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RESEARCH

Effectiveness of an Online Natural Family Planning Program for Breastfeeding Women

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ABSTRACT

Objective: To analyze the effectiveness of an online, nurse-managed natural family planning (NFP) program among breastfeeding women and subgroups of these women.

Design: Longitudinal comparative cohort study.

Setting: A university-based online NFP education program and menstrual cycle charting system.

Participants: Women ($N = 816$) with a mean age of 30.3 years (standard deviation = 4.5) who registered to use the online NFP system and indicated they were breastfeeding.

Methods: Participants tracked their fertile times with an electronic hormone fertility monitor (EHFM), cervical mucus monitoring, or both. All unintended pregnancies were evaluated by professional nurses.

Results: The correct use pregnancy rates were 3 per 100 users over 12 cycles of use, and typical rates were 14 per 100 at 12 cycles of use. At 12 cycles of use, total pregnancy rates were 16 per 100 for electronic hormone fertility monitor users ($n = 380$), 81 per 100 among mucus-only users ($n = 45$), and 14 per 100 for electronic hormone fertility monitor plus mucus users ($n = 391$).

Conclusion: Use of a nurse-managed online NFP program for women can be effective to help women avoid pregnancy while breastfeeding, especially with correct and consistent use.

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For women who breastfeed their infants, it is often difficult to use natural family planning (NFP) to prevent pregnancy from the birth of the neonate until the resumption of regular ovulatory menstrual cycles (Aravelo, Jennings, & Sinai, 2003; Sinai, & Cachan, 2012a). During this time, women who use NFP often become pregnant without intention. This is a problem, because spacing of childbirth is healthier for the mother and infant and because there can be serious medical and psychological reasons for not becoming pregnant again soon after childbirth (Berens, Labbok, & Academy of Breastfeeding Medicine, 2016; Setty-Venugopal & Upadhyay, 2002).

In NFP, natural markers of fertility such as cervical mucus changes, basal body temperature changes, and/or hormonal markers are used to estimate fertility, and intercourse is avoided during the estimated fertile phase. Use of NFP is difficult during the breastfeeding transition to fertility because (a) there is no menstruation to indicate the beginning and end of a menstrual cycle, (b) the traditional markers of fertility do not always coincide with hormonal indicators of fertility, (c) women often ovulate before their first menses, and (d) the first three to six menstrual cycles are often long and irregular in length (Tommaselli et al., 2000).

The hormone prolactin is the major hormone responsible for the suppression of ovulation during breastfeeding. Prolactin inhibits the production of gonadotropin-releasing hormone from the hypothalamus and decreases the production of follicle-stimulating hormone and luteinizing hormone (LH) by the anterior pituitary (McNielly, 2001). As a result, follicular development, estrogen production, and ovulation are suppressed. The frequency and duration of suckling by the infant influences prolactin levels and the length of ovulation suppression (Li & Qui, 2007). However, there is significant follicular growth and a

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Use of natural family planning methods while breastfeeding can be difficult and often ineffective.

rhythmic rise and fall of the reproductive hormones (estrogen and progesterone) during the postpartum breastfeeding amenorrhea cycle and considerable variability of length and delay in ovulation for the first three to six menstrual cycles postpartum (Velazquez, Creus, et al., 2006; Velazquez, Trigo, Creus, Campo, & Croxatto, 2006). This irregularity in length and delay of ovulation makes use of NFP difficult during postpartum breastfeeding.

Only a few researchers have reported on the effectiveness of NFP methods during the breastfeeding transition, and most did not use modern methods to determine pregnancy rates (Brown, Harrisson, & Smith, 1985; Hatherley 1985; Howard & Stanford, 1999; Labbok et al., 1991). Authors of these studies showed that use of NFP postpartum resulted in high unintended pregnancy rates, and use of NFP may even have increased the pregnancy rate. There are two fairly recent studies of effectiveness with a modern method of NFP (Bouchard, Fehring, & Schneider, 2013; Sinai & Cachen, 2012b). Sinai and Cachen (2012b) reported a 6-month pregnancy rate among ovulating postpartum women who used a calendar-based bridge method. Bouchard et al. (2013) studied postpartum breastfeeding and nonbreastfeeding women who used an electronic hormonal fertility monitor (EHFM) to track fertility during the transition to fertility over 12 months of use and a special protocol. There are no comparison studies of NFP methods or comparison of natural fertility indicators during the postpartum period.

Faculty and staff at Marquette University developed a new system of NFP that integrates EHFM with a traditional marker of fertility (i.e., cervical mucus changes) and have conducted a number of studies to determine the effectiveness of this system of NFP called the Marquette Model (MM; Fehring, Schneider, & Barron, 2008; Fehring, Schneider, Barron, & Raviele, 2009; Fehring, Schneider, & Raviele, 2007). In 2008, an Internet-based, nurse-managed educational program was initiated to provide access to the MM of NFP. This online program provides information on NFP, an online menstrual cycle charting system, protocols for special reproductive circumstances (e.g., postpartum breastfeeding), and daily online consultation through forums and private messaging. More than 10,000 women have used this online system of NFP, represented by all 50 states and five foreign countries. More than 50% of these women indicated that they were breastfeeding in the postpartum period. A number of studies were conducted to test the effectiveness of this online system of NFP among women with regular menstrual cycles, postpartum breastfeeding women, women in perimenopause, and women who wished to achieve pregnancy (Bouchard et al., 2013; Fehring & Mu, 2014; Fehring et al., 2013; Mu & Fehring, 2014).

The online MM postpartum breastfeeding protocol was recently modified to include instructions for the first six cycles postpartum and for a newer version of the EHFM (see Supplemental Appendix S1). Hundreds of postpartum breastfeeding women have now used the MM postpartum breastfeeding protocols. The purpose of this study was to evaluate the effectiveness (i.e., correct use and total pregnancy rates) of our postpartum breastfeeding protocols among women seeking to avoid pregnancy. A secondary purpose was to compare the pregnancy rates among breastfeeding women who use the EHFM, cervical mucus monitoring (CMM), or both to estimate their fertility status while breastfeeding.

Methods

Design and Participants

This was a prospective, longitudinal (12 menstrual cycles), descriptive, and comparative cohort study to determine the effectiveness of an online NFP program for women who were breastfeeding. The participants ($N = 816$) were all breastfeeding women who registered in the Marquette online program from April 2008 through June 2015 and were using the EHFM, CMM, or both to track fertility and to avoid pregnancy. At registration on the MM Web site, women indicated in an online profile whether they were breastfeeding or not. The participants were from all 50 states and five foreign countries. Participants from the Bouchard et al. (2013) study were included if they continued to contribute data (i.e., menstrual cycles) and pregnancy outcomes while breastfeeding since 2013.

Procedure

Users of the MM NFP Web site are presented with an online consent form and, if they agree to study participation, are linked to a detailed profile form. After registration, each user has access

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