

Successful treatment of Hemicrania Continua with Phenobarbital

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Introduction

Hemicrania Continua (HC) is a type of migraine and it is included under the subdivision of Trigeminal autonomic cephalalgia on the basis that the pain is always unilateral, chronic, persistent in nature, and cranial autonomic symptoms are present.

Diagnosis criteria according to ICHD (International Classification of Headache Disorders)

- a. Unilateral headache fulfilling criteria b-d
- b. Present for >3 months, with exacerbations of moderate or greater intensity
- c. Either or both of the following: 1. At least one of the following symptoms or signs, ipsilateral to the headache:
 - a) conjunctival injection and/or lacrimation
 - b) nasal congestion and/or rhinorrhea
 - c) forehead and facial sweating
 - d) miosis and/or ptosis2. a sense of restlessness or agitation, or aggravation of the pain by movement
- d. Responds absolutely to therapeutic doses of indomethacin
- e. Not better accounted for by other ICHD-3 diagnosis.

Case description

- 43 years old female presented with persistent right-sided headache and periocular pain for about three years after a right corneal laceration. The pain was episodic, severe, rated at 8 on a numeric pain scale from 0-10, associated with ptosis, “red-eye,” laceration, and right-sided periocular pain radiating to the right side of the occipital region posteriorly, and lasted for a few days.
- Physical examination revealed a right-sided red sclera, puffiness, and congestion around the eye.
- She was diagnosed with autonomic migraine by a neurologist and placed on various medications, including Motrin, Aleve, Zolmitriptan, nortriptyline, topiramate, gabapentin, and acetaminophen-caffeine-dihydrocodeine with no significant relief.
- Subsequently, she received a right third occipital nerve block followed by a radiofrequency ablation and right C0/C1 and C1/C2 joint blocks, as well as a right sphenopalatine ganglion block. All of the above procedures failed to achieve sustained pain relief.
- Brain MRI (09/2019): 2 tiny nonspecific T2 FLAIR white matter hyperintensities in the right parieto-occipital periventricular white matter with differential considerations.
- MRI of the orbit reveals evidence for prior lens surgery on the right.
- MR angiogram (09/2019): Unremarkable MR angiogram of the Circle of Willis.
- MRI cervical spine (08/2020): Tiny central protrusion at C6-C7 and minimal bulging disc at C5-6

Treatment

- Acetaminophen-butalbital-caffeine was prescribed, and her headache initially decreased from 8/10 to 4/10 within 3 weeks, but then returned. Since butalbital is an intermediate-acting barbiturate, she was switched to phenobarbital 15 mg BID initially and titrated the dose up to 60mg TID with complete resolution of the headache and autonomic symptoms for 16 weeks so far.
- We maintained the dose of phenobarbital 60mg TID for 6 weeks and then reduced the dose to 30mg QID. Currently, patient is in the process of weaning the dose down to 30mg BID with 90% improvement in headache, no autonomic symptoms and no side effects from the medication

Discussion

- The pathophysiology of this headache is thought to involve the posterior hypothalamus, dorsal pons, ventrolateral midbrain, the trigemino-vascular complex and the parasympathetic fibers via the trigeminal autonomic reflex. Additionally, posterior hypothalamus is involved in the central modulation of nociception.
- A positron emission tomography study in HC showed activation of the contralateral posterior hypothalamus, with correlates with hypothalamic activation in Cluster Headache and the trigeminal autonomic cephalalgias (TACs) and ipsilateral dorsal pontine region is similar to that seen in migraine.
- These findings, together with the clinical phenotype, suggest HC is unique and overlaps with both TACs and migraine.
- The centrally acting phenobarbital can provide the central sedation by enhancement of GABA mediated inhibition which in turn depresses the central nervous system and relieves the headache.

Conclusion

- Autonomic headache is an uncommon type of headache and can be difficult to treat. This case appears to indicate that phenobarbital may be an effective alternative treatment. Further study with large case population is needed to confirm this finding.

Reference

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