

## **Use of Oral Contraceptives in Women with Migraine**

Susan Hutchinson, MD

Director-Orange County Migraine & Headache Center, Irvine, CA

Migraine is very common in women during child-bearing years. Many women need or desire contraception, or may have other conditions such as endometriosis, severe dysmenorrhea, abnormal uterine bleeding, or acne for which they may benefit from combination oral contraceptive treatment. Is it safe to let women migraine patients take oral contraceptives? What are the risks? Are there certain dosages or formulations that may be better than others for women with migraine?

The most commonly used forms of oral contraceptives (OC) are a combination of ethinyl estradiol and a progestin. These are often referred to as 'combination hormonal contraception' (CHC) or 'combination oral contraceptives' (COC). Less commonly used is the progestin-only containing OC, often referred to as the 'mini-pill'. OCs differ from hormone replacement therapy in several ways. They work by blocking ovulation, thickening the cervical mucus, and thinning the lining of the uterus. Hormonal replacement therapy, as is commonly used in menopause, contains a lower dose of estrogen/progesterone and is not sufficient to block ovulation and pregnancy.

### **Should Oral Contraceptives Be Used to Treat Migraine?**

The use of oral contraceptives to prevent migraine is not clearly supported in studies or in the medical literature. Non-hormonal preventive agents such as the antiepileptic drugs, beta-blockers, and antidepressants should be the mainstay of treatment in women needing a daily preventive. However, for those women, who need or want contraception, then using a monophasic low-dose combination oral contraceptive in a continuous fashion would theoretically help the migraine condition by keeping estradiol levels steady. This could be especially helpful for women suffering from menstrual migraine.

### **Migraine, Oral Contraception, and the Risk of Stroke**

The type of migraine is important when considering the risk of stroke. Women with migraine without aura have a low risk of stroke and venous thromboembolism (VTE), similar to women without migraine. Combination OC use increases a woman's risk for VTE and ischemic stroke. Observational studies found 1-3 additional cases of VTE among 10,000 women taking combination contraceptives for one year [1]. Significantly, the risk of ischemic stroke is dose-dependent and may not apply to today's very low dose options for COC's including the 10-20 mcg ethinyl estradiol containing options [2].

The World Health Organization (WHO) and the CDC recommend complete avoidance of combination contraceptives for women with migraine with aura regardless of age. There is no restriction for migraine without aura [3]. The American College of Obstetricians and Gynecologists (ACOG) recommends using alternative forms of contraceptives in certain populations of women over 35 who smoke or have migraine with "focal neurological signs" [4].

The International Headache Society advises that low-dose estrogen containing contraception may be prescribed in women who have simple visual aura [5].

COCs are not recommended for some women with migraine. The screening history on such patients includes the following questions:

1. Is there a clotting disorder or history of DVT?
2. Are there risk factors for DVT or stroke? Take into account family history of heart attack or stroke under the age of 60 and cardiovascular risk factors such as age, high blood pressure, high cholesterol, low HDL cholesterol, obesity, smoking, and high-sensitivity CRP. Consider using the ASCVD Risk Calculator [6]. It calculates the 10-year and lifetime risk of heart or stroke in any individual.
3. Does the patient experience migraine aura symptoms? Are they simple visual aura or more complex including numbness and slurred speech? How long do the aura last and how often do they occur?

### **Specific Oral Contraceptive Formulations**

Oral contraceptive pills come in two types of formulations. In monophasic oral contraception, all the “active” pills contain the same amount of ethinyl estradiol and progestin (packs are typically 21 days active/7 days placebo or 24 days active/4 days placebo). Some now have “add-back” estrogen instead of all placebos at the end of the pill pack. The ‘active’ pills in triphasic or biphasic formulations vary in the amount of ethinyl estradiol and/or the progestin. Some formulations are extended monophasic and may include 84 active pills followed by 7 placebos. It is increasingly common to have women skip the placebos for 2-6 months and only cycle off a few times per year.

### **Recommendations for Migraine Patients**

A low-dose (10-35 mcg ethinyl estradiol) monophasic OC may be used in most women with migraine. There are not good data to suggest that the lower dose formulations of 10-30 mcg ethinyl estradiol are any safer than the 35 mcg when looking at VTE or ischemic stroke risk. Using the OC in a continuous-dose regimen (skipping the placebo pills) may theoretically help prevent menstrual migraine. One study showed an incidence of headaches of 9.7% in women using extended-regimen OC vs. 17.3% in those using standard-regimen OC. Any monophasic oral contraceptive can be adapted to be used in a continuous (extended) fashion.

### **Final Comments**

Oral contraceptives containing ethinyl estradiol are not contraindicated for most women with migraine. Once these women are successfully screened and start taking a COC, appropriate follow-up to monitor the headache pattern is crucial. The patient must be counseled to report new onset aura symptoms or changes in cardiovascular risk status. COCs should be discontinued if migraines worsen after the first few months of treatment or if the patient develops new onset aura. There is increasing evidence that the absolute contraindication of

COCs in migraine with aura no longer may be applicable given the new lower dose formulations of oral contraceptives. Close collaboration among all treating health care providers is essential in caring for this large population of women migraine patients who need or want oral contraception.

## References

1. Gomes MP, Dietcher SR. Risk of venous thromboembolic disease associated with hormonal contraceptives and hormonal replacement therapy: a clinical review. *Arch Intern Med* 2004;164:165-76.
2. Calhoun A. H. Hormonal Contraceptives and Migraine with Aura-Is There Still a Risk? *Headache* 2017; 57:184-193.
3. US Medical Eligibility Criteria for Contraceptive Use, 2010. Adapted from the WHO Medical Eligibility for Contraceptive Use, 4<sup>th</sup> Edition. *CDC MMWR* May 28, 2010/Vol. 59.
4. ACOG Practice Bulletin No 110: Noncontraceptive uses of hormonal contraceptives. *Obstet Gynecol.* 2010;115:206-218.
5. International Headache Society Taskforce. Recommendations on the risk of ischaemic stroke associated with use of combined oral contraceptives and hormone replacement therapy in women with migraine. *Cephalalgia* 2000;20:155-6.
6. Accessed 2/12/17: <https://tools.acc.org/ASCVD-Risk-Esimator/>