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Evidence-based commentaries on women's reproductive health

ABSTRACT & COMMENTARY

Is Vaginal Progestogen Equivalent to Intramuscular Progestogen for Preventing Preterm Birth in High-Risk Women?

By Ahizechukwu C. Eke, MD, MPH

Assistant Professor in Maternal Fetal Medicine, Division of Maternal Fetal Medicine, Department of Gynecology & Obstetrics, Johns Hopkins University School of Medicine, Baltimore

Dr. Eke reports no financial relationships relevant to this field of study.

SYNOPSIS: In this open-label, equivalence randomized trial of vaginal progestogen compared to intramuscular progestogens for preventing preterm birth in high-risk women, the difference in the risk of preterm birth at < 37 weeks of gestation between both groups was 3.1% (95% confidence interval, -7.6% to 13.8%), which was within the equivalence margin of 15% used in the study.

SOURCE: Choi S-J, Kwak DW, Kil K, et al. Vaginal compared with intramuscular progestogen for preventing preterm birth in high-risk women (VICTORIA Study): A multicentre, open-label randomised trial and meta-analysis. *BJOG* 2020; June 14. doi: 10.1111/1471-0528.16365. [Online ahead of print].

Preterm birth continues to be a major cause of neonatal morbidity and mortality despite an increase in the use of progestogen supplementation in women at high risk for preterm delivery.[1] In this open-label, multicenter, equivalence randomized trial in 21 tertiary centers in South Korea,[2] Choi and colleagues described their findings when 200 mg of vaginal progesterone was compared to 250 mg of intramuscular progestogens for the prevention of preterm birth.[2] Women were eligible if they were > 20 years of age with a history of prior spontaneous preterm birth or short cervical length (< 25 mm) screened by transvaginal ultrasound between 15 and 22 weeks of pregnancy.[2] Exclusion criteria included multiple pregnancies; major congenital anomalies; prophylactic cerclage in current pregnancy; previous history of iatrogenic preterm birth; history of progestogen use within four weeks prior to inclusion in study; history of chronic medical conditions, such as diabetes mellitus, chronic hypertension, epilepsy, heart

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diseases, asthma, migraine, jaundice, cancer, severe depression, active smoker or alcoholic, hypersensitivity to progestogens, gestational pemphigoid, and porphyria; and a history suspicious of thrombotic disease.[2] Eligible women then were randomized to receive either 200 mg vaginal progesterone daily or an intramuscular injection of 250 mg of 17α-hydroxyprogesterone caproate weekly between 16 and 22 weeks of gestation. The primary outcome was preterm birth at < 37 weeks of gestation. Secondary outcomes included gestational age at delivery, preterm birth at < 34 weeks of gestation, preterm birth at < 28 weeks of gestation, maternal and neonatal morbidities, adverse effects, compliance to medications, and patient satisfaction.

Two hundred sixty-nine women were screened for eligibility between Feb. 12, 2015, and Jan. 1, 2019. Of these, 207 patients were included in the final analysis. The mean age at enrollment was 33 years, with a high proportion of parous women — 93 (78.2%) in the vaginal progesterone arm and 105 (82%) in the intramuscular progesterone arm. The risk of preterm birth at < 37 weeks of gestation in the intention-to-treat analysis was not statistically significant between both groups (vaginal vs. intramuscular group, adjusted relative risk [aRR], 0.845 [0.549-1.301]; *P* = 0.571). There were no significant differences between women enrolled for a short cervix (n = 103) vs. those enrolled with a history of a prior preterm birth (n = 128).

The risk of the secondary outcomes, including preterm birth at < 34 weeks of gestation (aRR 1.522 [0.741-3.126]; *P* = 0.222) and preterm birth < 28 weeks of gestation (aRR 2.088 [0.658-6.626]; *P* = 0.189), was not statistically different between the two groups. The difference in the risk of preterm birth at < 37 weeks of gestation between the two groups was 3.1% (95% confidence interval [CI], -7.6% to 13.8%), which was within the equivalence margin of 15% used in the study.

■ COMMENTARY

The primary outcome of this equivalence randomized trial by Choi et al was preterm birth at < 37 weeks of gestation (a surrogate endpoint). The use of surrogate endpoints, defined by the Food and Drug Administration (FDA) as "a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure, that is not itself a direct measurement a clinical benefit"[3] as primary efficacy clinical trial endpoints in preterm birth research has been an issue of debate.[4] Following the publication of the post-approval confirmatory randomized clinical trial for 17α-hydroxyprogesterone caproate (PROLONG randomized trial)[5] in 2019, the FDA held an advisory committee meeting to discuss its findings. The debate included whether gestational age can be used as a surrogate endpoint for how neonates feel, function, and survive. Although gestational age may be a good surrogate endpoint for some clinical outcomes, in preterm birth clinical trials, gestational age, especially in early pregnancy, fails to reliably capture the effect of many interventions in clinical practice.[6] Instead, clinical outcomes, such as neonatal morbidity and mortality, serve as better clinical endpoints of how neonates would function and survive.

The authors used an equivalence randomized trial design to study the association between vaginal progesterone and 17α-hydroxyprogesterone caproate and the risk of preterm birth. They noted that the difference in the risk of preterm birth at < 37 weeks of gestation between the two groups was -7.6% to 13.8% (95% CI), which was within the equivalence margin of 15% used in the study. The primary objective of equivalence trials is to show that two medications are not different from each other (are equivalent) within a pre-specified delta margin (interval of clinical equivalence), usually < 20% for most trials. Preterm birth equivalence trials are critically important, especially given the current dilemma in the management of pregnant women with a history of prior spontaneous preterm birth, following the publication of the results of the PROLONG trial. Using equivalence trials, current therapies used for preventing preterm birth (17α-hydroxyprogesterone caproate, cervical pessary, and vaginal progesterone) can be compared in head-to-head randomized trials to determine if these therapies are equivalent. Although Choi et al demonstrated equivalence between 17α-hydroxyprogesterone caproate and vaginal progesterone in this study, it should be noted that equivalence trials often are difficult to understand and interpret in clinical practice. As a result, equivalence trial designs are seldom used in assessing drug effectiveness because the study objective of equivalence trials is to show that a new therapy (vaginal progesterone

in this case) is equivalent to standard therapy (17α-hydroxyprogesterone caproate).

Since this is an equivalence trial, a reasonable conclusion for clinicians in practice would be that vaginal progesterone is equivalent to 17α-hydroxyprogesterone caproate (within the pre-specified margin of effect of ±15%) for the management of women with a history of prior spontaneous preterm birth and/or short cervical length. As such, interpreting this study as "vaginal progesterone is as 'effective' as 17α-hydroxyprogesterone caproate" would be incorrect, since the primary aim of equivalence trials is to evaluate equivalence, not effectiveness. ■

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ABSTRACT & COMMENTARY

Apical Suspension at the Time of Vaginal Hysterectomy

By Chiara Ghetti, MD

Associate Professor, Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery, Washington University School of Medicine, St. Louis, MO

Dr. Ghetti reports no financial relationships relevant to this field of study.

SYNOPSIS: The main objective of this study was to determine whether the use of apical suspension at the time of vaginal hysterectomy varies by surgeon specialty.

SOURCE: Sheyn D, El-Nashar S, Mahajan ST, et al. Apical suspension utilization at the time of vaginal hysterectomy for pelvic organ prolapse varies with surgeon specialty. *Female Pelvic Med Reconstr Surg* 2020;26:370-375.

This was a retrospective, nested, cohort study using data from the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database between the years 2014 and 2016. This database captures data regarding more than 150 perioperative variables of patients ≥ 18 years of age from more than 600 participating hospitals. NSQIP uses the Current Procedural Terminology (CPT) codes to identify procedures. The ACS-NSQIP has collected hysterectomy-specific data since 2014, including parity, presence, and location of endometriosis; history of abdominal and pelvic surgery; and the surgeon's subspecialty.

For this study, the hysterectomy data set was combined with the general data set using unique patient identifiers. Subjects undergoing vaginal hysterectomy who had a diagnosis of pelvic organ prolapse were identified using ICD-9-CM codes. The procedures patients underwent, including vaginal hysterectomy, intraperitoneal or extraperitoneal suspension, anterior or posterior vaginal wall repairs, urethropexy, and sling, were identified using CPT codes. Subjects who underwent non-gynecologic surgery or other forms of hysterectomy (abdominal or laparoscopic) with colpopexy, colpocleisis, bowel resection, lymph node dissection, or other tumor-related surgery and with preoperative or postoperative diagnostic codes for malignancy were excluded. Subjects with incomplete records also were excluded. The primary outcome of the analysis was the likelihood of apical suspension at the time of surgery. A secondary analysis investigated complication rates by the presence or absence of apical suspension at the time of hysterectomy and the risk factors for complications.

Of the 3,932 vaginal hysterectomies performed for pelvic organ prolapse during the study period, nearly one-third were performed by a urogynecologist. In this group, patients were more likely to be Caucasian and older and to have a higher presurgical risk. Apical suspension was performed in one-third of all hysterectomies. Sixty percent of obstetrician-gynecologists (OB/GYNs) performed vaginal hysterectomy alone without apical

suspension, while 7% of urogynecologists performed vaginal hysterectomy alone. In analysis with matching by propensity score, 901 hysterectomies were performed by urogynecologists and 1,802 were performed by OB/GYNs with well-matched preoperative characteristics. (A propensity score is the calculated score of the probability the group assignment is dependent on baseline characteristics or variables. For this study, the propensity score was calculated for the likelihood of undergoing surgery by either a urogynecologist or an OB/GYN and was used to match cases performed by urogynecology subspecialists to those performed by OB/GYNs by preoperative characteristics and using a ratio of 1:2).

The average age of patients in the matched group was 55.9 years. The majority were healthy, and 92% had some amount of uterine prolapse by diagnostic code. In the matched group, 82% of urogynecologists performed apical suspension at the time of vaginal hysterectomy and 20% of OB/GYNs performed apical suspension. OB/GYNs were more likely to perform vaginal hysterectomy alone without apical suspension. Overall, there was no difference in the rate of complications between those who did and did not undergo apical suspension, with urinary tract infection and nonoperative readmissions as the most common complications. After adjusting for confounders, apical suspension was not associated with an increased risk of complication.

■ COMMENTARY

The 2017 American College of Obstetricians and Gynecologists (ACOG) Committee Opinion on choosing a route for hysterectomy emphasizes that minimally invasive hysterectomies are preferred. Of these, ACOG recommends vaginal hysterectomy as the route of choice when feasible.[1] As described by Hoffman et al for decades, "One of the most widely accepted criteria for vaginal hysterectomy has been pelvic relaxation with descensus or prolapse."[2] Surgeons who regularly perform this procedure are keenly aware that performing a vaginal hysterectomy in a woman with no uterine descensus can be very challenging, although mild or moderate prolapse facilitates the procedure. Therefore, it seems logical to inquire regarding the use of apical suspension procedures at the time of vaginal hysterectomy.

The authors of this study found a low rate of apical suspension at the time of vaginal hysterectomy despite investigating only vaginal hysterectomies performed with a listed diagnosis of prolapse. The lack of routine use of an apical procedure regardless of prolapse diagnosis also was reported by Ross et al.[3] This study used the National Inpatient Sample to identify vaginal hysterectomies performed between 2004 and 2013. In this sample, the apical support procedure was performed in only 3% of vaginal hysterectomies without a diagnosis of prolapse and in 37% of hysterectomies performed with a diagnosis of prolapse (20% of the whole sample). The 2007 ACOG practice bulletin on pelvic organ prolapse established that hysterectomy alone is not an adequate treatment for pelvic organ prolapse.[4] Also, there is evidence that demonstrates that reestablishing support to the vaginal apex at the time of hysterectomy decreases the risk of apical prolapse after hysterectomy.[5] Despite this, the authors of the current study find continuing trends of low use of apical suspension procedures at the time of vaginal hysterectomy for a diagnosis of prolapse. This finding varies by surgeon specialty. Specifically, 44% of the time OB/GYNs performed vaginal hysterectomy alone without concomitant prolapse procedure.

Although the lack of clear definitions of apical loss, as well as the lack of clear guidelines, may contribute to this trend, careful surgical planning prior to vaginal hysterectomy may aid in changing these practice patterns. Surgical planning for any patient undergoing vaginal hysterectomy should include a thorough evaluation of prolapse by anterior, posterior, and apical vaginal compartments, as well as an examination of the genital hiatus. The support of the apex dramatically affects the support of the anterior and posterior vaginal walls, so much so that anterior or posterior prolapse should be considered apical support loss until proven otherwise by examining each compartment separately.[6] In addition, Lowder et al demonstrated that an enlarged genital hiatus size is predictive of apical vaginal support loss, in particular a Pelvic Organ Prolapse Quantification measurement of genital hiatus of ≥ 3.75 cm.[7] The current study demonstrates that care of women undergoing vaginal hysterectomy frequently does not align with the standard of care. Women undergoing vaginal hysterectomy with symptomatic pelvic organ prolapse should be offered apical suspension and reconstructive surgery. Similarly, women with asymptomatic prolapse undergoing vaginal hysterectomy should be counseled about the risks and benefits of a concomitant apical procedure. A review of individual risk factors for prolapse should be discussed with women undergoing vaginal hysterectomy for non-prolapse indications. However, since apical descent is a consideration in criteria to assess vaginal hysterectomy feasibility, women undergoing vaginal hysterectomy without a diagnosis of prolapse should be offered an apical suspension procedure. ■

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ABSTRACT & COMMENTARY

Maternal and Pregnancy Characteristics Associated with Periviable Interventions

By Katherine Rivlin, MD, MSc

Assistant Professor, Obstetrics and Gynecology, The Ohio State University Wexner Medical Center, Columbus, OH

Dr. Rivlin reports no financial relationships relevant to this field of study.

SYNOPSIS: In this case control study using U.S. live birth records between 22 and 23 weeks of gestation, maternal intervention was positively associated with increasing maternal age, Medicaid use, preeclampsia, birth defects, twin gestation, multiparity, and infertility treatments while being negatively associated with non-Hispanic Black race. Positive associations for neonatal intervention included non-Hispanic Black race, preeclampsia, Medicaid use, infertility treatments, less than a high school education, increasing maternal age, and twin gestation, and negative associations included birth defects and small for gestational age pregnancies.

SOURCE: Hajdu SA, Rossi RM, DeFranco EA. Factors associated with maternal and neonatal interventions at the threshold of viability. *Obstet Gynecol* 2020;135:1398-1408.

Neonatal delivery during the periviable period between 22 and 23 weeks of gestation (specifically between 22 0/7 and 23 6/7 weeks of gestation) presents unique challenges for both clinicians and patients. Complex and ethically challenging decisions often must be made in rapidly evolving clinical situations that can be difficult to predict. Periviable birth has been associated with poor maternal outcomes and significant infant morbidity and mortality. Minimal data exist to support the efficacy of maternal and neonatal interventions, such as cesarean section, corticosteroid administration, and neonatal intensive care unit (NICU) admission. Intervention decisions may be influenced by maternal and fetal factors as well as available hospital resources. Provider and patient attitudes and biases likely also play a role in these decisions. In this study, Hajdu et al explored associations between maternal and pregnancy characteristics and periviable interventions to better understand the decision-making that occurs during this liminal time period.

This population-based, case control study of all live births in the United States from 2012 to 2016 used data from the birth certificates of neonatal deliveries occurring between 22 and 23 weeks of gestation. The study collected data on maternal sociodemographic, medical, and pregnancy characteristics that may influence patient and provider decision-making, and their associations with three primary outcomes: 1) maternal interventions (cesarean section, maternal hospital transfer, antenatal steroid administration); 2) neonatal interventions (NICU admission, surfactant administration, antibiotic administration, assisted ventilation); and 3) combined maternal-neonatal interventions (at least one maternal and at least one neonatal intervention). The case groups were births between 22 and 23 weeks of gestation that met criteria for one of these primary outcomes, and the control groups were births in the same gestational age category that did not. Chi-squared tests and multivariate logistic regression models estimated the influence of maternal and pregnancy characteristics on primary outcomes.

All live births were included in the study. Intrapartum stillbirths and births with missing data on the interventions analyzed were excluded. In multifetal gestations, only the first birth was included in maternal outcomes, but all live births were included in neonatal outcomes. Maternal characteristics were compared between births at 22 and 23 weeks of gestation with those at 24 and 42 weeks of gestation to identify the baseline characteristics of the periviable birth population. The study found that of the 19,844,580 U.S. live births between 2012 and 2016, 24,379 (0.12%) occurred between 22 and 23 weeks of gestation. When compared to births between 24 and 42 weeks, the frequency of non-Hispanic Black race births was higher between 22 and 23 weeks of gestation ($P < 0.001$). The frequency of Medicaid use, unmarried status, short interpregnancy interval, obesity, prior preterm birth, twin gestation, and no prenatal care also was higher in the 22- to 23-week group (no *P* value available). Among births between 22 and 23 weeks of gestation, 62% received at least one maternal or neonatal intervention, with interventions more likely in the 23rd week of gestation than in the 22nd week.

In multivariable analysis controlling for maternal characteristics and pregnancy characteristics, maternal intervention was more likely in cases of preeclampsia, birth defects, twin gestation, multiparity, Medicaid use, and increasing maternal age, and was less likely in

non-Hispanic Black patients (all $P < 0.001$). Maternal characteristics included age, race/ethnicity, insurance type, educational attainment, and marital status, and pregnancy characteristics included parity, interpregnancy interval, body mass index (BMI), history of preterm birth, gestational weight gain, preeclampsia, fetal growth, birth defects, twin gestation, chronic hypertension, gestational and pre-gestational diabetes, infertility treatment, assisted reproduction, tobacco use, and no prenatal care. Neonatal intervention was more likely in cases of preeclampsia, non-Hispanic Black patients, twin gestation, Medicaid use, infertility treatments, less than a high school education, and increasing maternal age, and was less likely in cases of birth defects and small for gestational age (SGA) pregnancies (all $P < 0.001$). Combined maternal and neonatal interventions were more likely in cases of preeclampsia, infertility treatments, multiparity, and Medicaid use, and were less likely in cases of SGA pregnancies, birth defects, and non-Hispanic Black patients (all $P < 0.001$).

■ COMMENTARY

Clinical trends have shifted toward more aggressive periviable intervention in the years since the 2014 National Institute of Child Development joint workshop on the management, counseling, and treatment options for infants delivered during the periviable time period.[1,2] Despite these shifts, there is little data to support the efficacy of such interventions. Recognizing that births on the threshold of viability are rare, Hajdu et al took advantage of a large study population (all live births in the Unites States over a five-year time period) to better explore clinical trends and to identify factors that may play a role in the decision to intervene.

Using vital statistics in research has its limitations. Birth certificate data may contain inaccuracies and missing information, and important research variables may not be included. For example, the use of magnesium sulfate — a highly relevant periviable intervention — is not reported on birth certificates. Additionally, birth certificate data are retrospective and observational, and, therefore, cannot establish causality. The authors noted that some associations were "diverse with limited commonality," and that others were discordant. These findings may reflect the study's large sample size (which can lead to modest effect sizes) but also may reflect the complexity of decision-making that occurs during this liminal time period. For example, such decisions may depend on factors that are hard to measure, such as available hospital resources, local hospital culture, and physician and patient values. Despite these limitations, I found this study to be highly relevant to the developing body of literature surrounding this clinical and ethical "gray zone" in obstetrics and gynecology. The study clearly demonstrates that clinical interventions are occurring in more than half of live births between 22 and 23 weeks of gestation, which may come as a surprise to some clinicians, depending on local hospital practices and definitions of viability.

Additionally, this study highlights the significant healthcare disparities that Black mothers face during their reproductive lives. Black woman are three times more likely to die in pregnancy than Caucasian and Hispanic women, and Black children are twice as likely to die in infancy as Caucasian children.[3,4] As clearly demonstrated in this study, Black women have a higher preterm birth rate than Caucasian women. Also, this study identifies a higher rate of intervention among Black neonates compared to other races. These intervention trends have been reported elsewhere, with Black neonates more likely to undergo intubation than Caucasian neonates, perhaps reflecting not only underlying differences in patient preferences, but also improved survival among premature Black neonates compared to premature Caucasian neonates.[5,6] This discordance between Black maternal and neonatal interventions deserves further exploration. Although factors contributing to racial disparities in healthcare are complex, stereotyping and implicit bias by healthcare providers may play an important role, particularly in situations where clinical guidance is limited. Providers should be aware of these disparities and adjust their practices to promote racial equity in women's health.[7]

Decision-making around periviable interventions can be clinically complex and ethically and emotionally challenging for both patients and providers. Prediction models used to calculate chances of neonatal survival can be inaccurate, and little data exists to support interventions.[8] This study does not provide guidance on when interventions should occur, but it does highlight the unpredictable nature of how and when interventions do occur. How should this study change practice? Observing the complex and, at times, discordant practice patterns occurring in the periviable period highlights the importance of reminding ourselves that although data supporting interventions are limited, best practices do exist and should guide how we counsel our patients.

In its *Obstetrical Care Consensus on Periviable Birth*, the American College of Obstetricians and Gynecologists outlines current best evidence on periviable interventions and outcomes and best practices in family counseling.[8] Discussions between providers and families should seek to create an environment of mutual trust and understanding. Whenever possible, discussions should involve a multidisciplinary team, including an obstetrician, a maternal-fetal medicine specialist, a neonatologist, and any additional support that may benefit the family, such as psychological support, a social worker, a spiritual care provider, or a bioethicist. Clinicians should use a shared decision-making model with patients and their families, where the care team provides medical expertise and emotional support, but, ultimately, the patient's values and preferences are honored. ■

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ABSTRACT & COMMENTARY

Etonogestrel Contraceptive Implant and VTE in Postpartum Women

By Rebecca H. Allen, MD, MPH, Editor

Associate Professor, Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Women and Infants Hospital, Providence, RI

SYNOPSIS: In this national retrospective cohort study of postpartum women, use of the etonogestrel contraceptive implant immediately postpartum was not associated with an increased rate of readmission for venous thromboembolism within 30 days of delivery.

SOURCE: Floyd JL, Beasley AD, Swaim LS, et al. Association of immediate postpartum etonogestrel implant insertion and venous thromboembolism. *Obstet Gynecol* 2020;135:1275-1280.

The current labeling of the etonogestrel implant (Nexplanon) suggests delaying insertion until 21 days postpartum because of the risk of venous thromboembolism (VTE). This study was conducted to ascertain the rate of readmission for VTE during the first 30 days after delivery in women with and without the etonogestrel implant. The investigators used data from the 2016 Healthcare Cost and Utilization Project Nationwide Readmissions Database, which included 36 million hospital discharges. Using ICD-10 codes, delivery hospitalizations were identified, as well as admissions containing a diagnosis code for both delivery and subdermal contraceptive insertion. Women with a history of VTE or who were taking anticoagulation medications were identified and excluded. Further data were collected, including age, insurance, mode of delivery, medical conditions, and tobacco use. The primary outcome was the rate of readmission for deep vein thrombosis and pulmonary embolism in women readmitted up to 30 days postpartum with and without immediate postpartum etonogestrel implant insertion.

Analysis of the 3.38 million deliveries noted that only 8,639 (0.0025%) of these women underwent postpartum contraceptive implant insertion immediately after delivery. Women who received the implant were younger (25 vs. 29 years of age), more likely to have public health insurance (82% vs. 43%), more likely to be smokers (15% vs. 6%), and more likely to have hypertension (22% vs. 12%). There were no differences in terms of rates of diabetes, thrombophilia, systemic lupus erythematosus, or cesarean delivery. A total of seven VTE cases occurred in the implant group compared to 1,192 in the non-implant group. There was no difference in the rate of VTE among those who received an implant and those who did not (0.85/1,000 deliveries vs. 0.35/1,000 deliveries; odds ratio [OR], 2.41; 95% confidence interval [CI], 0.58-9.89). The difference remained unchanged when adjusting for age, smoking history, peripartum infection, and occurrence of postpartum hemorrhage (OR, 1.81; 95% CI, 0.44-7.45).

■ COMMENTARY

The U.S. Medical Eligibility Criteria for Contraceptive Use (USMEC) from the Centers for Disease Control and Prevention rates the etonogestrel implant as category 1 (no restrictions on use) in non-breastfeeding women and category 2 (benefits outweigh the risks) in breastfeeding women, for women less than 21 days postpartum.[1] This is in contrast to the current labeling for the etonogestrel implant as mentioned earlier. The authors of this study did not find any increased risk of VTE with etonogestrel implant insertion immediately postpartum, which supports the USMEC recommendations. The study does have limitations in that it only followed patients up to 30 days postpartum and there may be cases of VTE that occurred beyond that. The rate of postpartum VTE has been found to persist until 12 weeks, albeit dropping from nine per 10,000 deliveries in the first week postpartum to 0.1-0.2 per 10,000 deliveries in the 12th week.[2] Further, the study only examined inpatient readmission for VTE. There could have been subjects

treated as outpatients, thus underestimating the risk of VTE. Additionally, database studies are limited by the accuracy of the discharge codes entered.

Further limitations include the number of VTE events found in the study despite using a national database. Although the rates were consistent with other data, there still were only seven events in the etonogestrel implant arm, making the confidence intervals quite wide and, thus, less precise.[2] A post hoc power analysis indicated that the study only had 61% power to detect a difference between the two groups. Moreover, the study did not account for other contraceptive methods that women in the non-implant group might have been using in the immediate postpartum period, such as depot medroxyprogesterone acetate (DMPA), the progestin-only pill, or the levonorgestrel intrauterine device (IUD). Of these other progestin-only methods, only DMPA has been associated with a slightly increased risk of VTE in the general population in previous studies.[3] In a recent study examining DMPA use in the immediate postpartum period (within seven days of delivery), investigators found the risk of VTE to be slightly elevated compared to the control group (0.42/10,000 women-days vs. 0.15/10,000 women-days; adjusted OR 1.94; 95% CI, 1.38-2.72).[4] Nevertheless, the authors concluded that, although the OR was elevated, the absolute risk was very low, and the USMEC ratings stating the method was safe to use less than 21 days postpartum were appropriate. Providing contraception in the immediate postpartum period is an important option for patients for several reasons. It is convenient, patients have health insurance coverage at that time, and they may not be able to follow up postpartum in the office. Overall, progestin-only methods are considered safe immediately postpartum. This study found nothing to contradict the ratings of the USMEC, and the drug labeling of the etonogestrel implant likely is more conservative than necessary. In our practice, we continue to offer our patients immediate postpartum IUD and implant insertion, DMPA administration, and progestin-only pill prescriptions. ■

REFERENCES

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2. Tepper NK, Boulet SL, Whiteman MK, et al. Postpartum venous thromboembolism: Incidence and risk factors. *Obstet Gynecol* 2014;123:987-996.
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CME/CE QUESTIONS

1. **Which of the following maternal or pregnancy characteristics is associated with a decreased likelihood of maternal intervention in deliveries at 22 to 23 weeks of gestation?**
   a. Birth defects
   b. Non-Hispanic Black race
   c. Small for gestational age
   d. Normal body mass index

2. **According to Sheyn et al, women undergoing vaginal hysterectomy for prolapse:**
   a. often undergo concomitant apical suspension.
   b. are treated by the hysterectomy alone, as per standard of care.
   c. frequently are treated with vaginal hysterectomy alone rather than standard of care for prolapse that includes apical suspension.
   d. have higher complication rates if concomitant apical supsension is performed.

3. **Which of the following is *not* part of the exclusion criteria for the VICTORIA randomized equivalence trial?**
   a. History of chronic medical conditions
   b. Previous history of iatrogenic preterm birth
   c. Prophylactic cerclage in current pregnancy
   d. Physical examination indicated cerclage in current pregnancy

4. **In the study by Floyd et al, the rate of venous thromboembolism within 30 days postpartum after immediate postpartum etonogestrel implant insertion was:**
   a. 0.35 per 1,000 deliveries.
   b. 0.85 per 1,000 deliveries.
   c. 1.25 per 1,000 deliveries.
   d. 2.05 per 1,000 deliveries.