The Intersection of Migraine and Stroke

Migraine and stroke risk

For many years now I've found myself in the midst of a strange paradox. Specifically, although much of my clinical work and research has been devoted to patients with chronic migraine (CM); although CM is highly prevalent in our population and accounts for a disproportionate share of the physical, emotional and financial cost associated with migraine generally; although within this past decade multiple evidence-based therapies for suppression of CM have been identified; and, perhaps most vexing, although the majority of individuals with CM remain undiagnosed or misdiagnosed and untreated or inappropriately treated, I consistently have been invited to speak or write on the topic of migraine and stroke far more often than the massive public health burden that is chronic migraine.

Why? Why should professional medical societies in the United States, Great Britain, Portugal, Brazil, Spain and other locales prefer that I address a disorder (migrainous stroke) that afflicts roughly 1000 Americans annually rather than a disorder (CM) that actively afflicts millions?

In part the answer lies in my personal choice of neurologic subspecialties to focus upon. As with a number of clinical scientists in the small universe of headache medicine, I began my academic career working in the area of stroke and later extended my efforts to include migraine. In part it also must reflect the understandable horror rightfully associated with stroke, a disorder that can abruptly transform a thoroughly capable individual into a chronic patient who is permanently disabled and fully dependent upon others for assistance with even the most basic activities of daily living. In short, stroke can kill you, and it disables more often than it kills. The same is true for migraine in terms of disability, but in the vast majority of migraineurs the disability experienced is short-lived (albeit recurrent).

So how do migraine and stroke intersect?

Migraine and Stroke Risk

- For reasons not entirely clear, migraine appears to convey approximately a 2- 3 fold increased risk of stroke relative to age-matched individuals free of migraine.
- Most of this risk appears to reside in migraineurs with a history of aura.
- There is an 8-fold increased risk of stroke in females who have a history of migraine with aura and also use an estrogen-containing oral contraceptive (OCP); that risk is further increased by cigarette smoking or hypertension.
- This 8-fold increased risk of stroke in female migraineurs with aura who use an estrogen-containing OCP translates into approximately a 1 in 12,000 absolute risk of stroke annually.
- Stroke complicating an episode of migraine with aura is termed migrainous infarction.
- The precise mechanism(s) by which acute migraine may cause acute stroke is unknown.
- The majority of strokes suffered by migraineurs do not occur during periods of acute migraine.

Bottom Line

- Why migraine increases stroke risk and how it may directly (or indirectly) cause stroke are unknown.
- While migraine is a risk factor for stroke, it is by no means an especially potent risk factor.
- Annually in the United States, there occur about 1,000 strokes in the migraine population (~36 million people) which possibly can be attributed to acute migraine.
- Even in the female/migraine with aura/estrogen-containing OCP use group with the 8-fold increased risk of stroke, the annual absolute risk of stroke is very low.

Recommendations

- Identify and aggressively treat any modifiable stroke risk factors you may have (hypertension, diabetes, cigarette smoking, atrial fibrillation (a common heart arrhythmia), elevated total blood cholesterol level or "bad" cholesterol fraction (i.e., low-density lipoprotein/LDL).
- Adopt a brain healthy/heart healthy diet and aerobic exercise program, and keep your body mass index (weight) within the normal range.
- If you are a female migraineur with a history of aura, consider a method of contraception other than an estrogen-containing OCP. If you do choose to begin an estrogen-containing OCP or switch preparations, consult your health care provider (HCP) if a) you have no history of aura and begin to develop aura symptoms, b) have a history of aura, and your aura symptoms become more frequent or otherwise prominent, or c) if your episodes of aura become more prolonged (especially if they are lasting more than an hour).
- Do not smoke cigarettes, and check with your HCP to confirm that any medication you are may be taking for migraine prevention will not decrease the effectiveness of the OCP.