Migraine: The Basics

WHAT IS MIGRAINE?
Migraine is a common type of headache that may occur with symptoms such as nausea, vomiting, or sensitivity to light. In many people, a throbbing pain is felt only on one side of the head. Some people who get migraines have warning symptoms, called an aura, before the actual headache begins. An aura may include flashing lights, zigzag lines, or a temporary loss of vision. People with migraine tend to have recurring attacks triggered by a number of different factors, such as stress, hormonal changes, bright or flashing lights, lack of sleep, and certain foods.

HOW COMMON IS MIGRAINE?
Migraine affects more than 10 percent of people worldwide and is three times more common in women than in men.

WHAT CAUSES MIGRAINE?
People with migraines may inherit the tendency to be affected by certain migraine triggers. A migraine begins when hyperactive nerve cells send out impulses to the blood vessels, causing them to clamp down or constrict, followed by expansion (dilation) and the release of inflammatory substances such as prostaglandins that cause the pulsation to be painful. Migraine in some women may relate to changes in hormones during their menstrual cycle.

HOW IS MIGRAINE TREATED?
Drug treatments fall into one of two major categories: acute medications, used to treat the pain of a migraine at the earliest onset of symptoms; and preventive medications, taken regularly to reduce the frequency of migraine attacks. Acute medications for migraine can also be divided into two categories: analgesics, which ease the pain; and abortive medications, which are designed to stop the headache in its tracks.

Analgesics include acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen and naproxen sodium. These medications aren't specifically aimed at treating migraines but are designed to relieve pain throughout the body. Narcotics, such as codeine and meperidine (Demerol), are another type of acute medication sometimes prescribed for migraine.

Abortive medications include ergotamine, which is thought to work directly on certain migraine pathways; and the triptans, which constrict blood vessels in the brain and relieve swelling. At least five different triptans are now on the market for treatment of migraines: almotriptan (Axert), frovatriptan (Frova), rizatriptan (Maxalt), sumatriptan (Imitrex), and zolmitriptan (Zomig).

Preventive medications include calcium channel blockers and beta-blockers, which are both blood-pressure drugs. Propranolol (Inderal) and timolol (Istalol) are beta-blockers that have been approved specifically for migraine prevention by the Food and Drug Administration (FDA); others are being studied. Antidepressant medications, including certain tricyclic antidepressants, serotonin-norepinephrine reuptake inhibitors (SNRIs), and selective serotonin reuptake inhibitors (SSRIs), are also sometimes prescribed as preventive medications. It's thought that these drugs may work better in patients who have depression as well as migraine. Finally, antiepileptic drugs may be prescribed to prevent migraine. Divalproex sodium (Depakote) and topiramate (Topamax) are the only antiepileptic drugs currently approved by the FDA for migraine prevention.

WHAT RESEARCH IS BEING DONE?
The National Institute of Neurological Disorders and Stroke (ninds.nih.gov) conducts research into migraine. Researchers are searching for genetic mutations that might contribute to migraine. For example, in 2010, a team of researchers found a common mutation in the gene TRESK, which contains instructions for a potassium channel. Potassium channels are important for keeping a nerve cell at rest. Mutations in these channels can lead to overactive cells that respond to much lower levels of pain. Large genetic analyses similar to the one used to identify TRESK will most likely lead to the identification of a number of other genes linked to migraine.

For more Neurology Now articles on migraine, go to bit.ly/1hXmc8y.

For more resources and support, contact:
- American Headache Society Committee for Headache Education (ACHE); achenet.org; 856-423-0043
- Migraine Research Foundation; migraineresearchfoundation.org; 212-249-5402
- National Headache Foundation; headaches.org; 888-NHF-5552 (888-643-5552)

Sources: National Library of Medicine; National Institute of Neurological Disorders and Stroke; Cleveland Clinic; Neurology Now.