Contraception Counseling as a Part of Routine Cardiovascular Care

An increasing population of women of childbearing age have underlying congenital or acquired cardiovascular disease (CVD) in the US. For instance, among women aged 20 to 29 years, the prevalence of CVD (eg, coronary heart disease, heart failure, stroke, and hypertension) is estimated at 11.5%. The reasons for this include improved pediatric cardiac surgical care, which has enabled more than 90% of children with congenital heart disease to survive to adulthood, and increasing rates of cardiovascular (CV) risk factors among young women (eg, obesity, hypertension, and diabetes).

In addition, women with CVD or CV risk factors often require medical therapy such as angiotensin-converting enzyme (ACE) inhibitors or warfarin, which are potentially teratogenic to a developing fetus. Further, women who require anticoagulation or antiplatelet therapy for their CV conditions may experience significant menorrhagia and symptomatic anemia. Importantly, many pregnancy-capable individuals with underlying CVD or CV risk factors are also at increased risk for CV complications and obstetric complications during pregnancy, such as preeclampsia, thromboembolism, and vascular dissection. For some individuals, including those with significant cardiomyopathy (ejection fraction <30%) or pulmonary arterial hypertension, pregnancy poses a life-threatening risk.

Contraception counseling is an essential part of routine CV care for pregnancy-capable individuals. Provision of safe and effective contraception allows for pregnancy planning to reduce the risk of adverse CV events and to optimize fetal outcomes. Contraceptive choice for individuals with CVD should balance the CV risks and benefits of the method, the relative importance of avoiding pregnancy given the patient’s underlying CV conditions, and the patient’s personal preferences. Due to the increased risk of severe maternal morbidity and mortality, counseling patients about the effectiveness of contraceptive methods is particularly important for those with CVD. Optimizing both safety and effectiveness is ideal, considering that in all cases, pregnancy is associated with higher CV risk than even contraindicated contraceptive methods.

Safety Concerns With Hormonal Contraceptives

Combined hormonal contraceptives (CHCs) contain both an estrogen (usually ethinyl estradiol) and a progestin; the combined pill is the most common formulation, and a study based on data from 4886 women weighted to represent the US female reproductive-aged population in 2016, it was used by an estimated 21.9% of women in the US who reported use of any contraception. Including users of the contraceptive transdermal patch and the vaginal ring, an estimated 27.7% of reproductive-age women who use hormonal contraceptives reported using products that contain exogenous estrogen. Estrogens are prothrombotic via the increased hepatic production of coagulation factors and subsequent risk for thromboembolism.

In healthy pregnancy-capable individuals without known prothrombotic conditions, the use of oral CHCs is associated with an increased risk of venous thromboembolism from 2 to 10 per 100 000 to 7 to 10 per 100 000. Although oral CHCs are commonly prescribed, often they are not an optimal contraceptive choice for individuals with CVD. Estrogen-containing methods such as CHC pills, patches, or rings should generally be avoided in individuals with acquired or congenital CV conditions, which pose an increased risk of developing serious thromboembolic disease (eFigure in the Supplement). CHCs also may cause a mild increase in blood pressure and are not recommended for patients with uncontrolled hypertension (>160/100 mm Hg). Estrogen-containing contraception is relatively contraindicated for patients with blood pressure of 140 to 159 over 90 to 99 mm Hg and should only be used if no progestin-only or nonhormonal method of contraception is appropriate or acceptable to the patient. In addition to these potential adverse effects of estrogens, the annual typical-use failure rate of CHCs is estimated at 4 to 7 unintended pregnancies per 100 users.

A variety of progestin-only contraceptive methods are available in the US, including progestin-only pills, injectables, subdermal implants, and intrauterine devices (IUDs). As opposed to CHCs, progestin-only methods do not substantially change blood pressure, cholesterol, or coagulation factor levels. As the first hormonal contraceptive methods contained an estrogen and a progestin, all hormonal contraception carries a US Food and Drug Administration-assigned class label regarding thrombosis risk, but more recent studies, with appropriate controls, have shown that progestins are not associated with an increased risk of thrombosis and are generally safe when compared with the risk of pregnancy.

Choosing a Contraceptive Method for a Patient With CVD

The first step in choosing an optimal method of contraception is consideration of the patient’s risk of CV complications with pregnancy. Patients who have exceptionally high (modified World Health Organization [WHO] risk IV) or high (modified WHO risk III) risk of CV complications during pregnancy or those who require potentially teratogenic medications that may put their fetus at risk (such as ACE inhibitors, warfarin, endothelin receptor blockers, amiodarone) should give strong consideration to long-acting reversible contraceptives (IUD or subdermal implant) or permanent sterilization.

These methods have high efficacy, with annual failure rates of less than 1 unintended pregnancy per 100 users. The second step in choosing a contraceptive method is to assess for relative or absolute contraindications to CHC methods (eFigure in the Supplement). Individuals with certain congenital heart conditions, including potential right-to-left shunts, cyanotic conditions, or single ventricle palliations (including Glenn or Fontan shunts), should generally avoid combined hormonal methods due to the risk of serious thromboembolism. Acquired conditions including acute or severe cardiomyopathy, pulmonary hypertension, atrial fibrillation, deep venous thrombosis, pulmonary embolism, ischemic heart disease, and mechanical heart valves also pose increased risk of...
thromboembolic complications and combined hormonal contraceptives are contraindicated.1 Multiple or poorly controlled CV risk factors, including hypertension and tobacco use, also increase the risk of thromboembolic events.5 For patients in these categories, strong consideration should be given to either progestin-only or nonhormonal methods of contraception.

The third step in choosing a contraceptive method involves considering the adverse effect profile of the contraceptive method. The nonhormonal copper IUD may increase menstrual bleeding, and patients who required antiplatelet or anticoagulant medications may experience enough blood loss to cause iron-deficiency anemia or negatively affect their quality of life. The subdermal implant is also associated with irregular bleeding patterns in a substantial portion of users.10 In contrast, many women using certain contraceptive methods may experience amenorrhea or substantially reduced menstrual flow. For example, with use of the hormonal IUD, 20% experience amenorrhea at 1 year and 37% at 2 years; with depot medroxyprogesterone, 64% experience amenorrhea at 1 year and 80% at 2 years of use.10 Combined hormonal methods may also result in predictable and lighter bleeding.7

Additional adverse effects, including weight gain (≤9 kg in some individuals) and reversible bone loss, are often seen in patients using depot medroxyprogesterone. Lipid profiles may be adversely affected in patients using CHCs (increased triglycerides) or depot medroxyprogesterone (increased low-density lipoprotein cholesterol).5,7 There is limited evidence that CHCs may increase lipid levels or increase risk of myocardial infarction in women with known dyslipidemia. Given the significant limitations of the available data and the low rates of undiagnosed severe hyperlipidemia among women of childbearing age, screening for dyslipidemia is not required prior to initiation of CHCs.8 All women should be screened for dyslipidemia according to American College of Cardiology (ACC)/American Heart Association (AHA) lipid screening guidelines beginning at age 20, with reassessment of CV risk factors every 4 to 6 years, independent of contraception method. There is a small risk of a vasovagal response with placement of an IUD that may be poorly tolerated in patients with preload-dependent conditions such as pulmonary arterial hypertension or severe valvular stenosis. However, the response is typically brief and can be minimized with adequate pain control and patient education to report any symptoms of impending vasovagal syncope.1 Overall, the substantial benefits of IUD contraception outweigh the small risk of vasovagal response to IUD placement, and this should not be considered a deterrent to use of this method. Previous concerns had been raised about the potential risk of endocarditis with IUD; however, this risk has not been substantiated, and the 2020 ACC/AHA valve guidelines do not recommend antibiotic prophylaxis for any procedures other than dental procedures.

The fourth step, importantly, requires consideration of the patient’s personal preferences in choosing a contraceptive method. Patients who desire future childbearing may choose from the variety of long- and short-acting reversible contraceptives available; whereas those who do not desire future childbearing may consider permanent contraceptive methods including tubal sterilization or male sterilization. Immediate postpartum tubal sterilization can often be performed under regional anesthesia at minimally increased risk to the patient, but it does require advanced planning. Patients who find it difficult to adhere to daily, weekly, or monthly contraceptive methods may benefit from long-acting reversible methods including the IUD or subdermal implant, which provide 3 to 10 years of effective contraception, depending on the method chosen.7 For patients who prefer nonhormonal methods of contraception, the copper IUD, permanent contraception, or barrier methods are all options, although barrier methods have the highest failure rates (≤20 unintended pregnancies/100 users per year) and are not recommended as stand-alone methods for patients at high risk of CV complications of pregnancy.1

Even patients with the most complex underlying CVD have options for pregnancy prevention. Early contraception counseling provides the opportunity for shared decision-making and identification of the optimal contraceptive method given the patient’s individual risks and preferences.

ARTICLE INFORMATION

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Submissions: The Women’s Health editors welcome proposals for features in the section. Please contact ccrandall@mednet.ucla.edu.

REFERENCES


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