GYNECOLOGY

Medical contraindications to estrogen and contraceptive use among women veterans

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BACKGROUND: Women veterans have high rates of medical comorbidities and may be particularly vulnerable to adverse health outcomes associated with unintended pregnancy.

OBJECTIVES: The objective of the study was to estimate the prevalence of medical contraindications to estrogen-containing combined hormonal contraception among women veterans of reproductive age and to evaluate the relationship between contraindications and contraceptive use.

STUDY DESIGN: This was a secondary analysis of data from a cross-sectional, telephone-based survey with a national sample of 2302 female veterans, aged 18–45 years, who use the Veterans Administration Healthcare System for primary care. This analysis included women at risk of unintended pregnancy, defined as heterosexually active and not pregnant or trying to conceive and with no history of hysterectomy or infertility. Seven contraindications to combined hormonal contraception were identified using survey data or medical diagnosis codes: hypertension; coronary artery disease; active migraine in women older than 35 years or migraine with aura; smoking in women older than 35 years; and a history of thromboembolism, stroke, or breast cancer. Outcomes were current use of combined hormonal contraception and contraceptive method type (combined hormonal contraception, and other prescription methods, nonprescription methods or no method). Multivariable logistic and multinomial regression were used to assess the relationship between contraindications and combined hormonal contraception use and method type, respectively.

RESULTS: Among 1169 women veterans at risk of unintended pregnancy, 339 (29%) had at least 1 contraindication to combined hormonal contraception. The most prevalent conditions were hypertension (14.9%) and migraine (8.7%). In adjusted analyses, women with contraindications were less likely than women without contraindications to report use of combined hormonal contraception (adjusted odds ratio, 0.54, 95% confidence interval, 0.37–0.79). Relative to use of combined hormonal contraception, women with contraindications were more likely than women without contraindications to use other prescription methods (adjusted odds ratio, 1.74, 95% confidence interval, 1.17–2.60), nonprescription methods (adjusted odds ratio, 1.96, 95% confidence interval, 1.19–3.22), and no method (adjusted odds ratio, 2.29, 95% confidence interval, 1.35–3.89).

CONCLUSION: Women veterans at risk of unintended pregnancy have a high burden of medical contraindications to estrogen. Women with contraindications were less likely to use combined hormonal contraceptive methods but were more likely to use no method, suggesting an unmet need for contraception in this medically vulnerable population.

Key words: combined hormonal contraception, contraindications, estrogen, women veterans

The Veterans Affairs (VA) Healthcare System is the largest integrated health care system in the United States. Over the past several decades, the number of women veterans using VA for health care has grown dramatically, and the majority of new female enrollees are of reproductive age.[1,2] However, until recently, little has been known about contraceptive use and unintended pregnancy among women veterans.

Because women veterans have high rates of medical and psychiatric comorbidities compared with women in the general population,[1,3] this population may be at increased risk of the negative health outcomes associated with unintended pregnancy, including inadequate prenatal care, substance use during pregnancy, preterm birth, and low birthweight.[4] Ensuring access to contraceptive methods and counseling is therefore critical to support the reproductive and overall health of women veterans.

To address the needs of this growing population, VA policy requires that women veterans have access to comprehensive primary care from a provider who is proficient in gender-specific care, including contraceptive counseling and management.[1,5] VA pharmacies provide the full range of hormonal contraceptive methods,[6] and referrals to a gynecologist (on site, at another VA site, or at a non-VA site via contract care) can be made as needed for contraceptive procedures such as sterilization or placement of intrauterine devices (IUDs) or subdermal implants.[1,7] Nevertheless, variability exists across VA sites regarding expertise and comfort level of women's health providers and consequent availability of on-site or same-day provision of procedural methods.[8,9]

Among contraceptive methods, estrogen-containing combined hormonal contraception (CHC), including most formulations of the birth control pill, the transdermal patch, and the vaginal ring, remain the most popular forms of birth control; greater than 80% of sexually active women in the United States have ever used the birth control pill.[10] Although most women can safely use CHC, specific medical conditions serve as relative or absolute contraindications, primarily because of concerns for increased risk of thrombotic and cardiovascular conditions with estrogen use.[11]

The US Medical Eligibility Criteria for Contraceptive Use (US MEC), produced

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by the Centers for Disease Control and Prevention, provides evidence-based recommendations regarding the safety of contraceptive methods for women with various medical conditions.[12,13] Despite the specificity of these guidelines, the prevalence of medical contraindications to CHC is poorly defined. Prior studies estimate that anywhere from 2% to 39% of reproductive-aged women are medically ineligible to use estrogen-containing methods.[14-17]

Medical contraindications to CHC may have an impact on the eligibility for and use of effective contraceptive methods, which may in turn contribute to unintended pregnancy. Understanding the impact of contraindications to CHC on contraceptive use among women veterans is important to meet the VA's goal of providing high-quality reproductive health care, particularly given the high burden of medical comorbidities among the growing number of women using the VA.

Using data from a nationally representative, cross-sectional survey of female VA users, we aimed to estimate the prevalence of contraindications to CHC in a population of women veterans at risk of unintended pregnancy. We then aimed to characterize the relationship between contraindications and contraceptive use.

Materials and Methods

Study design and population

This is a secondary analysis of data from the Examining Contraceptive Use and Unmet Need Among Women Veterans (ECUUN) study.[18] The ECUUN study included a cross-sectional, telephone-based survey of a random, nationally representative sample of 2302 women veterans who use the VA for health care. Eligible participants were female veterans aged 18−45 years who had at least 1 primary care visit within the VA Healthcare System in the prior 12 months. Potential participants were identified using VA administrative data, yielding a sampling frame of approximately 130,000 women. Overall, 8198 potential participants were randomly selected and mailed study invitations; 2769 participants were screened and enrolled in the study and 2302 completed the survey, for an overall response rate of 28%.

The survey completion rate was 83% among enrolled participants. Using VA administrative data, ECUUN participants were compared with nonparticipants and found to be similar with regard to age, race/ethnicity, marital status, income, geographic region, and the presence of medical and mental illness.[18] This suggests that the ECUUN sample is representative of reproductive-aged female VA users at large.

Participants completed computer-assisted telephone interviews between April 2014 and January 2016. All participants provided informed consent. This study was approved by the Institutional Review Boards of the University of Pittsburgh and the VA Pittsburgh Healthcare System. Complete methodology has been previously reported.[18]

This analysis was limited to women identified as at risk of unintended pregnancy, defined as sexually active with a male partner within 3 months prior to the study interview, not currently pregnant, trying to conceive, or less than 2 months postpartum and without a history of hysterectomy or other infertility. Among the 2302 women veterans in the ECUUN sample, 1173 (51%) were identified as being at risk of unintended pregnancy. Four women in the at-risk cohort reported current use of contraception but did not specify a method type and were therefore excluded from analysis, resulting in a study sample of 1169 women.

Measures

The primary predictor variable was at least 1 medical contraindication to CHC use. For every category of contraceptive methods, including CHC, the US MEC characterizes specific medical conditions as category 1 (no restriction on use), category 2 (advantages generally outweigh theoretical or proven risks), category 3 (theoretical or proven risks usually outweigh advantages), or category 4 (unacceptable health risk).[13] We defined contraindications to CHC as the presence of at least 1 of the following category 3 or category 4 conditions: hypertension, coronary artery disease, history of thromboembolism, history of stroke, history of breast cancer, migraine with aura, migraine without aura in women older than age 35 years, and current smoking by women older than age 35 years.

Contraindications were primarily identified via self-report on the ECUUN survey. Participants were asked whether they had ever (in their lifetime) been diagnosed with or received treatment for the above-mentioned conditions, and smoking was assessed by asking, "Do you currently smoke or use tobacco?"

Self-report was believed to be the most accurate means of assessing contraindications because of recognized inconsistencies in medical diagnosis coding within the VA health care system; medical diagnosis codes are known to underestimate the true prevalence of medical conditions in the VA because they are not used for physician billing as in other health care systems and because administrative data may exclude acute events and diagnoses occurring prior to VA enrollment or in non-VA settings.[1,19] Furthermore, prior research in non-VA settings suggests that self-report is adequately reliable to assess medical contraindications to CHC[17,20,21]; in veteran populations, self-report is reliable for assessing similar, chronic health conditions.[19,22]

Because the survey instrument was not sufficiently detailed to distinguish between category 3 and category 4 contraindications (eg, controlled vs uncontrolled hypertension, cigarettes smoked per day), only conditions definitively representing at least a category 3 contraindication were included in this analysis. While category 3 conditions do not represent absolute contraindications, there is broad consensus around the guideline that women with these conditions generally should not use CHC.[23]

The most recent update to the US MEC, published in July 2016, describes migraine with aura as a category 4 contraindication and recharacterizes migraine in women older than age 35 years from a category 3 to a category 2 condition.[13] Because this update was

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