Imaging Important for Secondary Headache Dx

Pathologic organic processes account for up to 16% of emergency visits attributable to headaches.

BY KERRI WACHTER
Senior Writer

ORLANDO, FLA. — Neuroimaging is key to diagnosing relatively rare secondary headaches, one expert said at the annual meeting of the American Society of Neuroimaging.

"Secondary headaches are where neuroimaging is of paramount importance," said Laszlo L. Mechtler, M.D., director of the headache center at Dent Neurologic Institute in Buffalo, N.Y.

Secondary headaches represent a symptom of a pathologic organic process and are associated with more than 316 disorders and illnesses, posing a diagnostic challenge. The causes of these headaches can be serious and life threatening. Secondary headaches account for up to 16% of annual emergency department visits that are attributable to headaches, according to Dr. Mechtler.

Physicians should rely on several red flags to trigger an imaging study to investigate the possibility of secondary headache, he pointed out.

Dr. Mechtler discussed the use of neuroimaging in diagnosing several types of secondary headaches.

Subarachnoid hemorrhage is classically described as the "worst headache of my life," but be careful when patients say that. Only 12% of the patients who present to the emergency department with this type of headache actually have subarachnoid hemorrhage, if the neurologic examination is normal. The percentage jumps to 25% if the neurologic examination is abnormal, Dr. Mechtler said. "So even with the worst headache of your life, we're still talking primary headaches."

For a patient presenting with "the worst headache of my life," in the first 24 hours, CT is the study of choice, Dr. Mechtler said. According to the literature, the probability of recognizing a subarachnoid hemorrhage on CT during the first 24 hours is 95%. At 1 week post onset, that probability drops to 50%.

"Interestingly, FLAIR [fluid-attenuated inversion recovery] MRI has really changed our perception of subarachnoid hemorrhage," he said. Recent studies have shown that FLAIR MRI is as sensitive as CT between 1 and 7 days. "After 4 or 5 days, FLAIR is probably even more sensitive than CT itself."

Neuroimaging is very important in the diagnosis of carotid/vertebral arterial dissections, in which headache is the most common symptom. "But this headache has no classic symptoms," Dr. Mechtler said.

This condition is relatively rare, occurring in only 3 of 100,000 carotid dissections and 1.5 of 100,000 vertebral dissections. There are multiple causes, which include an underlying arteriopathy (Ehlers-Danlos and Marfan syndromes); fibromuscular dysplasia; minor trauma, hyperextension, or rotation of the neck; major trauma or sports injuries; and possibly even chiropractic manipulations.

In vertebral dissections, the headache usually precedes neurologic symptoms by about 15 hours. Neck pain is also common in these patients, and there is the possibility of a brain stem infarct, as well. "Any time you have neck pain [or] headaches, and the patient might have a risk factor, consider dissection in your differential diagnosis," Dr. Mechtler said.

MRI of possible dissections involves the use of special fat-suppression protocols that allow visualization of the double lumen. Magnetic resonance angiography has been very useful in the diagnosis of dissections, particularly vertebral artery dissections, he said.

Cerebral venous thrombosis can have several variations. The classic CT scan sign is the empty delta sign, Dr. Mechtler said. The sign consists of a triangular area of enhancement or high attenuation with a relatively low-attenuating center on multiple contiguous transverse CT images obtained in the region of the superior sagittal sinus.

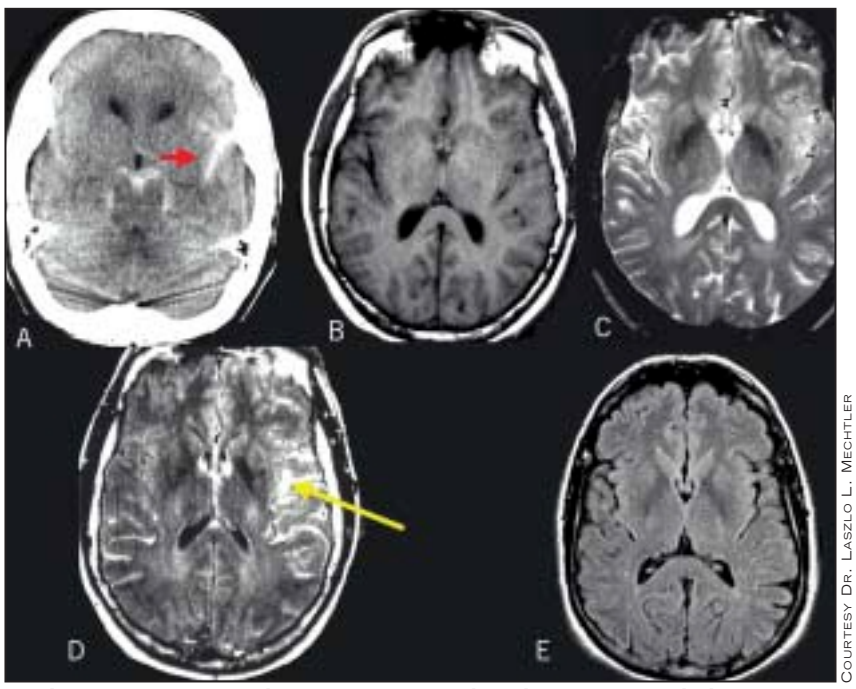
It's not uncommon for the findings to consist of an atypical arterial distribution vascular event. Often, this type of case is sent on to a neurooncologist for evaluation of a possible glioblastoma multiforme.

Most adult patients with intracranial neoplasms don't have headaches initially. "It's a myth that brain tumors cause headaches often," Dr. Mechtler said. Headache is present in only about 50% of cases of intracranial neoplasm.

Headache frequently does occur when there is a mass in the posterior fossa or around the meninges, he said.

In children, though, headaches are associated with intracranial neoplasms—two-thirds of childhood tumors are intratentorial.

When a glioblastoma multiforme spreads across the corpus callosum to the contralateral side, a butterfly shape can be seen on a coronal view MRI. Dr. Mechtler also noted that headaches are associated with glioblastoma multiforme when subependymal spread can be seen on MRI. ■



COURTESY DR. LASZLO L. MECHTLER

To diagnose subarachnoid hemorrhage, CT imaging (A) done within 24 hours of headache is the study of choice, compared with MR T1- (B) and T2- (C) weighted images. Red arrow points to blood within the sylvian fissure. FLAIR image (D) is as sensitive as CT between 24 and 72 hours and more sensitive after 72 hours. Yellow arrow points to blood. Normal FLAIR (E) also shown.

Use Factors Besides Efficacy to Guide Neuropathic Pain Tx

BY SHERRY BOSCHERT
San Francisco Bureau

SAN DIEGO — Medications for chronic neuropathic pain share similar efficacy, so choose therapy based on safety, tolerability, and ease of use, according to Scott M. Fishman, M.D.

"Each drug that we use has been studied in one or two different neuropathic pain disorders and found to be relatively efficacious, but there's no drug that's been tested in all the disorders," and few head-to-head comparisons exist, he added at a psychopharmacology congress sponsored by the Neuroscience Education Institute.

One exception in efficacy may apply to patients with shooting, lightening-bolt types of neuropathic pain as is seen with trigeminal neuralgia. For these patients, carbamazepine, baclofen (Lioresal), or tizanidine (Zanaflex) may be more effective than other medications, said Dr. Fishman, chief of the pain medicine division and professor of anesthesiology and pain medicine at the University of California, Davis. For other chronic neuropathic pain, traditional oral analgesic therapies contain either anticonvulsant or antiarrhythmic properties. An explosion in the number of anticonvulsants in the past decade has brought safer options to market.

Nationally, gabapentin (Neurontin) is the top first-line drug used in pain clinics to treat chronic neuropathic pain, not because it's most effective but because it's safer, he said. Dr. Fishman has been a speaker and researcher for Pfizer Inc., the company that makes Neurontin.

Neurontin is not metabolized by the liver, nor does it bind to protein—two traits that greatly reduce the risk of drug-drug interactions, compared with other conventional anticonvulsants including carbamazepine, valproic acid, lamotrigine (Lamictal), and topiramate (Topamax).

"If patients have neuropathic pain, they tend to have systemic diseases, they're often on a lot of other drugs, and drug interactions are a big concern," he said.

Both the newer and older anticonvulsants for neuropathic pain can still cause major side effects, especially a "cognitive clouding" distinct from fatigue or sleepiness, he added. Other common side effects include fatigue, anorexia, kidney stones, rash, dizziness, drowsiness, visual side effects, and enzyme induction that can decrease the effectiveness of oral contraceptives. Less common side effects include hepatotoxicity, myeloma, and behavioral disinhibition syndromes.

Recent approval of pregabalin (Lyrica), which Dr. Fishman called "son of Neurontin" because it has the same mechanism of action, offers the advantages of easier dosing, linear pharmacokinetics, quicker onset of action, and efficacy from relatively modest doses in treating neuropathic pain, he said. Pfizer Inc. makes Lyrica; Dr. Fishman has been a speaker and researcher for the company.

Another medication, duloxetine (Cymbalta), won approval recently after a speedy review as both an antidepressant and an analgesic for diabetic polyneuropathy, "which really can translate to all the neuropathic pain states," he said. The dual serotonin-noradrenaline reuptake inhibitor "is the first drug I've seen in my career get approved by the Food and Drug Administration for pain without a single published trial" on pain relief.

Tricyclic antidepressants also could provide dual relief for depression and neuropathic pain if you could get patients to tolerate high enough doses, but a long list of serious side effects makes that impossible. Many primary care physicians and primary care specialists may not be aware of the potential for seizures and cardiac problems with tricyclic antidepressants, he added.

"We see patients being put on tricyclics for diabetic neuropathy all the time without getting an ECG, and these are patients who almost certainly have small-vessel cardiac disease and a high probability of proarrhythmic potential," he warned.

Among other antidepressants, venlafaxine (Effexor) may be a potent neuropathic analgesic, preliminary studies suggest. The mechanism of its analgesic properties is not understood. ■