EDITORIAL

When providing contraceptive counseling to women with migraine headaches, how do you identify migraine with aura?

The diagnosis of aura is not well understood by primary care clinicians. The Visual Aura Rating Scale (VARS) helps non-neurologists identify those with migraine with aura.

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Most physicians know that migraine with aura is a risk factor for ischemic stroke and that the use of an estrogen-containing contraceptive further increases this risk.[1-3] Additional important and prevalent risk factors for ischemic stroke include cigarette smoking, hypertension, diabetes, and ischemic heart disease.[1] The American College of Obstetricians and Gynecologists (ACOG)[2] and the Centers for Disease Control and Prevention (CDC)[3] recommend against the use of estrogen-containing contraceptives for women with migraine with aura because of the increased risk of ischemic stroke (Medical Eligibility Criteria [MEC] category 4—unacceptable health risk, method not to be used).

However, those who have migraine with aura can use nonhormonal and progestin-only forms of contraception, including copper- and levonorgestrel-intrauterine devices, the etonogestrel subdermal implant, depot medroxyprogesterone acetate, and progestin-only pills (MEC category 1—no restriction).[2,3] ACOG and the CDC advise that estrogen-containing contraceptives can be used for those with migraine without aura who have no other risk factors for stroke (MEC category 2—advantages generally outweigh theoretical or proven risks).[2,3] Given the high prevalence of migraine in reproductive-age women, accurate diagnosis of aura is of paramount importance in order to provide appropriate contraceptive counseling.

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When is migraine with aura the right diagnosis?

In clinical practice, there is a high level of confusion about the migraine symptoms that warrant a diagnosis of migraine with aura. One approach to improving the accuracy of such a diagnosis is to refer every woman seeking contraceptive counseling who has migraine headaches to a neurologist for expert adjudication of the presence or absence of aura. But in the clinical context of contraceptive counseling, neurology consultation is not always readily available, and requiring consultation increases barriers to care. However, there are tools—such as the Visual Aura Rating Scale (VARS), which is discussed below—that may help non-neurologists identify migraine with aura.[4] First, let us review the data that links migraine with aura with increased risk of ischemic stroke.

Migraine with aura is a risk factor for stroke

Multiple case-control studies report that migraine with aura is a risk factor for ischemic stroke.[1,5,6] Studies also report that women with migraine with aura who use estrogen-containing contraceptives have an even greater risk of ischemic stroke. For example, one recent case-control study used a commercial claims database of 1,884 cases of ischemic stroke among individuals who identify as women 15 to 49 years of age matched to 7,536 controls without ischemic stroke.[1] In this study, the risk of ischemic stroke was increased more than 2.5-fold by cigarette smoking (adjusted odds ratio [aOR], 2.59), hypertension (aOR, 2.73), diabetes (aOR, 2.78), migraine with aura (aOR, 2.89), and ischemic heart disease (aOR, 5.49). For those with migraine with aura who also used an estrogen-containing contraceptive, the aOR for ischemic stroke was 6.08. By contrast, the risk for stroke among those with migraine with aura who were not using an estrogen-containing contraceptive was 2.65. Furthermore, among those with migraine without aura, the risk of ischemic stroke was only 1.77 with the use of an estrogen-containing contraceptive.

Although women with migraine with and without aura are at increased risk for stroke, the absolute risk is still very low. For example, one review reported that the incidence of ischemic stroke per 100,000 person-years among women 20 to 44 years of age was 2.5 for those without migraine not taking estrogen-containing contraceptives, 5.9 for those with migraine with aura not taking estrogen-containing contraceptives, and 14.5 among those with migraine with aura and taking estrogen-containing contraceptives.[6] Another important observation is that the incidence of thrombotic stroke dramatically increases from adolescence (3.4 per 100,000 person-years) to 45-49 years of age (64.4 per 100,000 person-years).[7] Therefore, older women with migraine are at greater risk for stroke than adolescents.

TABLE 1 International Headache Society Diagnostic criteria for migraine without aura[8]

A. At least five lifetime attacks fulfilling criteria B through D
B. Headache attacks lasting 4 to 72 hours (untreated or successfully treated)
C. Headache has at least two of the following four characteristics:
   a. Unilateral location
   b. Pulsating quality
   c. Moderate or severe pain intensity
   d. Aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs)
D. During headache at least one of the following:
   a. Nausea or vomiting or both
   b. Photophobia or phonophobia
E. Not better accounted for by another ICHD-3 diagnosis

Diagnostic criteria for migraine with and without aura

In contraceptive counseling, if an estrogen-containing contraceptive is being considered, it is important to identify women with migraine headache, determine migraine subtype, assess the frequency of migraines and identify other cardiovascular risk factors, such as hypertension and cigarette smoking. The International Headache Society has evolved the diagnostic criteria for migraine with and without aura, and now endorses the criteria published in the 3rd edition of the International Classification of Headache Disorders (ICHD-3; **TABLES 1** and **2**).[8] For non-neurologists, these criteria may be difficult to remember and impractical to utilize in daily contraceptive counseling. Two simplified tools, the ID Migraine Questionnaire[9] and the Visual Aura Rating Scale (**TABLE 3**)[4] may help identify women who have migraine headaches and assess for the presence of aura.

The ID Migraine Questionnaire

In a study of 563 people seeking primary care who had headaches in the past 3 months, 3 questions were

TABLE 2 International Headache Society diagnostic criteria for migraine with aura[8]

A. At least TWO attacks fulfilling criteria B and C
B. One or more of the following fully reversible aura symptoms:
   a. Visual
   b. Sensory
   c. Speech and/or language
   d. Motor
   e. Brainstem
   f. Retinal
C. At least three of the following six characteristics:
   a. At least one aura symptom spreads gradually over ≥ 5 minutes
   b. Two or more aura symptoms occur in succession
   c. Each individual aura symptom lasts 5 to 60 minutes
   d. At least one aura symptom is unilateral
   e. At least one aura symptom is positive (ie, scintillations or pins and needles)
   f. The aura is accompanied, or followed within 60 minutes, by headache
D. Not better accounted for by another ICHD-3 diagnosis (including but not limited to transient ischemic attack, stroke, or seizure)

identified as being helpful in identifying women with migraine. This 3-question screening tool had reasonable sensitivity (81%), specificity (75%), and positive predictive value (93%) compared with expert diagnosis using the ICHD-3.[9] The 3 questions in this screening tool, which are answered "Yes" or "No," are:

During the last 3 months did you have the following symptoms with your headaches:

1. Feel nauseated or sick to your stomach?
2. Light bothered you?
3. Your headaches limited your ability to work, study or do what you needed to do for at least 1 day?

If two questions are answered "Yes" the patient may have migraine headaches.

Visual Aura Rating Scale for the diagnosis of migraine with aura

More than 90% of women with migraine with aura have visual auras, leaving only a minority with non–visual aura, such as tingling or numbness in a limb, speech or language problems, or muscle weakness. Hence for non-neurologists, it is reasonable to **focus on the accurate diagnosis of visual aura to identify those with migraine with aura.**

In the clinical context of contraceptive counseling, the Visual Aura Rating Scale (VARS) is especially useful because it has good sensitivity and specificity, and it is easy to use in practice (**TABLE 3**).[4] VARS assesses for 5 characteristics of a visual aura, and each characteristic is associated with a weighted risk score. The 5 symptoms assessed include:

1. duration of visual symptom between 5 and 60 minutes (3 points)
2. visual symptom develops gradually over 5 minutes (2 points)
3. scotoma (2 points)
4. zig-zag line (2 points)
5. unilateral (1 point).

Of note, visual aura is usually slow-spreading and persists for more than 5 minutes but less than 60 minutes. If a visual symptom has a sudden onset and persists for much longer than 60 minutes, concern is heightened for a more serious neurologic diagnosis such as transient ischemic attack or stroke. A summed score of 5 or more points supports the diagnosis of migraine with aura. In one study, VARS had a sensitivity of 91% and specificity of 96% for identifying women with migraine with aura diagnosed by the ICHD-3 criteria.[4]

TABLE 3 Visual Aura Rating Scale (VARS) for the diagnosis of aura[4]

Visual symptom characteristic	Risk score
Duration of visual symptom of 5 to 60 minutes	3
Visual symptom develops gradually over ≥ 5 minutes	2
Scotoma symptom	2
Zig-zag line (fortification)	2
Unilateral (homonymous)	1
Migraine with aura diagnosis	Summed score ≥ 5

Consider using VARS to identify migraine with aura

Epidemiologic studies report that about 17% of adults have migraine, and about 5% have migraine with aura.[10,11] Consequently, migraine with aura is one of the most common medical conditions encountered during contraceptive counseling.

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The CDC MEC recommend against the use of estrogen-containing contraceptives in women with migraine with aura (Category 4 rating). The VARS may help clinicians identify those who have migraine with aura who should not be offered estrogen-containing contraceptives. Equally important, the use of VARS could help reduce the number of women who are inappropriately diagnosed as having migraine with aura based on fleeting visual symptoms lasting far less than 5 minutes during a migraine headache. ●

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