeding reduces the prevalence of osteoporosis in postmenopausal women. Breastfeeding mothers had better bone density and mineral content than non-breastfeeding mothers [25]. Although women lose calcium during breastfeeding, through counteracting mechanisms, intestinal and renal absorption of calcium and its mobilization from bone increases [25,30].

4.2.5. Other diseases

Research has shown that breastfeeding reduces the risk of rheumatoid arthritis, particularly if the duration of breastfeeding exceeds one year [25]. Breastfeeding has been linked to a lower risk of Alzheimer's disease. This is probably due to the hormonal effect of estrogen on brain receptors and insulin sensitivity induced by breastfeeding [25]. Multiple sclerosis (MS) is a chronic autoimmune disease that mainly affects women of childbearing age. It was shown that pregnancy and breastfeeding reduced the risk of MS relapses [25].

5. Conclusion

As we reach the third year of the pandemic, it is evident that support to nursing mothers is critical. Health professionals have a crucial role in the early stages of breastfeeding and in the mother-newborn dyad in general, particularly among first-time moms. More research should be done so as to explore the effects of confinement on different dimensions of maternal experience, maternal mental health and barriers associated with exclusive breastfeeding.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this document.

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