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Full length article

Successful implementation of new Swiss recommendations on breastfeeding of infants born to women living with HIV

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ABSTRACT

Introduction: Swiss national recommendations advise, since end of 2018, supporting women with HIV who wish to breastfeed. Our objective is to describe the motivational factors and the outcome of these women and of their infants.

Methods: mothers included in MoCHiV with a delivery between January 2019 and February 2021 who fulfilled the criteria of the "optimal scenario" (adherence to cART, regular clinical care, and suppressed HIV plasma viral load (pVL) of <50 RNA copies/ml) and who decided to breastfeed after a shared decision-making process, were approached to participate in this nested study and asked to fill-in a questionnaire exploring the main motivating factors for breastfeeding.

Results: Between January 9, 2019 and February 7, 2021, 41 women gave birth, and 25 decided to breastfeed of which 20 accepted to participate in the nested study. The three main motivational factors of these women were bonding, neonatal and maternal health benefits. They breastfed for a median duration of 6.3 months (range 0.7–25.7, IQR 2.5–11.1). None of the breastfed neonates received HIV post-exposure prophylaxis. There was no HIV transmission: 24 infants tested negative for HIV at least 3 months after weaning; one mother was still breastfeeding when we analyzed the data.

Conclusions: As a result of a shared decision-making process, a high proportion of mothers expressed a desire to breastfeed. No breastfed infant acquired HIV. The surveillance of breastfeeding mother-infant pairs in high resource settings should be continued to help update guidelines and recommendations.

Abbreviations: cART, combination antiretroviral therapy; pVL, plasma viral load; SHCS, Swiss HIV Cohort Study; MoCHiV, Swiss Mother and Child HIV Cohort Study; CI, confidence interval; IQR, interquartile range.

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Introduction

The World Health Organization (WHO) has long recommended exclusive breastfeeding for the first 6 months of life for women living with HIV in resource-limited settings mainly due to increased morbidity and mortality with poor drinking water quality [1]. There is very scarce data about women living with HIV who decide to breastfeed in high resource settings, especially not about their main motivational factors and outcomes.

There is a very low risk of HIV vertical transmission through breastfeeding from women on effective cART like shown in the PROMISE trial in southern Africa with a transmission rate of 0.3 % (95 % CI 0.1–0.8) at 6 months in women taking cART [2], and a recent review summarized both short- and long-term health benefits for both the mother and her child [3]. After stopping neonatal prophylaxis for newborns of aviraemic mothers in 2016 [4], the Swiss recommendations for medical care of pregnant women with HIV and their offspring have been updated in December 2018 [5]. Those guidelines advise to support mothers with well-controlled HIV and a strong wish to breastfeed their infants following interdisciplinary discussion (with a pediatrician, an infectious diseases specialist, and an obstetrician) of risks and benefits. Breastfeeding is supported in women with 1) complete adherence to cART with a suppressed HIV pVL, 2) shared decision- making process and 3) close follow-up postpartum. This new approach strengthens the autonomy of the mother to provide best medical management and outcomes for both mother and infant [6].

In this study we describe the main motivational factors and the outcome of women living with HIV included in MoCHiV who decided to breastfeed after the change in the Swiss national guidelines.

Material and methods

Design, setting and population

The present project is a nested observational multicenter national study of the Swiss Mother and Child HIV Cohort Study (MoCHiV). MoCHiV prospectively collects data on pregnant women living with HIV and their infants, as well as children living with HIV and is linked to the adult cohort study (Swiss HIV Cohort Study (SHCS)) [7].

All mothers included in MoCHiV with a delivery between January 2019 and February 2021 who fulfilled the criteria of the "optimal scenario" (adherence to cART, regular clinical care and suppressed HIV pVL of <50 RNA copies/ml ideally throughout pregnancy, but at least at the last two consecutive measurements before birth with a minimal interval of 4 weeks and the last measurement after week 36 of pregnancy) and who decided to breastfeed after a shared decision-making process, were offered to participate in this nested study. Breastfeeding women either breastfed exclusively or combined it with formula milk. Solids were usually introduced after 6 months the earliest. Data of mothers in MoCHiV, who decided for formula feeding were used for comparison [7].

This study was approved by the ethics committees to which the participating centers are affiliated.

Follow-up of breastfeeding women and their infants

Women were initially monitored monthly for 3 months to ensure adherence to cART and then every 2–3 months until weaning. Breastfeeding women were advised to contact their gynecologist if they developed signs or symptoms of mastitis or any other clinical problems associated with breastfeeding or if they faced cART adherence issues. The recommendations advise to stop breastfeeding immediately if the pVL is detectable (>50 RNA copies/ml). Infant testing is recommended at 1 and 6 months of age by PCR, and at 18–24 months of age by serology. A final HIV PCR test was conducted in the infant three months after weaning.

Data collection

Data collected from pregnant women in MoCHiV include sociodemographic characteristics, antiretroviral treatment, laboratory parameters and co-infections, duration of pregnancy and pregnancy and delivery outcomes. A questionnaire with a 4-point rating scale (very important, important, of some importance, not important) exploring the main motivational factors for breastfeeding was completed by the breastfeeding women included in the nested study.

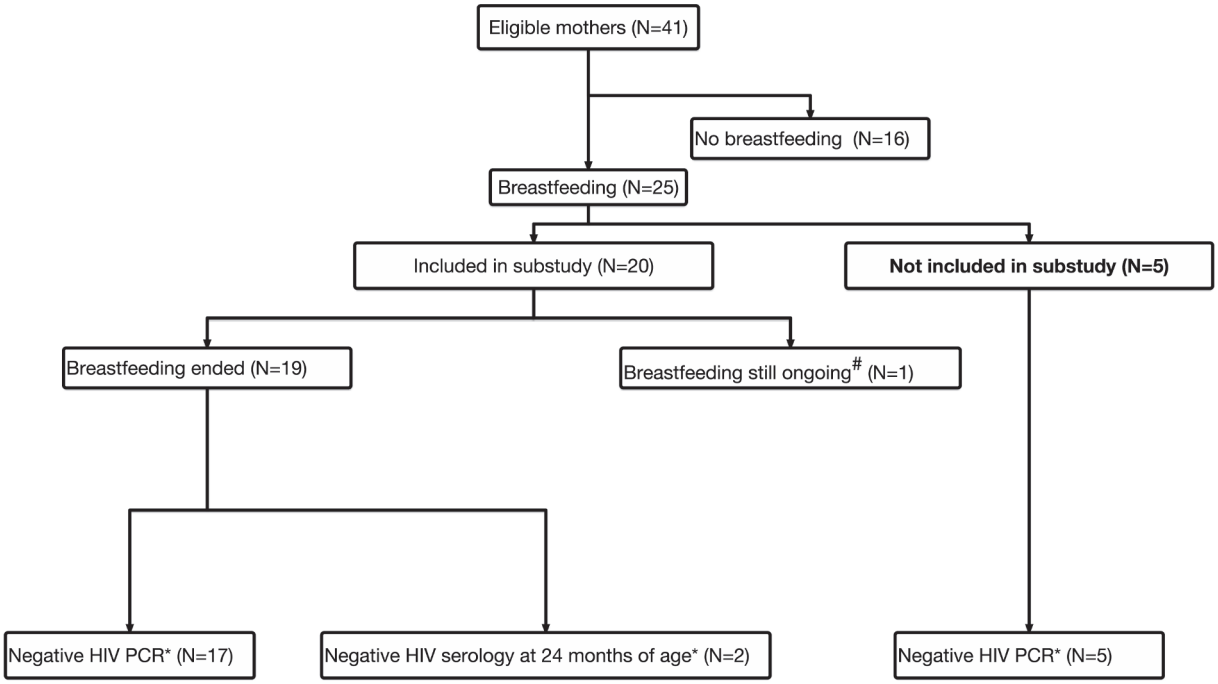

Fig. 1. Flow-chart of inclusion *Infants tested at least 3 months after the end of breastfeeding #February 2022.

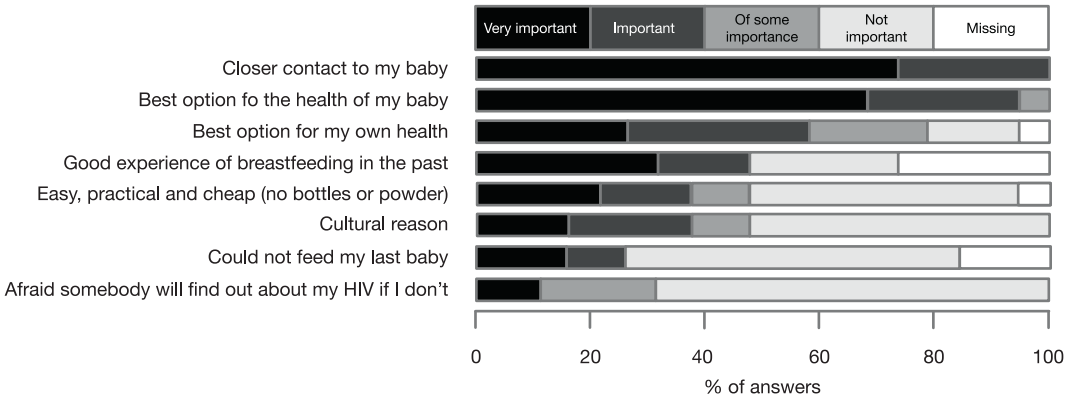

Fig. 2. Reasons of 19 included mothers to breastfeed their baby.

Statistical analysis

Demographic and clinical characteristics were compared between groups (non-breastfeeding and breastfeeding mothers) using Kruskal-Wallis test for continuous variables and Fisher's exact test for categorical variables. All tests were 2-tailed, and exact P-values were calculated. Descriptive statistics were used to describe follow-up of breastfeeding mothers and their infants. Statistical analyses were computed using Stata software (Stata/IC 11.2 for Mac; StataCorp, Lakeway, TX).

Results

Study population and clinical characteristics

Between January 9, 2019 and February 7, 2021, 41 women included in the MoCHiV cohort gave birth to a live-born infant (Fig. 1). Of these 41 women, 25 (61 %) had chosen to breastfeed their infant after a shared decision-making process. Demographic (ethnicity, age, parity) and clinical characteristics (mode of HIV acquisition, HIV PCR at birth) did not vary between breastfeeding and non-breastfeeding mothers (data not shown), except for the maintenance of a viral load below 50 copies/ml which was more frequent in mothers who breastfed (23/25, 92 % vs 10/16, 63 %; p = 0.04). Six women had a new HIV diagnosis during the present pregnancy and 2 of those who had a suppressed viral load at the end of pregnancy decided to breastfeed (one elite controller and one with pVL of 1000 copies/ml at diagnosis) and 4 women decided for formula feeding.

Median age of the 25 breastfeeding mothers was 34.8 years (IQR 31.1–38.2). They were mainly of black ethnicity (17/25, 68 %). Twenty of twenty-five women (80 %) accepted to be included in our nested study (see Supplemental Table 1). The median CD4 cell count of these 20 women during pregnancy was 649 cells/mcl (IQR 462–885). The median gestational age at birth was 39.5 weeks (IQR 39–41). Only one newborn was born prematurely at 36 weeks and 3 days of gestation. No neonate received HIV post-exposure prophylaxis according to the Swiss national recommendations. All women had a documented suppressed HIV pVL at delivery. Only in two women a detectable pVL was documented at any time during pregnancy. One of those initiated cART following HIV diagnosis with 1000 copies/ml in the 1st trimester and was virally suppressed one month later. The second woman was a long-term non-progressor without cART until the 7th gestational week. Maximum pVL was 1100 copies/ml and suppressed from one month after start of treatment throughout pregnancy and the breastfeeding period.

Motivational factors for breastfeeding

Nineteen out of twenty women included in our nested study responded to the questionnaire. The three main motivational factors for breastfeeding mentioned by women were close contact with the baby (bonding), and neonatal and maternal health benefits (Fig. 2). The majority of women (18/19, 95 %) found the interdisciplinary discussion about breastfeeding essential or very helpful and in 84 % (16/19) of women, it influenced their decision at least partly.

Duration of breastfeeding and follow up of infants

Nineteen out of twenty breastfeeding mothers had stopped breastfeeding their infants at the time of this study evaluation. The median duration of breastfeeding for these 19 women was 6.3 months (range 0.7–25.7, IQR 2.5–11.1). The 6 breastfeeding discontinuations before 3 months were due to insufficient quantities of breast milk (n = 2), infant "refusal" to breastmilk (n = 1), detectable viremia (n = 1) and for 2 unknown reasons. At 3 months of age, 6 out of 14 women still breastfed exclusively, without any additional formula milk. We found one case of mastitis in a mother between 3 and 6 months of breastfeeding and the decision was taken to stop breastfeeding. There was 1 woman continuing breastfeeding with her infant aged 17 months after we analyzed the data. Breastfeeding was immediately stopped in a woman with a detectable HIV pVL of 183 copies/ml at 2.5 months after delivery, but the infant was tested HIV PCR negative 4 months after weaning. Another participant had two HIV pVLs of 63 and 79 copies/ml at 5.5 and 8.5 months after delivery following an undetectable pVL two weeks later. Breastfeeding was continued for 21 months with a negative infant PCR 4 months after weaning. All other women maintained a their pVL below 50 copies/ml throughout the breastfeeding period. One mother and infant pair was lost to follow up as they left Switzerland, after the 1-month PCR that was negative. 2 years later they returned for follow up and the HIV serology in the child was negative. All other infants (n = 19) had a negative HIV PCR at 1 and 6 months after delivery and 18 infants had either a negative HIV PCR (17) or serology (1) at least 3 months after weaning, 1 child was still breastfed when we analyzed the data.

Discussion

This observational study describes the first results of women living with HIV who decided to breastfeed their infants following updated Swiss recommendations from 2018. We found that more than half of all women took the decision to breastfeed and appreciated the shared decision-making process. The main motivational factors were bonding and neonatal and maternal health benefits. Only one woman had to stop breastfeeding due to a detectable HIV pVL, her infant was HIV negative.

Guidelines to prevent vertical transmission of HIV still vary significantly between high resource settings. Breastfeeding is not recommended in any of the countries, but in recent years more women living with HIV with a strong wish to breastfeed were supported under certain circumstances. Case series were reported from Belgium, Germany and the US [8–11]. In contrast to our study, all the infants received post-

exposure prophylaxis.

Based on the literature of low resource settings, the risk of HIV transmission to an infant by breastfeeding over 1 year is 1–2 % [2,12–14] However, no case of vertical transmission from mothers with suppressed VL at the end of pregnancy and during breastfeeding could be found in the literature in 2018 when the Swiss recommendations were updated and until today [6].

The health benefit of breastfeeding for the mother and the infant compared to artificial feeding are obvious for both low- and high-income settings [3]. A recent US study found a reduction in odds for overall perinatal death rates associated with the initiation of breastfeeding [15]. The risks in terms of transmission and exposure to ARVs during breastfeeding may not outweigh those massive benefits anymore. In order to respect patients' autonomy [16] health care providers must give unbiased information about this situation and aim to include the wish of the mother in the decision-making process. In an UK based survey more than one third (38 %) of 94 women living with HIV stated that they wished to breastfeed their child [17], one third due to the fear to disclose their HIV status if they were not breastfeeding. In our collective, likely disclosure of their HIV status if bottle feeding was rated as the least important reason for breastfeeding in our questionnaire. Overall, only 6 out of 19 women who responded to this question stated that avoiding disclosure of HIV was very important (2 women) or was of some importance (4 women) regarding their decision to breastfeed.

The majority reported bonding and health benefits as main drivers to take the decision to breastfeed.

The limitations of our study are the small sample size with 25 mother-infant pairs and median duration of breastfeeding was only 6.3 months, so that we cannot prove the absence of any risk of vertical HIV transmission. It is impossible to evaluate the maternal or neonatal health benefits of breastfeeding because those will have to be measured in the medium to long term.

The strengths of this study is to prove the successful implementation of a shared decision-making process for women living with HIV in regard to breastfeeding after the change of the national guidelines. Harm reduction and shared decision making seems crucial when evidence is not clear to take one decision or another to provide the best outcome for mother–child pairs [16,18].

In conclusion, as a result of a shared decision-making process, more than half of mothers expressed their desire to breastfeed mainly for bonding and neonatal health benefits. We will need to ensure the surveillance of breastfeeding mother-infant pairs in high resource settings to inform future guidelines and recommendations.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Author contributions

Study concept and design: KAP, PAC and CK; Analysis and interpretation of data: KK, PAC and KAP; Drafting of the manuscript: PAC, KAP Critical revision of the manuscript for important intellectual content: all authors.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ejogrb.2023.02.013.

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