

New Daily Persistent Headache

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New daily persistent headache (NDPH) is a unique subtype of chronic daily headache. It is marked by a daily headache from onset and many patients can actually name the exact date their headache began. In many individuals, this is their first ever headache. In those with a prior migraine history, these daily headaches are a distinct change in headache frequency and not a slow progression to daily headache that is noted with chronic migraine. NDPH is a newly recognized headache disorder which was first described in 1986.¹ It is considered one of the more treatment-refractory of all headache conditions. This may reflect our current lack of understanding of its pathogenesis. When the disorder was first recognized, it was thought that all individuals with NDPH had the same condition, while now it is apparent that multiple disorders can cause a daily headache out of the blue. Thus, a single unifying pathogenesis theory is unlikely.

Primary NDPH can present in 3 patterns²

- a. Self-limited form: Within 1-2 years of headache onset the headaches will stop on their own regardless of intervention
- b. Refractory/Progressive form: The headaches continue unabated regardless of treatment and can last years to decades
- c. Relapsing/remitting form: NDPH starts and ceases but then restarts at a later time

Current ICHD3-beta criteria for NDPH.

- A. Persistent headache fulfilling criteria B and C
- B. Distinct and clearly remembered onset, with pain becoming continuous and unremitting within hours
- C. Present for >3 months
- D. Not better accounted for by another ICHD-3 diagnosis.

For a diagnosis there is no mention of headache associated symptoms.

Epidemiology: This is not truly known especially in non-clinic based populations. For clinic based studies, around 12% of chronic daily headache patients are diagnosed with NDPH.³

Gender: The disorder can affect both males and females but young females (many below the age of 20 years) appear to be the majority of cases. There is a distinct subtype of NDPH (that is triggered by surgery) which appears to occur in an older population.³

Triggering events: In greater than 50% of cases, the patient cannot recognize a triggering event for headache onset. Of those recognized triggering events (this list is ever expanding), the most

common is infection in 20% (headache begins during an illness, usually viral, but after the infectious symptoms wane the headache continues), post-surgical in 10% and post stressful life event in 10% (from a single event, not buildup from multiple stressors). Other recently recognized triggers include withdrawal from SSRI's, HPV vaccine exposure and chemical exposure.^{2,4}

Evaluation: All patients with NDPH require neuroimaging and the suggested minimal evaluation is brain MRI with and without gadolinium and MR venogram. In most instances imaging in this population is normal, unless a secondary causation is present.⁵

Clinical symptoms: NDPH is a daily headache from onset. The pain is typically bilateral (if unilateral then the differential changes) and persistent without pain free moments. The pain is normally moderate to severe in intensity and migrainous associated symptoms are very common. If one looks at the headache alone without the temporal profile of onset many of these patients meet ICHD criteria for chronic migraine.

Pathogenesis: At present there is no unifying pathogenesis theory. Several thoughts on possible causation include:³

1. Autoimmune/inflammatory/lack of ability to turn off inflammation-this may explain the post-infectious variant
2. A cervicogenic disorder: In younger patients this may be from underlying cervical hypermobility issues and the subsequent upper cervical facet irritation that develops because of this condition. In the postsurgical subgroup, the headache may be explained by an exacerbation of underlying cervical facet inflammation. Most, if not all, of these patients are intubated prior to headache onset.
3. Venous theory: Alteration in venous flow or congenital issues in cerebral venous flow lead to NDPH
4. Multifactorial issues

Secondary disorders mimicking NDPH: All patients with a daily headache from onset must be ruled out for secondary underlying conditions. The most frequent mimics are cerebral vein thrombosis and a spinal CSF leak. Other possible causes include: elevated CSF pressure, nasal contact syndrome, sphenoid sinusitis, and neoplasm.

If NDPH is one-sided, the differential diagnosis includes: cerebral vein thrombosis or vein occlusive syndrome, sphenoid sinus lesions (sinusitis, fungal, mass), CSF leak, cervicogenic headache, nasal contact syndrome, cavernous sinus lesion, aneurysm, carotid dissection, central nervous system vasculitis and, based on age, giant cell arteritis. Other primary headaches including trochlear headache and hemicrania continua can present as a daily headache from onset and thus be labelled NDPH although they are disparate conditions with specific treatments

Treatment

At present no specific treatment strategy can be suggested for primary NDPH based on clinical evidence. Most headache specialists will therapy NDPH with the same acute and preventive medications that they use to treat chronic migraine although based on non-response to most of these medications, NDPH and chronic migraine are two disparate syndromes. One should consider specific treatment options based on NDPH triggering event. If post infectious and viral titers are elevated consider antiviral therapy. If post-surgical and cervical irritation is noted on exam consider neck treatment (muscle relaxant and anti-inflammatory), high cervical nerve blocks or onabotulinumtoxin A injections.

In the literature the following have shown some efficacy for NDPH in small case based studies⁽³⁾: Doxycycline, mexiletine, IV Corticosteroids, nerve blockade, gabapentin, topiramate.

Key points in regard to NDPH

1. Always rule out a secondary cause of the daily headache. Every patient with NDPH requires a MRI brain with and without gadolinium and a MR venogram. If the headaches began as a thunderclap or there are associated neurologic symptoms along with head pain then MRA head and neck is suggested.
2. Try to determine a triggering event for NDPH if possible as that may help to establish an underlying pathogenesis theory and treatment (post-infectious, post-surgical, post-stressful life event).
3. Always ask about the first ever headache and temporal profile of that headache onset. There is a distinct form of NDPH that starts with a thunderclap headache and in that setting the evaluation is different (include arterial studies with imaging) and one may consider nimodipine as a preventive choice if no secondary cause is noted.
4. Utilize the Trendelenburg test to help with diagnosis. If a patient improves in head down tilt position consider evaluation for a CSF leak.
5. Evaluate for cervical hypermobility as if there is no triggering event and significant cervical irritation on exam, the predisposing cause of the headaches is probably related to hypermobility issues.
6. Be aggressive with therapy up front especially if you meet an individual within one year of headache onset. Treating with infusion therapy or inpatient therapy with intravenous medications (even with standard migraine protocols) may help break cycle. This is less effective years into syndrome.

Select References

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