



HEADACHES & MIGRAINES

Spontaneous Intracranial Hypotension

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Low-pressure headache, or spontaneous intracranial hypotension (SIH), is a condition that may be underrecognized. SIH is caused by a leakage of cerebrospinal fluid (CSF) somewhere along the spine from the dural membrane, causing low CSF volume. Its incidence is estimated at 5/100,000, similar to esophageal cancer.

It can affect anyone; however, it is most common in women 35-55 years of age. Known risk factors include whiplash-like injuries, previous dural injury or puncture, and connective-tissue disorders such as Ehlers Danlos, joint hypermobility or Marfan syndrome.

Types and Causes

There are three primary types:

- Punctured or linear tear of the dural or nerve root sleeve as result of unintentional or unhealed spinal puncture or spinal osteophytes causing abrasion
- Dural defect of meningeal diverticulum such as Tarlov cysts or diffuse dilatations of dural sac such as occurs in ankylosing spondylitis
- Spinal CSF-venous fistula

Listed causes of onset seem to consist of almost any compressive or forceful activity you can consider, including yoga, motor-vehicle accidents, heavy lifting, bending over, or any other more or less trivial nonpenetrating injury. The most commonly reported is from prior dural puncture during epidurals or spinal taps that either didn't heal or for some reason reopened. SIH has also resulted after spinal surgery with accidental puncture of the dura.

Presenting Symptoms

Its hallmark symptom is an orthostatic headache that may reveal itself soon after rising from a recumbent posture or during the second half of the day, and resolves or improves with lying down. Other common symptoms include exertional headache with Valsalva-type maneuvers, fatigue, vertigo, disequilibrium, pulsating tinnitus, feeling of ear fullness, nausea, photo- or phonophobia,

and visual blurring.

Less common symptoms include changes in personality, cognitive impairment, tremor, syncope, and bilateral painless arm weakness (bibrachial amyotrophy) when chronic.

Diagnosis / Screening

Over time, the headache component may lessen or fade into the background of other S/S. Current diagnosis criteria from the International Classification of Headache Disorders (ICHD-III) has been shown in recent studies to miss a significant majority of positive SIH patients due to normal or near-normal CSF pressure in these patients.

Diagnosis is by evidence found on MRI and CT myelogram (CTM), though new studies have shown more accurate findings via dynamic CTM with positional and breathing factors, rather than static CTM.

A referral to a neuroradiologist may be the best route for direct-care providers such as chiropractic physicians, as diagnosis is quite involved. Insist on utilization of the BERN scale when evaluating the brain MRI, as it has a higher success rate in indicating SIH than the typical review.

There have been numerous cases of a suspected Chiari malformation actually being SIH with “brain sag” and the S/S persisted even after Chiari release. These will be more easily found using the BERN scale.

As a screening test, have the patient lie flat supine for 48 hours, only getting up to go to the bathroom. If resolution of headache or other symptoms occurs, it is worth going down the diagnostic pathway. Some patients either are not aware of the orthostatic nature of their headache or that component has faded into the background.

Interestingly, there is considerable overlap with SIH and POTS (postural orthostatic tachycardia syndrome) and it has been suggested that all suspected POTS patients also be considered for SIH.

Differential diagnoses include occipital neuralgia, migraine, trigeminal autonomic cephalgia, subarachnoid hemorrhage and adrenal dysfunction. Elevated CSF protein may be a sign of CSF leak, but aseptic viral meningitis must also be ruled out. Elevated prolactin or enlarged pituitary may also be seen as signs.

Treatment

Treatment is typically successful with one epidural blood patch, although it does sometimes require multiple patches for resolution of the dural leakage. For CSF-venous fistulas, there has been success with embolization. Sometimes microsurgical repair of the tear or fistula is necessary. There is a rare occurrence of rebound hypertension after correction, but it is usually self-limiting.

Chiropractic Relevance

I bring this to your attention because in the literature there are at least five cases that have been linked to chiropractic adjustments. To the medical authors’ credit, they did acknowledge that in only one case did S/S appear after the adjustment, while in the other four, the patients presented to the chiropractic office with the S/S hoping for relief from CMT.

These do walk into our offices. I suspect I have seen a couple, but didn’t know what to look for. I hope this helps you.

Resources

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