Jornal de Pediatria 2022;98(3): 219–220

Jornal de Pediatria
www.jped.com.br

EDITORIAL

Breastfeeding and its risk factors*

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The paper by de Morais et al. in this journal shows that being born by cesarean section and being born preterm are risk factors for optimal infant feeding; since both factors are negatively associated with exclusive breastfeeding up to the age of 6 months, what is the recommended feeding by the World Health Organization.[1,2] Breastfeeding is evidence-based for the best feeding for all infants, with limited exceptions such as infants suffering from galactosemia or infants born to a mother needing medication such as chemotherapy which will harm a healthy baby. As a consequence, every effort should be made to stimulate breastfeeding for as many infants and for as long as possible. Governments should develop campaigns to improve the knowledge about the benefits of breastfeeding.[3] Campaigns focusing on breastfeeding benefits and supporting initiatives for working mothers are a key priority. Advocacy to employers, managers and supervisors in providing breastfeeding facilitations and breastfeeding program support is critical to successful breastfeeding practice among workers.[3] According to data from Indonesia, white-collar workers have better knowledge, attitude, and practice towards breastfeeding.[3] de Morais correctly highlights a possible bias in their findings since their study is restricted to infants born in private practices. This selected population represents only 20% of the Brazilian population, mostly from the highest socioeconomic classes, and thus white-collar workers. While many governments fail to promote breastfeeding, the Brazilian Ministry of Health, together with the National Health Surveillance Agency, regulated from 2010 the implementation of breastfeeding support rooms in companies through a technical note aimed at women workers to comply with the recommendation of exclusive breastfeeding up to the first six months and supplemented up to two years or more. Also, in 2010 the Ministry of Health developed the "Supporting Working Women and Breastfeeding" strategy.[4] Brazilian legislation has a postpartum leave of up to four months and two half-hour intervals during working hours or the option to leave one hour early so that the mother can breastfeed her baby until the age of six months. Brazil also has a very large network of milk banks.[4]

The reported incidence in the study by de Morais et al. of preterm birth was about 10%, which is very similar to previous Brazilian studies and data from USA.[1,5] The prevalence of "very low birth weight" can be estimated at about 4%. In 2020, the World Health Organization & UNICEF expanded the Baby-friendly Hospital Initiative, promoting and supporting breastfeeding to small, sick and preterm newborns.[6,7] The Nutrition Committee of the European Society of Pediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) recommends that mothers of late or moderately preterm infants should receive qualified, extended lactation support and frequent follow-up.[8] Individualized feeding plans should be promoted.[8] However, there may be a role for enhanced nutritional support, including the use of human milk fortifier, enriched formula, parenteral nutrition, and/or additional supplements, depending on factors such as gestational age, birth weight, and significant comorbidities.[8] Obviously, further efforts should be made worldwide to inform mothers who delivered preterm about the advantages of breastfeeding.

Brazil has a very high prevalence of cesarean section, which was 79.6% in the present study.[1] According to a World Health Observatory data repository, the birth by cesarean section in Brazil is 55.5%.[9] In 2019 in the USA, 31.7% of infants were born by cesarean section.[10] In Belgium, the prevalence of cesarean section is around 21%.[11] These data indicate that the cesarean section rate in Brazil is exaggerated. Cesarean section changes neonatal gut colonization, and it takes up to the age of 1 year before the differences related to birth disappear.[12] These differences in gastrointestinal microbiota colonization are likely to have a long-

DOI of original article: http://dx.doi.org/10.1016/j.jped.2021.06.009
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* See paper by Morais et al. in pages 241–247.

https://doi.org/10.1016/j.jped.2021.12.005

term negative impact on health outcomes. At 6 months of age, children born by CS had a significantly higher BMI, but this did not persist into future childhood.[13] There was no evidence to support an association between mode of delivery and long-term risk of obesity in the child.[13] Children delivered by cesarean section have a significantly increased risk of asthma, systemic connective tissue disorders, juvenile arthritis, inflammatory bowel disease, immune deficiencies, and leukemia.[14] Infants born by cesarean section are also predisposed to the perinatal administration of antibiotics. Perinatal antibiotics exert highly selective effects on the resident gut microbiome, which, in turn, lead to very specific alterations in susceptibility to TH2- or TH1/TH17-driven lung inflammatory disease.[15] Whether cesarean section is associated with an increased risk for immune-mediated diseases is debated, with the more recent literature showing a very small or no increased risk.[16-19] The negative impact of cesarean section on later health outcomes is likely to be limited to the elective section and could not be confirmed for the emergency section.[20] The breastfeeding rate is higher in the case of an emergency section than when the section was planned.[1]

Every effort should be made to stimulate long-term breastfeeding as much as possible since a mother's milk is the best feeding for infants, and it is associated with an improved long-term health outcome compared to formula-fed infants. Since preterm delivery and elective cesarean section are associated with a decrease in breastfeeding prevalence, efforts should be made to limit these risk factors. High quality prenatal care will decrease preterm delivery. The elective section should be avoided as much as possible. The health care professional should discuss the increased risk of a long-term negative health impact associated with an elective cesarean section with the future parents.

Conflicts of interest

Y. Vandenplas has participated as a clinical investigator, and/or advisory board member, and/or consultant, and/or speaker for Abbott Nutrition, Ausnutria, Biogaia, By Heart, CHR Hansen, Danone, ELSE Nutrition, Friesland Campina, Nestle Health Science, Nestle Nutrition Institute, Nutricia, Mead Johnson Nutrition, Phathom Pharmaceuticals, Pileje, United Pharmaceuticals (Novalac), Yakult, Wyeth.

References

1. Morais MB, Toporovski MS, Tofoli MH, Barros KV, Ferreira CH, Silva LR. Breastfeeding in infants seen in Brazilian private pediatric practices and its relation with type of delivery and history of prematurity. J Pediatr (Rio J). 2022;98:241—7.
2. World Health Organization (WHO). Essential Nutrition Actions: Improving Maternal, Infant and Young Child Health and Nutrition. Geneve, Switzerland: WHO; 2013. p. 28.
3. Basrowi RW, Sulistomo AW, Adi NP, Widyahening IS, Vandenplas Y. Breastfeeding knowledge, attitude and practice among white-collar and blue-collar workers in Indonesia. J Korean Med Sci. 2019;34:e284.
4. Lima CM, Maymone W. Breastfeeding promotion and support policies in Brazil. Pediatr Gastroenterol Hepatol Nutr. 2019;22:413—5.
5. Centers for Disease Control and Prevention (CDC). Reproductive health. Preterm birth. [cited Dec 28, 2021]. Available at: https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pretermbirth.htm
6. World Health Organization (WHO). United Nations Children's Fund (UNICEF). Protecting, Promoting and Supporting Breastfeeding: the Baby-friendly Hospital Initiative for Small, Sick and Preterm Newborns. Geneva: WHO/UNICEF; 2020.
7. Maastrup R, Hannula L, Hansen MN, Ezeonodo A, Haiek LN. The baby-friendly hospital initiative for neonatal wards. A mini review. Acta Paediatr. 2021. https://doi.org/10.1111/apa.16230. Epub ahead of print. PMID: 34932843.
8. Lapillonne A, Bronsky J, Campoy C, Embleton N, Fewtrell M, Fidler Mis N, et al. Feeding the late and moderately preterm infant: a position paper of the European Society for Paediatric Gastroenterology, Hepatology and Nutrition Committee on Nutrition. J Pediatr Gastroenterol Nutr. 2019;69:259—70.
9. World Health Organization (WHO). Global health observatory data repository: births by caesarean section. 2021. [cited Dec 28, 2021]. Available from: https://apps.who.int/gho/data/node.main.BIRTHSBYCAESAREAN?
10. Centers for Disease Control and Prevention (CDC). National Center for Health Statistics. Births — Method of Delivery. [cited Dec 28, 202 1]. Available at: https://www.cdc.gov/nchs/fastats/delivery.htm
11. Stordeur S, Jonckheer P, Fairon N, De Laet C. Elective caesarean section in low-risk women at term: consequences for mother and offspring — synthesis. Health technology assessment (HTA) Brussels: Belgian health care knowledge centre (KCE). 2016. KCE Reports 275Cs. D/2016/10.273/82. [cited Dec 28, 2021]. Available at: https://kce.fgov.be/sites/default/files/atoms/files/KCE_275Cs_Elective_caesarean_section_synthesis.pdf
12. Stokholm J, Thorsen J, Chawes BL, Schjørring S, Krogfelt KA, Bønnelykke K, et al. Cesarean section changes neonatal gut colonization. J Allergy Clin Immunol. 2016;138:881—9.
13. Masukume G, McCarthy FP, Baker PN, Kenny LC, Morton SN, Murray DM, et al. Association between caesarean section delivery and obesity in childhood: a longitudinal cohort study in Ireland. BMJ Open. 2019;9:e025051.
14. Sevelsted A, Stokholm J, Bønnelykke K, Bisgaard H. Cesarean section and chronic immune disorders. Pediatrics. 2015;135:e92—8.
15. Russell SL, Gold MJ, Reynolds LA, Willing BP, Dimitriu P, Thorson L, et al. Perinatal antibiotic-induced shifts in gut microbiota have differential effects on inflammatory lung diseases. J Allergy Clin Immunol. 2015;135:100—9.
16. Huang L, Chen Q, Zhao Y, Wang W, Fang F, Bao Y. Is elective cesarean section associated with a higher risk of asthma? A meta-analysis. J Asthma. 2015;52:16—25.
17. Thavagnanam S, Fleming J, Bromley A, Shields MD, Cardwell CR. A meta-analysis of the association between Caesarean section and childhood asthma. Clin Exp Allergy. 2008;38:629—33.
18. Soullane S, Henderson M, Kang H, Luu TM, Lee GE, Auger N. Cesarean delivery and risk of hospitalization for autoimmune disorders before 14 years of age. Eur J Pediatr. 2021;180:3359—66.
19. Begum M, Pilkington R, Chittleborough C, Lynch J, Penno M, Smithers L. Caesarean section and risk of type 1 diabetes: whole-of-population study. Diabet Med. 2019;36:1686—93.
20. Cai M, Loy SL, Tan KH, Godfrey KM, Gluckman PD, Chong YS, et al. Association of elective and emergency cesarean delivery with early childhood overweight at 12 months of age. JAMA Netw Open. 2018;1:e185025.