Case reports of the Marquette method

REBECCA PECK

Ormond Beach, FL, USA

The Marquette method (MM) is a flexible system whereby patients can use cervical mucus and temperature observations in conjunction with the ClearBlue Fertility Monitor (CBFM) an algorithm to clarify the beginning, peak, and end of the fertile window. Two cases are presented which illustrate useful aspects of the MM. The first case involves a couple who have not had success with a Diocesan sympto-thermal method and find the objective nature of the CBFM to be critical in sustaining their commitment to natural family planning (NFP). The second case examines a couple in the breastfeeding/weaning period using the Marquette Breastfeeding Protocol. It is the author's hope that these case presentations increase the Catholic Physician's desire to learn more about NFP.

Keywords: NFP, marquette method, family planning, breast feeding, protocols

INTRODUCTION

Pope Benedict XVI once said that there are as many paths to God as there are people in the world. Given this unique human identity and journey, it is important to be able to offer patients different options regarding their natural family planning choices. Thankfully, we now have several methods of NFP to offer, including calendar-based systems (i.e. Cycle beads, Standard Days Method), cervical mucus observations (i.e. Billings and Creighton), sympto-thermal (using mucus and basal body temperature (BBT) observations), and systems based upon urinary hormonal measurements (i.e. the Marquette method). For a comprehensive comparison of methods, the reader is referred to the recent work of the FACTS (Fertility Appreciation Collaborative to Teach the Systems) Initiative (Manhart et al.). Moreover, new teaching formats exist whereby the traditional NFP teacher or physician can be assisted by web-based

products (Fehring, Schneider and Raviele 2011).

Researchers have demonstrated that there is a 6-day window of fertility in the woman's menstrual cycle (Wilcox, Weinberg and Baird 1995; Dunson et al. 1999). The woman ovulates 1 day per month and the sperm can live inside the woman (with fertile-type cervical mucus) for up to 5 days. It is important to determine this window accurately and, preferably, with the least amount of unnecessary excess days requiring abstinence, so that couples will continue to use the method. The World Health Organization funded several studies in the 1980s which showed that estrone-3-glucuronide (E3G) was the best urinary estrogen metabolite to predict the start of the fertile period. Other studies showed that urinary luteinizing hormone (LH) was the best method for predicting ovulation (Behre et al. 2000). The ClearPlan Fertility Monitor (CBFM) was developed by Unipath to determine the

fertile window for achieving pregnancy. Since then, researchers and physicians at Marquette University have shown that the CBFM can be successfully used in conjunction with a calendar-based algorithm, and in addition to mucus and temperature observations, to avoid pregnancy (Fehring et al. 2007, 2009; Fehring, Schneider and Barron 2008).

The MM is a flexible system whereby patients can use cervical mucus and temperature observations in conjunction with the CBFM and algorithm to clarify the beginning, peak, and end of the fertile window. A recent study demonstrated that the correct use of an electronic hormonal fertility monitor with cervical mucus observations was 98 percent effective in avoiding pregnancy and was as efficacious as other fertility awareness-based methods of NFP (Fehring et al. 2007). The MM is only taught by health professionals and also offers the support of an internet-based web site (<http://nfp.marquette.edu>), complete with electronic charting, an interactive user's forum, and the online assistance (if needed) of a gynecologist. Women can learn about all of their fertility indicators and learn to chart with the Marquette I method (which includes detailed cervical mucus observations, BBT, and urinary hormonal measurements), or learn a more abbreviated version (Marquette II), or they can simply use the monitor with or without mucus and algorithm alone (Marquette Lite). The advantage of the teaching format for Marquette Lite is that it can easily fit into a 15-minute office visit.

Each month, the woman triggers her monitor on the first day of her menses and presses the 'm' button on the machine display. This becomes day 1 of the cycle. Beginning on day 6, the monitor asks for a test strip and the woman performs a simple, quick 3-second urine dip stick test of her morning concentrated urine. Every morning she tests the urine at the same time and will

get either "Low," "High," or "Peak" readings, which correlates with increasing urinary E3G and LH. "Low" means that there is no significant rise of urinary E3G, "High" means that there is a significant rise of E3G from baseline, and "Peak" indicates that there is a significant rise in urinary LH.

Some may object to the cost of the monitor, but a used CBFM can be purchased for under \$100 and a new monitor typically costs about \$160 online and is also available in many local drug stores. The testing strips cost anywhere from \$20–40 for a box of thirty, and typically only ten testing strips are needed in each cycle. One should compare this with the cost of contraceptive pills, devices, and sterilization surgeries which cost much more than this, not to mention that the MM has no harmful side effects.

NFP instructors have long known that special circumstances like the breastfeeding, weaning, and peri-menopausal states can be especially challenging for both them and the couple, due to unclear cervical mucus and temperature signs (Labbok et al. 1991; Zinaman and Stevenson 1991; Kennedy et al. 1995). Some methods of NFP (during breastfeeding) overestimate the actual days of fertility and lead to long stretches of confusing mucus patterns and required abstinence. Moreover, the temperature (BBT) shift would not occur until after ovulation, and so it also is not a helpful measure during this period (Hatherley 1985; Labbok et al. 1991; Zinaman and Stevenson 1991). The Lactational Amenorrhea Method (exclusive breast feeding during the first 6 months postpartum) is a highly efficacious way to avoid pregnancy but women still need help in identifying their fertile period during the weaning period (Tommaselli et al. 2000).

A successful Marquette breastfeeding protocol was developed for nonovulating, breastfeeding women (Fehring, Barron and Schneider 2005). The breastfeeding

protocol creates artificial cycles of 20 days during the postpartum amenorrhea period, whereby women test urinary E3G and LH from days 6–26 on the monitor. If, during a 20-day interval, no LH surge has been detected, the monitor is retriggered to start a new 20-day interval. This method accurately signifies the onset of approaching fertility, which is known by increasing number of “highs” (which indicates the rise of urinary E3G from baseline), proceeding to an eventual “peak” (known by an increase of urinary LH), leading to the infertile luteal phase and eventual resumption of the menses. Dr. Thomas Bouchard’s recent research (which is currently awaiting publication) shows that the Marquette internet-based breastfeeding protocol can be highly efficacious in avoiding pregnancy (Bouchard, Fehring and Schneider).

In this article, I discuss two different cases. The first is a couple who have not been successful in learning a sympto-thermal Diocesan method who needed a more objective system to help them continue NFP. The second case involves a couple in the breastfeeding and weaning period.

CASE 1: AN OLDER COUPLE WITH A CONVERSION EXPERIENCE

This married, white Catholic couple presented to my office with great trepidation. The woman, V.S., is 40 years old and had a conversion back to the Catholic faith after attending a Theology of the Body conference. She had used oral contraception for decades, beginning at the age of 16 years for dysmenorrhea, and had never received any instruction about natural family planning until very recently. She had no other medical problems. She did not drink or smoke. She has two children aged 17 and 3 years.

The husband is a colorectal physician, G.S., previously married, then divorced, having had a vasectomy during his first

marriage. After he and current wife V.S. met, he obtained an annulment and they got married. After much prayer, they decided to get his vasectomy reversed. He was almost aged 50 years at this point. The vasectomy reversal was successful. They became pregnant within 3 months. They had baby, J.J., who was healthy but at 3 years of age was evaluated for autism.

V.S. confided to me that she did not want any more children. While they had gone to a Diocesan-sponsored sympto-thermal class, they still used condoms because they did not trust the method. They also felt guilty over their condom use in the light of their return to the Catholic Church. They wanted to learn more about NFP, but they also really needed the assurance that the method would work. Moreover, with prolonged questioning and discordant answers on the intake sheet between husband and wife, they were also considering another vasectomy for G.S., because of his advanced age and of concerns over their son. To make the situation even more difficult, they were good friends with a local obstetrician who told them that NFP does not work, and this created much doubt in their minds.

V.S. received additional teaching on the sympto-thermal method, but was never able to consistently discern her mucus pattern after several different instructors had tried to help her. She came to me, as her physician, as a “last resort.” She felt that she had chronic vaginitis symptoms (feeling of discharge but no pain or irritation), but on her examination, the KOH, wet prep, and Pap were all normal. I decided to teach her Marquette Lite, which uses the monitor’s readings and algorithm alone to discern the fertile window—no cervical mucus observations are necessary. She was initially relieved that she did not have to rely on her own subjective interpretations of her mucus any longer. She purchased the CBFM and began to chart.

and were referred to a Pastor with special expertise in helping couples make spiritual progress with NFP.

CASE 2: A SPECIAL CIRCUMSTANCE: THE BREASTFEEDING TRANSITION

C.C. and V.C. are a married Catholic couple. C.C. is a 36-year-old white female with no medical problems and takes only prenatal vitamins. She is a nonsmoker, who never drinks and exercises regularly. V.C. is a 35-year-old healthy Vietnamese male who is also very healthy, with no medical problems, takes no medications and does not smoke or drink alcohol. He is a long-distance runner.

At our first meeting C.C. had just had twins who were 4 months old. They were using the sympto-thermal method before they got pregnant, but came to a class at the Church because it was “not working” during their breastfeeding. C.C. was tired, constantly breastfeeding through the night, with no solids yet given to her babies. She and her husband had no sexual relations since the twins were born. C.C. was very anxious about becoming pregnant again because of the twins and their exhaustive needs.

C.C. and V.C. were initially counseled about Lactational Amenorrhea Method. Since C.C. was breastfeeding almost all the time because of the twins, she was happy to hear about the low probability that she would become pregnant, especially if she kept up the nighttime feedings and delayed any other formula or solids until 6 months. She expressed a desire to continue breastfeeding as long as possible, but opted to start assessing her fertility at 6 months so that she could discern the changes in her body as she added solids to the twins’ diet. We taught her the Marquette II method, which incorporates cervical mucus observations, temperature, and the use of CBFM.

The CBFM is normally used by women with regular cycles between 21 and 42 days. Marquette researchers have developed a breastfeeding protocol whereby artificial cycles of 20 days are created and patients use the monitor to detect changing hormone levels to become aware of impending fertility. Dr. Fehring found that the amount of required abstinence (i.e. days of potential fertility) through the first menstrual cycle indicated by the fertility monitor was significantly lower compared with the amount of abstinence indicated through self-observation of cervical mucus (Fehring, Barron and Schneider 2005). Dr. Bouchard found that breastfeeding women using a fertility monitor had an unintended pregnancy rate of only two pregnancies per hundred women at 12 months with correct use and 8 percent incorrect use (Bouchard, Fehring and Schneider). In contrast, researchers at Georgetown University have developed a “Bridge Protocol” for their fixed days method of NFP (Standard Days Method) which found that the typical use pregnancy rate was 11.8 per 100 women over a 6-month period (Sinai and Cachan 2012) but the protocol required prior Lactational Amenorrhea Method use. As has been previously noted, several studies have indicated that cervical mucus and temperature observations were noted to be confusing to women in the breastfeeding and weaning period and this may have accounted for the higher total pregnancy rates (Labbok et al. 1991; Zinaman and Stevenson 1991; Kennedy et al. 1995; Howard and Stanford 1999; Tommaselli et al. 2000). It may, therefore, be helpful to have more objective data during this phase.

Case 2 (Figure 2): C.C. with twins at 6 months amenorrheic, created artificial cycles using CBFM. C.C. had her first menses in cycle 4 and then had regular cycles thereafter.

In the first artificial cycle, the CBFM was “low” the whole time (indicating

Figure 2. Couple (C.C. and V.C.) using Marquette II method and CBFM during breastfeeding and weaning.

relative ovarian quiescence), allowing she and her husband to feel more secure about having intercourse, even though she noted some sporadic fertile mucus. She waited 3 days after each patch of fertile mucus, although she did not have to because the CBFM read “low” the whole time.

In the second artificial cycle, this was a bit frustrating for them, because of the prolonged “Highs” on the CBFM. Even though her mucus had come down to “low,” I had to advise her not to have intercourse. Once the CBFM reads “high,” it will not register “low” until a peak has been detected. I did tell her to purchase an OPK to double-check the CBFM readings, but CC did not want to do that, even though she was advised that she could purchase low-cost OPK kits. Initially, we thought that the CBFM missed her peak, but two thoughts made this less likely. One is that she never had a temperature shift to correlate with ovulation. The second is that if she did ovulate, she should have had her menses

follow her ovulation (within 14 days or so), but this was not the case.

However, in the third artificial cycle, her mucus, temperature, and CBFM correlated well, and she had an ovulatory cycle which was then followed by a menses, her first menses since the twins were born.

C.C. and V.C. are very happy with the monitor and they are actually already considering having another child in the near future.

CONCLUSION

The MM can be used by a variety of different patients, and can be taught in many different settings. The Marquette Lite method can easily fit into a 15–20-minute office visit. The web-based charting, online instruction and user’s forum greatly assist teaching efforts. The monitor is easy to use and provides fertility assessment information which is objective and reliable. Now, more than ever, it is important for Catholic physicians, nurses,

and NFP instructors to be able to explain the different types of NFP available, and obtain good histories to determine which method may be best suited to each individual couple. It is my hope that these cases would encourage Catholic medical professionals to learn more about NFP.

For more information about the FACTS Initiative, the reader is referred to http://www.fmec.net/projects/project.php?project_id=6395.

REFERENCES

- Behre, H. M., J. Kuhlage, C. Gassner, B. Sonntag, C. Schem, H. P. Schneider, and E. Nieschlag. 2000. Prediction of ovulation by urinary hormone measurements with the home use Clearplan Fertility Monitor: Comparison with transvaginal ultrasound scans and serum hormone measurements. *Human Reproduction* 15:2478–82.
- Bouchard, T., R. J. Fehring, and M. Schneider. 2013. Efficacy of a new postpartum transition protocol for avoiding pregnancy, *JABFM* 26:35–44.
- Dunson, D. B., D. D. Baird, A. J. Wilcox, and C. R. Weinberg. 1999. Day-specific probabilities of clinical pregnancy based on two studies with imperfect measurers of ovulation. *Human Reproduction* 14:1835–39.
- Fehring, R., M. Schneider, and M. L. Barron. 2008. Retrospective efficacy of the marquette model of natural family planning. *American Journal of Maternal Child Nursing* 33(6):348–54.
- Fehring, R., M. Schneider, M. L. Barron, and K. Raviele. 2009. Cohort comparison of two fertility awareness methods of family planning. *Journal of Reproductive Medicine* 54:165–70.
- Fehring, R. J., M. L. Barron, and M. Schneider. 2005. Protocol for determining fertility while breastfeeding and not in cycles. *Fertility and Sterility* 84(3):805–7.
- Fehring, R. J., M. Schneider, and K. Raviele. 2011. Pilot evaluation of an internet-based natural family planning education and service program. *Journal of Obstetric, Gynecologic and Neonatal Nursing* 40:281–91.
- Fehring, R. J., M. Schneider, K. Raviele, and M. L. Barron. 2007. Efficacy of cervical mucus observations plus electronic hormonal fertility monitoring as a method of natural family planning. *Journal of Obstetric, Gynecologic and Neonatal Nursing* 36:152–60.
- Hatherley, L. I. 1985. Late infertile days in early postpartum cycles. *Clinical Reproduction and Fertility* 3:73–80.
- Howard, M. P., and J. B. Stanford. Pregnancy probabilities during use of the Creighton model fertility care system. *Archives of Family Medicine* 1999;8:391–402.
- Kennedy, K. I., B. A. Gross, S. Parenteau-Carreaus, A. M. Flynn, J. B. Brown, and C. M. Visness. 1995. Breastfeeding and the symptothermal method. *Studies in Family Planning* 26:107–15.
- Labbok, M. H., R. Y. Stallings, F. Shah, A. Perez, H. Klaus, M. Jacobson, and T. Muruth. 1991. Ovulation method use during breastfeeding: is there increased risk of unplanned pregnancy? *American Journal of Obstetrics and Gynecology* 165(Suppl.):2031–6.
- Manhart, M., M. Duane et al. 'Fertility awareness-based methods of family planning: a review of effectiveness for avoiding pregnancy using SORT' (awaiting publication).
- Sinai, I., and J. Cachan. 2012. A bridge for postpartum women to standard days method, II efficacy study. *Contraception*. e-published ahead of print.
- Tommaselli, G. A., M. Guida, S. Palomba, M. Barbato, and C. Nappi. 2000. Using complete breastfeeding and lactational amenorrhoea as birth spacing methods. *Contraception* 61:253–7.
- Wilcox, A. J., C. R. Weinberg, and D. D. Baird. 1995. Timing of sexual intercourse in relation to ovulation; effects of the probability of conception, survival of the pregnancy, and sex of the baby. *New England Journal of Medicine* 333:1517–21.
- Zinaman, M., and W. Stevenson. 1991. Efficacy of the symptothermal method of natural family planning in lactating women after the return of menses. *American Journal of Obstetrics and Gynecology* 165(Suppl.):2037–9.

BIOGRAPHICAL NOTE

Rebecca Peck, M.D., C.C.D., ABFM. Her email addresss is: rbamer2@yahoo.com