What does a doctor need to know about breastfeeding and adolescent health and pregnancy?

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INTRODUCTION

For the World Health Organization (WHO), breastfeeding (BF) should start in the delivery room in the first hour of life, should be maintained in the form of exclusive breastfeeding (EBF) for the first 6 months of life, and after that period, along with healthy complementary feeding, should be maintained for at least 2 years of age¹.

Among the different medical specialties, traditionally, it is pediatricians, obstetricians, and family and community physicians who act more directly in supporting and helping women during the lactation period, acting as educators and protagonists in interventions during pregnancy, in the immediate puerperium and in the childcare consultations²⁻⁵. However, it is imperative that every physician, regardless of specialty, has knowledge about BF, as many specialties will require longitudinal follow-up of their patients, allowing the physician to play a fundamental role in planning and supporting BF, such as, for example, support that the general practitioner or occupational physician can offer to working women in the transition between maternity leave and returning to work, one of the critical periods in which lack of guidance can lead to interruption of BF⁵.

This article aimed to address the most current scientific evidence on the benefits of BF on women's health, as well as specific situations that may arise in women's health that contraindicate BF, the few drugs whose use is prohibited during BF and ends by addressing attention integral to adolescent health and pregnancy.

BREASTFEEDING

Short-term benefit

Although gestational diabetes mellitus (GDM) tends to resolve after childbirth, in most women, another portion ends up progressing in a few months or years to the onset of type 2 diabetes mellitus (DM2)6. In this context, in women with a history of GDM, studies associate BF with improvement in the functioning of maternal pancreatic beta cells in the postpartum period, generating lower glycemic, total, and LDL cholesterol levels and higher HDL cholesterol levels⁷⁻⁹. Shub et al. found that among women, with or without GDM during pregnancy, EBF was associated with lower fasting blood glucose concentrations at 6-10 weeks postpartum, after adjusting for possible confounding biases⁷. Tarrant et al. conducted a systematic review involving 13 articles that studied the influence of BF on postpartum glycemic status and eight that compared mean blood glucose values between BF and non-BF participants. Of the 13 studies that compared postpartum glycemic status, nine found that BF reduced rates of glucose intolerance. In eight of the studies, there were mean blood glucose values, and in six of the studies, the fasting plasma glucose was lower in participants who breastfed, with reductions ranging from 3.7 to 7.4 mg/dL⁸.

A recent randomized clinical trial tested whether BF during the oral glucose tolerance test affects glucose and insulin results. For this, 20 women with previous GDM were recruited; each woman performed two OGTTs in the first 3 months after

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delivery, BF the child in one and avoiding BF in the other. Glucose and insulin were measured in four moments. In BF OGTTs, higher values were observed for global glucose and insulin concentrations, glucose and insulin peaks, and individual glucose (at 0, 30, and 60 min) and insulin (at 0 and 60 min) points, but without differences at 120 min⁹.

The act of sucking the nipple-areola region is the most important stimulus for the secretion of oxytocin, which also causes uterine contraction, so that BF accelerates the return of the uterus to its normal size, reducing the occurrence of postpartum hemorrhage, and consequently anemia. In addition, high levels of oxytocin can increase the pain threshold, reducing maternal discomfort and thus contributing to an increase in the mother-infant bond¹⁰.

The oxytocin released during BF also has lipolytic and anorexigenic effects. Based on this, there will be faster weight loss and a return to pre-pregnancy conditions, with an average monthly reduction of 450 g in maternal weight during BF11. A study conducted with 314 Mexican mothers revealed that those who exclusively breastfed for at least 3 months had a weight reduction of 4.1 kg compared to those who did not breastfeed¹².

As long as there is the lactation period, the high levels of prolactin lead to the inhibition of the hormone gonadotropin, estrogen, and progesterone, leading to the interruption of ovulation and amenorrhea. As long as a woman breastfeeds exclusively on demand, at least eight times a day, and has not menstruated, her protection against pregnancy can reach 96% during the first 6 months. After the return of menstrual cycles, the probability of conception can decrease by 7.4% for each additional month of BF¹³.

Long-term benefits

Some studies suggest that the benefit of BF on maternal insulin sensitivity may persist over time. Among them, Ley et al. evaluated 4,372 American women with DM2 and a history of GDM and observed an inverse association between the duration of lactation throughout life and the risk of developing DM2. Compared with not BF, adjusted hazard ratios (HRs) were significantly lower depending on duration with a ratio of 0.73 (95%CI 0.57–0.93) for a cumulative duration of BF greater than 24 months¹⁴.

There appears to be an inverse dose-response relationship between the duration of BF and the risk of developing cardio-vascular disease. In a prospective study, 139,681 women who reported a lifetime history of more than 12 months of lactation were less likely to have various postmenopausal conditions, including hypertension (odds ratio [OR] 0.88, p<0.001), hyperlipidemia (OR 0.81, p<0.001), and cardiovascular disease

(OR 0.91, p=0.008) than women who never breastfed but were not likely to be less obese. When adjusted for BMI, similar relationships were observed. During an average of 7.9 years of study participation, women with a single live birth who breastfed for 7–12 months were significantly less likely to develop cardiovascular disease (HR 0.72, 95%CI 0.53–0, 97) than women who never breastfed¹⁵.

Studies have shown an association between the duration of BF and the consequent protective effect against the risk of breast cancer, probably due to the following mechanisms: lower levels of estrogen during the lactation period reduce the rates of cell proliferation and differentiation, and epithelial apoptosis at the end of the nursing period assists in the destruction of damaged DNA cells. . It is estimated that the risk of breast cancer can be reduced by more than 4% for each year of BF¹⁶.

Compared with never BF, women who breastfed for any length of time were associated with a 22% reduced risk of breast cancer (OR 0.78; 95%CI, 0.74–0.82) and also had a 30% less risk of ovarian carcinoma (OR 0.70; 95%CI, 0.64–0.77)¹⁷. BF is also associated with a significant reduction in the risk of endometrial cancer (relative risk (RR): 0.77; 95%CI, 0.62–0.96), and each month of BF has been associated with a reduction of 2% RR for endometrial cancer (RR 0.98; 95%CI, 0.97–0.99)¹⁸.

According to Farland et al., the duration of full and EBF was significantly associated with decreased risk of endometriosis, as for every 3 additional months of full BF per pregnancy, women had an 8% lower risk of endometriosis (HR 0.92; 95%CI 0.90–0.94), 14% lower risk for every 3 additional months of EBF per pregnancy (HR=0.86; 0.81–0.90), and women who breastfed for 3 years or more in total over their reproductive lifetime had a 40% risk lower incidence of endometriosis compared to women who never breastfed (HR=0.60; 0.50–0.72)¹⁹.

Meta-analysis with six studies, conducted by Chen et al., demonstrated that BF is associated with a lower risk of developing rheumatoid arthritis among women who breastfeed for between 1 month and 1 year (OR 0.783, 95%CI 0.641–0.957, p=0.015) and for more than 12 months (OR 0.579, 95%CI 0.462–0.726, p<0.0005)²⁰.

The biological and psychosocial effects of BF, such as better stress regulation, may exert long-term benefits for the mother's brain health. A convenience sample of Californian women over 50 years old was recruited through two clinical trials and found that BF women performed better on several cognitive tests in the domains of learning, delayed recall, executive functioning, and processing speed in comparison with women who did not breastfeed, suggesting that BF may have a protective effect for Alzheimer's disease, possibly due to the hormonal effects of estrogens on brain receptors and the insulin sensitivity provided by BF²¹.

Women who breastfed for 15 months or more had a reduced risk of multiple sclerosis compared with those who breastfed for 4 months or less²².

Maternal contraindications to breastfeeding

There are few maternal health conditions in which there is a formal contraindication to BF. Mothers who have infectious diseases such as infection by HIV (human immunodeficiency virus), infection by HTLV (human T-lymphotropic virus), infection by herpes simplex (in the presence of active lesions in the breast), chickenpox (mothers who develop the disease within 5 days before up to 2 days after delivery), and cytomegalovirus (provided the neonate is extremely premature, that is, gestational age at birth <30 weeks or birth weight <1,000 g) should not be breastfed, due to the risk of direct transmission to the child, or in the case of cytomegalovirus and chickenpox, the antibodies that would prevent infection in children are not present²³.

Mothers who regularly use illicit drugs (marijuana, cocaine, crack, amphetamine, ecstasy, and others) should not breastfeed their children²⁴.

In some specific situations such as debilitating infection for the mother, maternal leprosy, invasive systemic maternal infection by *Staphylococcus aureus* or group B Streptococcus, acute phase of maternal dengue infection, occasional consumption of alcohol or illicit drugs, yellow fever vaccine in mothers of children under 6 months of age, or who are undergoing an examination with radiopharmaceuticals, temporary interruption of BF is recommended, and the time that the woman should not breastfeed varies according to each situation²⁵.

Breastfeeding and medication

The number of women who interrupt their children's BF to use medication is still frequent. This may occur because the prescribing physician is unaware of the issue of safety in the use of medications during BF, because the content of medication inserts often recommends not using them in pregnant and lactating women, and the fear that mothers have that a certain medication could harm their child. Nowadays, only a minority of drugs actually contraindicate lactation. In 2010, the Ministry of Health (MS) published the second edition of the manual "Breastfeeding and the use of medicines and other substances," now updated in 2022²⁶.

Medications are classified into compatible, judicious, and contraindicated use. It is important that the physician, when prescribing a drug to a nursing mother or if asked about the compatibility or otherwise of a drug, can consult such support material to provide accurate information

COMPREHENSIVE HEALTH CARE FOR ADOLESCENTS AND PREGNANCY

Comprehensive adolescent health care (AISA) should offer periodic routine and occasional care, when the situation requires it, in order to work on issues related to the prevention of injuries and health promotion, recognizing risk behaviors and/or signs/symptoms that may denote the onset of some disease. The actions of this service should be aimed at reducing vulnerability and risks to physical and emotional health; promoting relationships of trust and self-care; preventing injury and manifesting diseases in adults, but with early onset, diseases related to unprotected sexual activity; and questioning about work, school, citizenship, technology, digital addiction, environment, nutritional aspects, and violence^{27,28}.

The AISA should be extended to the entire population aged between 10 and 20 years, with longitudinal and distinct follow-up between the different stages, to be carried out through individualized outpatient care, home visits, and participation in educational groups with the following objectives general: monitor physical growth and development; expand vaccination coverage; promote sexual and reproductive health; promote food and nutrition education; promote safety and accident prevention; promote the prevention of intentional injuries in the home, school, and interpersonal environment; encourage health promotion and prevention of the most common diseases in this age group; promote physical and mental hygiene and the practice of leisure activities appropriate to each phase; and provide socialization, cultural stimulation, and adaptation of adolescents. In this age group, pregnancy is still considered a social and public health problem 28-31 in their social environment, promoting oral health²⁷⁻³⁰.

In Brazil, the pregnancy rate is above the Latin American average in adolescents aged 15–19 years, with this number being 68.4/1,000 adolescents in Brazil, 65.5/1,000 in Latin America, and an average of 46/1,000 in the world. In 10 years, the number of births in children under 19 years in Brazil has decreased by about 40%, but the teenage pregnancy rate is still high, with more than 400,000 pregnant women per year. Only 2% of teenagers who became pregnant continued their studies²⁷⁻³⁰.

For the teenage mother, complications and severity will be greater or lesser according to age, parity, adherence to prenatal care, weight gain, and socioeconomic and cultural factors. The physical consequences are hypertension; anemia, resulting from situations of poverty, malnutrition, chronic malnutrition, and inadequate diet to avoid gaining weight; higher rate of cesareans; urinary and genital infections; maternal mortality (risk increases the lower the chronological age and with successive pregnancies at short intervals); spontaneous and clandestine abortions; toxemia; and dystocia, sexually transmitted infections (STIs)²⁷⁻³⁰.

As psychosocial consequences, there is emotional tension, family rejection that increases the probability of developing physical and mental problems; loss of autonomy; partner abandonment; low schooling, associated with low socioeconomic status, being the cause of higher absenteeism in prenatal care; difficulty in returning to school after childbirth due to the fragile support network; and dreams interrupted by the lack of preparation for work, as many drop out of school when they become pregnant and, therefore, lose the opportunity to acquire knowledge and enter the job market²⁷⁻³⁰.

As for the son of a teenage mother, the consequences are prematurity, abandonment, low weight at birth, increase in the infant mortality rate in the first year of life, higher number of hospitalizations, violence, and even BF can be affected. BF should be encouraged for adolescent mothers, making them aware of the benefits for both the child and her (all the same benefits of BF as adult mothers) and the importance of BF to the child exclusively for the first 6 months of life, continuing up to 2 years³⁰.

The prevention of untimely pregnancy takes place through sex education, through frank, open, and sincere dialogue with parents, health professionals, and teachers, in addition to contraceptive methods²⁷⁻³¹.

Ethical-legal aspects of contraception in adolescence

Contraception can and should be indicated for adolescents, respecting the medical eligibility criteria of the WHO for the use of contraceptives, including for children under 14 years of age, and its prescription is based on technical standards of the MoH and Code of Medical Ethics. However, it turns into a dilemma when deals with adolescents under 14 years of age. If the law is on the one hand, the issue of sexual and reproductive rights is on the other ³²⁻³⁴.

From a legal point of view, in 2009, article 217 was inserted in the Brazilian Penal Code, which establishes the crime of rape of a vulnerable person, "having carnal intercourse or performing another libidinous act with someone under 14 years of age," with mandatory notification to the Tutelary Council or the Public Ministry. Therefore, the notification must be made even in cases where the relationship is consensual, the parents are aware of it or even when it is a pregnancy desired by the adolescent and her family, not discriminating the age difference between the partners nor the degree of affectivity of the partner couple³²⁻³⁴.

Scientific societies have promoted meetings with professionals from the social, health, and justice areas, with the aim of finding possibilities to guarantee adequate assistance in sexual and reproductive health, without failing to propose a reflection on the beginning of sexual life and on the conscious possibility of consider postponing the act.

Special emphasis is given to the importance of the right to information and prevention of pregnancy and STIs, both for those who already have sexual activity and for those who have not yet started it³²⁻³⁴.

Recognizing the adolescent as a subject with rights and respecting her as such is essential in order to advance in the challenge of providing comprehensive health care for this population.

AUTHORS' CONTRIBUTIONS

RSP: Conceptualization, Writing – original draft, Writing – review & editing. **LMDL:** Conceptualization, Writing – original draft. **AEBIA:** Conceptualization, Writing – original draft, Writing – review & editing. **DVSB:** Conceptualization, Writing – original draft. **LMN:** Conceptualization, Writing – original draft, Writing – review & editing. **IMDL:** Conceptualization, Writing – original draft.

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