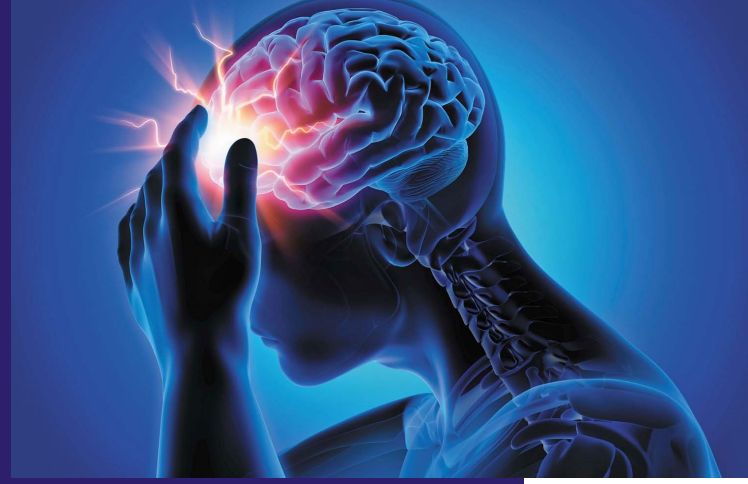
New Daily Persistent Headache



Dr. Amy Wilcox Voigt

Neurology Clerkship Director
Associate Professor of Neurology

LSUHealthNewOrleans
School of Medicine

Department of
Neurology

Disclosures

- I have served as compensated speaker for Teva, Biogen and Abbvie
- There are no FDA approved therapies for New Daily Persistent Headache

Objectives

- To describe the clinical features, etiology and associated features of New Daily Persistent Headache (NDPH)
- To address differential diagnosis and mimics of NDPH
- Address management of NDPH

Patient Case - classic

- 32 yo woman presents to clinic with complaint of 'constant headache'
- Specifically knows it started while she was standing at whiteboard, speaking and teaching her 3rd grade class
- Felt it started as 'achy but not severe'. She took ibuprofen while at school and was able to continue working that day
- Non migranous, no other features, but headache has been there 'ever since, every day, all day'
- Has not responded to OTC medication, allergy medication, sumatriptan that was prescribed by her Ob-Gyn

LSU Health New Orleans
School of Medicine

Department of
Neurology

Criteria

Table 1 International Classification of Headache Disorders, 2nd edition criteria for new daily-persistent headache[a]

A. Headache for more than 3 months fulfilling criteria B-D[a]

B. Headache is daily and unremitting from onset or less than 3 days from onset

C. At least 2 of the following pain characteristics:

1. Bilateral location
2. Pressing/tightening (nonpulsating) quality
3. Mild or moderate intensity
4. Not aggravated by routine physical activity such as walking or climbing stairs

D. Both of the following:

1. No more than one of photophobia, phonophobia, or mild nausea
2. Neither moderate or severe nausea or vomiting

E. Not attributed to another disorder

[a]The revised criteria for new daily-persistent headache[5] do not require C or D.

Classification Committee of the IHS, Cephalalgia 2018; Goadsby PA Headache 2011

Clinical Features:

- Headache Features:
  - Clearly remembered onset
    - 42% remember exact day
    - 79% remember exact month
  - Bilateral pain, similar to CM or CTTH
  - Lasting at least 3 months
    - Prior to 3 months is 'probable' NDPH
- Associated Features:
  - Nausea, photo/phonophobia
  - Autonomic symptoms
  - Allodynia
  - Co-existing anxiety or depression

Li D and Rosen TD Cephalalgia 2002 Robbins MS et al, Neurology 2010 Evans RW Turner DP, Headache 2021

Another Patient Case

- 46 year old female physician, seen for 'constant headache x 9 months'.
- Was previously a migraine patient over previous 10 years – migraines responded to Topamax 50mg QD and fioricet or rizatriptan prn. Migraines improved significantly after stopping oral contraceptives. She discontinued topamax and was only seen for annual appointments.
- She developed acute COVID infection 9 months prior. During infection she had mild symptoms of congestion, fever, malaise, mild headache for 7-10 days. Most COVID symptoms resolved but headache persisted. Also has continued malaise, muscle aches and new onset blood pressure instability.
- Describes headache as present upon awakening, worsening as day continues, mild relief with resting but no resolution.
- Mild photo and phonophobia but no nausea; not as severe as previous migraines
- Has not responded to OTC, rizatriptan, topamax; is now using Fioricet 1-2/day

LSUHealthNewOrleans
School of Medicine

Department of
Neurology

Associations

- Infection (10-30 %)
  - EBV, CMV, HSV, COVID
  - Seasonal
  - Migraine progression in post infectious
- Stressful life events (10-20%)
  - Onset of school year
- Vaccines (Rare)
  - VZV, influenza, HPV
  - Covid (22-29% vs 10-12% in placebo)
- Other
  - Hypothyroidism
  - Anti-depressant wean
  - Secondary causes – hypermobility syndromes, valsalva, post-surgical/intubation

Li D and Rosen TD Cephalalgia 2002 Evans RW Turner DP, Headache 2021 Rosen TD Cephalalgia 2019, 2019

Epidemiology

- Prevalence
  - 0.03-.1% general population
  - 1.7-10.8% adult headache clinic
  - 13-36% pediatric neurology clinic
- Incidence
  - 17-19% increase after onset COVID, terrorist attacks
- Female:Male
  - 1.1-2.6: 1
- Age
  - 10-50s range age of onset
  - 30s-40s median age
- Geography
  - Most regions/ no specific ethnic predominance
- Co-Morbidities
  - 62.2% depression
  - 45.9% anxiety
  - Sleep disturbance in pediatric onset

Diganostic Testing

- Genetics
  - unknown
- Serum
  - Thyroid levels – consider hypothyroisidm mimic
  - COVID biomarkers for long COVID
- CSF
  - TNF-a (non-specific)
- Structural Imaging
  - MRI 'abnormalities' present in 8-13% - White matter changes
- Functional Imaging
  - decreased blood flow in multiple right hemisphere cortical areas
  - decreased thickness is multiple cortical areas
  - Altered functional connectivity in areas involved in emotional and cognitive pain regulatio

Rozen T et al, Headache 2007 Peng KP et al, Cephalgia 2011 Bai X et al J Headache Pain 2022

Patient Case – our 32 year old teacher

- Physical Exam - grossly normal
  - Frustrated and occasionally emotional while discussing history but otherwise completely normal neurologic exam
- Labs
  - Done by Ob-GYN prior to visit and all wnl
    - *Baseline CNC, CMP, Thyroid panel, ESR/CRP, ANA*
    - *COVID negative*
    - *'Hormones normal"*
- Imaging
  - Brain MRI with Contrast essentially wnl
    - *few scattered white matter lesions*
    - *No evidence of CSF leak*

NEJM 2017; 377:2113-2122 JAMA 2018; 319 JAMA Neurology 2018; 75

Patient Case – our 46 year old physician

- Exactly the same labs and Imaging
- LP with normal opening pressure, tested for biomarkers as part of CDC long COVID study
- Autonomic insufficiency found through cardiology diagnostics

NEJM 2017; 377:2113-2122 JAMA 2018; 319 JAMA Neurology 2018; 75

Evaluation

- History -
  - look for pre migraine and possibility of evolution
  - Tempo of onset – is this truly 0 to 60
- Physical Examination
  - any evidence of hypermobility, Trendelenburg
- Neuroimaging
  - MRI brain +/- contrast
  - MRI spine
- Labs
  - Thyroid function, ESR/CRP, Lyme (select)

Lancet 2017; 16(6) 425-434 EJM 2017; 377:2113-2122
Neurology 2018; 91e:2221

Treatment

- General consensus is to treat NDPH based on its phenotype
  - migraine vs tension vs cervicalgia
    - 40-41% across all studies
- Acute treatments:
  - Traditionally triptans, consider gepants
  - TTH – NSAID, muscle relaxant
  - Devices – not significant evidence
- Preventive treatments:
  - All have 'some evidence' - TCAs, TPM, VPA, B-Blockers, anti-CGRP, onobotA
  - Nerve Blocks
- Other strategies
  - Doxycycline, low dose naltrexone – no peer reviewed evidence

Rozen T et al, Headache 2007, 2009 Peng KP et al, Cephalalgia 2011 Greene BK et al Pedia Neurology 2021 Prakash S Shah ND, J Headache Pain 2010 Reidy BL et al Cephalalgia 2020 Buture A Cephalalgia 2023 Reidy BL

Treatment

- Behavioral Therapies
  - Outside CBT
- Patient Counseling – What starts the headache is not always what pushes it
  - Address patient specific goals –
    - may not cure, but make manageable
  - Medication overuse

- Neurologic management of other conditions
  - POTS, fibromyalgia, erythromyelgia, long COVID

Prognosis

- Multiple studies – resolution from 68%-86% in 'best outcome'
  - In all studies, the sooner patient had intervention, the better the long term outcome

Vanast WJ, Headache 1986 Peng KP et al, Cephalalgia 2011 Robbins MS et al, Neurology 2012 Kim J et al J Headache Pain 2016

Patient Follow Up

- 32 year old teacher
  - Non responsive to many oral preventives; currently on combination onobotA and anti-CGRP with daily headache but reduced pain
  - -uses OTC excederin no more than 3x/week for breakthrough and has returned to work

- 46 year old physician
  - Best response has been to atogepant after having severe site reactions to injected anti-CGRP, with gepant for severe headache
  - Also has shown overall benefit with treatment of autonomic insufficiency
  - Sees behavioral therapist and has returned to work

Summary: New Daily Persistent Headache

- Daily headache that starts acutely and is diagnosed after 3 months
- Exclude other primary or secondary headache diagnoses
  - SIH, CSF venous-fistulas
- Clinically can resemble Chronic migraine or tension type
- Likely due to multiple entities and is not one specific disorder
- Symptomatic treatment is same as acute and preventive for migraine