GYNECOLOGY

Combined hormonal contraception use in reproductive-age women with contraindications to estrogen use

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BACKGROUND: The Centers for Disease Control and Prevention's US Medical Eligibility Criteria for Contraceptive Use recommends that combined hormonal contraceptives (ie, birth control pills, contraceptive patch, vaginal ring) should be avoided in women with specific medical conditions because of the increased risk of cardiovascular events associated with estrogen use. Whether women with category 3 (theoretical or proven risk usually outweigh the advantages) or category 4 (unacceptable health risk) contraindications are appropriately avoiding estrogen-containing combined hormonal contraceptives is unknown.

OBJECTIVE: We describe the prevalence of combined hormonal contraceptive use among a sample of reproductive-age women with medical contraindications to estrogen use. Our hypothesis was that women with categories 3 and 4 contraindications would use estrogen-containing contraception less often than women without medical contraindications. We also explored whether inappropriate estrogen-containing contraceptive use is related to contraceptive provider characteristics.

STUDY DESIGN: Data are from the baseline survey of the MyNewOptions study, which included privately insured women residing in Pennsylvania aged 18–40 years, who were sexually active and not intending pregnancy in the next year. Women were surveyed about their medical conditions, contraceptive use, and characteristics of their contraceptive provider. Women were considered to have a contraindication to combined hormonal contraceptives if they reported a category 3 or category 4 contraindication: hypertension, smokers older than age 35 years, a history of venous thromboembolism, diabetes with complications, coronary artery disease, systemic lupus erythematosus with antiphospholipid antibodies, breast cancer, or migraine headaches with aura. χ^2 tests for general association were used to compare combined hormonal contraceptives use, contraceptive health provider characteristics, and sociodemographic data in women with and without contraindications to estrogen use.

RESULTS: The MyNewOptions baseline study sample included 987 adult women who were mostly young (46% were 18–25 years), white (94%), employed (70%), and married or cohabiting (54%). Thirteen percent ($n = 130$) of the sample had a medical contraindication to estrogen-containing contraceptive use: migraine with aura (81%) was the most common contraindication, followed by smokers older than age 35 years (7%), hypertension (11%), history of venous thromboembolism (4%), and diabetes with complications (2%). High use of combined hormonal contraceptives was reported among the women with medical contraindications to estrogen at 39% ($n = 51$). This was not statistically different from women without a medical contraindication (47%, $P = .1$). Among the 130 women with a contraindication, whether they did or did not use an estrogen-containing contraceptive did not vary by education level, income, or weight category. With respect to their contraceptive prescribers, there were no differences in prescriber specialty, provider type, or clinic type comparing women using and not using an estrogen-containing contraceptive.

CONCLUSION: Among this study sample of reproductive-age women, there was a high rate of combined hormonal contraceptive use in women with a medical contraindication to estrogen use. These women may be at an increased risk for cardiovascular events. Processes need to be improved to ensure that women with medical contraindications to estrogen-containing contraception are being offered the safest and most effective methods, including long-acting reversible contraceptives, such as intrauterine devices and the contraceptive implant.

Key words: combined hormonal contraception, medical contraindications

More than 80% of women in the United States have ever used hormonal contraception.[1] Hormonal contraception includes estrogen-progesterone combined hormonal contraception, which can provide effective protection against pregnancy with many noncontraceptive health benefits[2] and can safely be used by most women. However, there are certain medical conditions that increase the risk of adverse events associated with combined hormonal contraception use, mostly related to cardiovascular complications. The prevalence of reproductive-age women with medical contraindications to combined hormonal contraception has been reported at 2–16%.[3,4]

The World Health Organization Medical Eligibility Criteria for Contraceptive Use[5] and the adapted Centers for Disease Control and Prevention Medical Eligibility Criteria for contraceptive use[6] provide evidence-based guidelines for prescribing contraception to women with medical comorbidities.

In the setting of various health conditions, these criteria classify combined hormonal contraception use as category 1 (no restrictions to method use), category 2 (advantages of method generally outweigh the theoretical or proven risks), category 3 (theoretical or proven risks usually outweigh the advantages for using the method), or category 4 (unacceptable health risk if the method is used). Previous studies report that 6–11% of current combined oral contraceptive users had at least 1 contraindication to combined hormonal contraception.[4,7]

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We described the prevalence of combined hormonal contraception use among women with medical contraindications to estrogen use in a sample of reproductive-age women. Our hypothesis was that women with category 3 or 4 contraindications to estrogen-containing contraception would be less likely to use combined hormonal contraception than women without a medical contraindication. We also explored whether inappropriate combined hormonal contraception use is related to contraceptive provider characteristics.

Materials and Methods

This analysis was performed using the baseline survey data from the MyNewOptions study, an ongoing randomized controlled trial to test an online reproductive life—planning intervention for assisting privately insured adult women with personalized contraceptive decision making. The sample included 987 female Highmark Health members in Pennsylvania between the ages of 18 and 40 years. Women were eligible for the study if they were sexually active, not intending pregnancy in the next 12 months, not surgically sterilized or with a partner who was surgically sterilized, had Internet access and a valid e-mail address.

Participants then completed a baseline survey that ascertained baseline demographics, current method of contraception, and their medical comorbidities. Randomization and online intervention occurred after the completion of the baseline survey. Additional details regarding the study protocol have been published elsewhere.[8]

This study was approved by the Penn State Hershey Institutional Review Board under institutional review board protocol 44583EP with informed consent obtained online.

Contraceptive method

The survey measured the current contraceptive method by asking women to indicate the method of contraception used within the last month. If more than 1 choice was selected, participants were then asked, "Which method do you consider to be your primary method?" The outcome measure is the current use of a combined hormonal contraception, which was defined as combined birth control pills (containing both estrogen and progestin), the contraceptive patch, and the vaginal ring.

For women using birth control pills, the survey response choice was birth control pills and did not specify combined pills or progestin-only pills. To make this distinction, pharmacy claims data were obtained from Highmark Health and used to determine whether the most recent pharmacy claim prior to the woman's baseline survey was for combined or progestin-only oral contraceptive. All other contraceptives were considered nonestrogen contraception, which included male and female condoms, the medroxyprogesterone acetate injectable, intrauterine devices, diaphragm, cervical cap, contraceptive foam, jelly, cream or suppository, the sponge, contraceptive implant, rhythm or natural family planning, withdrawal, and no method of contraception.

Medical contraindications to combined hormonal contraception

We identified study participants with the following category 3 (theoretical or proven risk usually outweigh the advantages) and category 4 (unacceptable health risk) contraindications to combined hormonal contraception, according to the Centers for Disease Control and Prevention Summary Chart of US Medical Eligibility Criteria for Contraceptive Use[6]: (1) hypertension (category 3 if adequately controlled or category 4 if poorly controlled), (2) smokers over the age of 35 years (category 3 if <15 cigarettes/day or category 4 if ≥ 15 cigarettes/day), (3) a history of venous thromboembolism (category 3 if lower risk for recurrent venous thromboembolism or category 4 if higher risk for recurrent venous thromboembolism), (4) diabetes with complications (category 3 if microvascular complications or category 4 if vascular disease or diabetes >20 years), (5) coronary artery disease (category 4), (6) systemic lupus erythematosus with antiphospholipid antibodies (category 4), (7) breast cancer (category 3 if previous breast cancer with no evidence of disease for 5 years or category 4 for current breast cancer), and (8) migraine with aura (category 4).

Health conditions were determined by a series of questions asking, "Has a doctor, nurse, or other health professional ever told you that you had or have any of the following?" Smoking was assessed by asking, "Do you now smoke cigarettes every day, some days, or not at all?" In several cases, our survey tool was unable to distinguish category 3 from category 4 contraindications. For example, women over the age of 35 years who smoked every day were considered to have a contraindication, but we were unable to specify whether it was category 3 or 4 because the number of cigarettes smoked per day was not ascertained.

Of note, not all 18 category 3 and 4 health conditions were ascertained by the survey, so if women in the sample had other category 3 and 4 contraindications (severe liver cirrhosis, gallbladder disease, liver tumors, peripartum cardiomyopathy, organ transplant, thrombogenic mutations, and valvular heart disease), they may have been misclassified.

Contraceptive provider characteristics

Contraceptive provider characteristics were determined by a series of questions in which the respondent was asked about "the most recent health care visit where you received any contraceptive or women's health care services." The clinic type (private office vs other clinic), specialty (obstetrics and gynecology vs other specialties), and provider type (physician vs nonphysician provider) in which the contraceptive or women's health care services occurred were recorded.

Statistical analysis

All variables were summarized with frequencies and percentages for categorical variables or with means, medians, and SDs for continuous variables prior to any analysis. χ^2 tests for general association, with Fisher exact tests substituted as needed, were used to compare combined hormonal contraception use, contraceptive health provider characteristics, and sociodemographics between women