

 UNIVERSITY of MARYLAND
SCHOOL OF DENTISTRY

Headache Diagnosis and Management in the Orofacial Pain Setting

Marcela Romero Reyes DDS, PhD,FAHS
*Diplomate, American Board of Orofacial Pain
Fellow, American Academy of Orofacial Pain
Fellow, American Headache Society*

Clinical Associate Professor
Director, Brotman Facial Pain Clinic
Department of Neural and Pain Sciences
University of Maryland, Baltimore
School of Dentistry

1

Why is necessary headache medicine education for the Orofacial Pain specialist?

- Interrelated anatomy and physiology of the craniofacial and cervical structures.
- Headache disorders are very common and can affect approximately 90% of people during their lifetime (Rasmussen BK et-al, J Clin Epidemiol., 1991; Robbins MS, JAMA, 2021).
- Migraine is one of the most prevalent disabling neurological conditions, as the second leading cause of years lived with disability worldwide (Burch RC, et-al, Neurologic clinics, 2019; Robbins MS, JAMA, 2021).
- Migraine is the most prevalent primary headache observed in TMD patients (Goncalves, et-al 2010; Goncalves, et-al 2011)
- Co-morbidity between primary headaches and TMD (Cady RJ et-al, Mal Pain, 2011; Romero-Reyes M et-al, Exp Neurol. 2015; S Akerman & Romero-Reyes M, Br J Pharmacol, 2020)

2

RED FLAGS

Table 1 SNNOP10 list of red and orange flags

Sign or symptom	Related secondary headaches (most relevant ICHD-3b categories)	Flag color
1. Systemic symptoms /disorders/fever	Headache attributed to infection or nonvascular intracranial disorders; carcinoid or pheochromocytoma	Red (orange for isolated fever)
2. Neoplasm in hx	Neoplasms of the brain; metastasis	Red
3. Neurologic deficit or dysfunction (decrease in consciousness)	Headaches attributed to vascular, nonvascular intracranial disorders; brain abscess and other infections	Red
4. Onset sudden or abrupt (THUNDERCLAP)	Subarachnoid hemorrhage and other headaches attributed to cranial or cervical vascular disorders	Red
5. Older age (Above 50 y/o)	Giant cell arteritis and other headache attributed to cranial or cervical vascular disorders; neoplasms and other nonvascular intracranial disorders	Red
6. Pattern change/recent onset	Neoplasms; headaches attributed to vascular, nonvascular intracranial disorders	Red
7. Positional Headache	Intracranial hypertension or hypotension	Red
8. Precipitated by sneezing coughing or exercise	Posterior fossa malformations; Chiari malformation	Red
9. Papilledema	Neoplasms and other nonvascular intracranial disorders; intracranial hypertension	Red
10. Progressive HA and atypical presentations	Neoplasms and other nonvascular intracranial disorders	Red
11. Pregnancy or puerperium	Headaches attributed to cranial or cervical vascular disorders; postural puncture headache; hypertension-related disorders (e.g., preeclampsia); cerebral sinus thrombosis; hypertyroidism; anemia; diabetes	Red
12. Painful eye w/autonomic features	Pathology in posterior fossa, pituitary region, or cavernous sinus; Tolosa-Hunt syndrome; ophthalmic causes	Red
13. Post-traumatic onset of Headache	Acute and chronic posttraumatic headache; subdural hematoma and other headache attributed to vascular disorders	Red
14. Immune system pathology/HIV	Opportunistic infections	Red
15. Painkiller overuse or new drug onset of headache	Medication overuse headache; drug incompatibility	Red

Abbreviations: ICHD-3b = International Classification of Headache Disorders 3b; An overview of signs and symptoms, their related secondary headache, and distribution in red and orange flags.

Do TP et-al, Neurology, 2019)

3



When medical history/interview is not clear and/or could be a potential red flag, medical consultation/referral to neurology/headache specialist is essential!

4

 **Cephalgia** 

International Classification of Orofacial Pain, 1st edition (ICOP)

5. Orofacial pains resembling presentations of primary headaches

Introduction 2013

5.1 Orofacial migraine 2013

5.1.1 Episodic orofacial migraine 2013

5.1.2 Chronic orofacial migraine 2013

5.2 Tension-type orofacial pain 2014

5.3 Trigeminal autonomic orofacial pain 2014

5.3.1 Orofacial cluster attacks 2014

5.3.2 Paroxysmal hemifacial pain 2015

5.3.3 Short-lasting unilateral neuralgiform facial pain attacks with cranial autonomic symptoms (SUNFA) 2015

5.3.4 Hemifacial continuous pain with autonomic symptoms 2016

5.4 Neurovascular orofacial pain 2016

5.4.1 Short-lasting neurovascular orofacial pain 2017

5.4.2 Long-lasting neurovascular orofacial pain 2017

References 2017

5

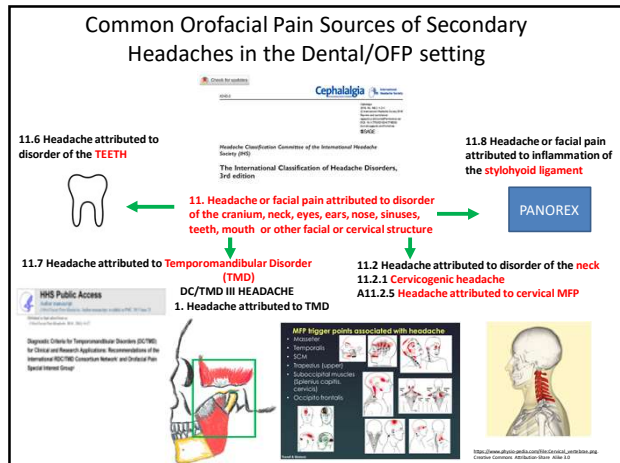


Establishing a differential diagnosis for OFPs resembling presentations of primary headaches is **ESSENTIAL!**

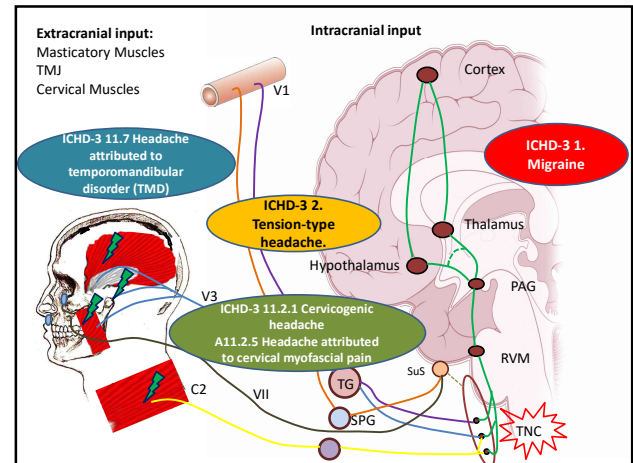
An incorrect diagnosis may lead to irreversible dental procedures and a delay in appropriate management!



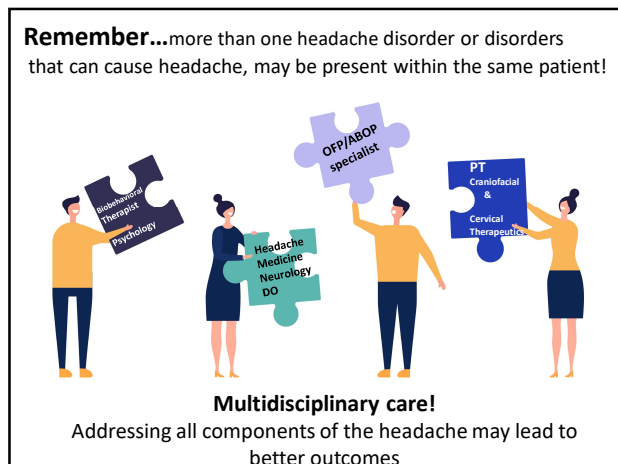

6



7



8



9



10

Acute Migraine Management with Established Evidence in Efficacy

Migraine Specific	Nonspecific
Triptans	NSAIDs: Aspirin, diclofenac, ibuprofen, naproxen, Celecoxib oral solution
Ergotamine derivatives	Combination analgesic: Acetaminophen + aspirin + caffeine.
Gepants (small molecule CGRP receptor antagonists) Rimegepant (75mg, PO) Ubrogepant (50-100mg, PO)	
Ditans (5-HT _{1F} agonists) Lasmitidan (50-200mg, PO)	

Modified from AHS 2021 Consensus Statement: Update on integrating new migraine treatments into clinical practice (Allani et al. Headache, 2021)

11

Migraine Prevention: Pharmacological approaches

Migraine Specific/Evidence Established efficacy	
CGRP monoclonal antibodies	Small Molecule CGRP Receptor Antagonists
Erenumab (SC; 70mg or 140mg monthly) CGRP Receptor Galcanezumab (SC; 240mg loading dose then 120mg monthly) CGRP Ligand Fremanezumab (SC; 225mg monthly or 675mg quarterly) CGRP Ligand Eptinezumab (IV; 100mg or 300mg quarterly) CGRP Ligand	Rimegepant (PO; 75mg, alt daily) Preventive of episodic migraine Atogepant (PO; 10mg, 30mg or 60mg, daily) Preventive of episodic migraine

Zhao YJ et al. Ann Acad Med Singapore. 2020; Allani et al. Headache. 2021; Allani J et al. N Engl J Med. 2021; Croop R et al. Lancet. 2021

12

Migraine Prevention: Pharmacological approaches

Established Efficacy		Probably Effective	
β-blockers	Propranolol Metoprolol Timolol	Antidepressants	Amitriptyline Venlafaxine
Anticonvulsants	Valproate Sodium Divalproex sodium Topiramate	Angiotensin receptor blocker	Lisinopril
Angiotensin receptor blocker	Candesartan	β-blockers	Atenolol Nadolol
Neurotoxin/neuromuscular blocker	Onabotulinumtoxin Type A	NMDA-Receptor Antagonist	Memantine
		Combination parenteral therapy	Onabotulinumtoxin Type A + CGRP mAb

Modified from AHS 2021 Consensus Statement: Update on integrating new migraine treatments into clinical practice (Alliani et al, Headache, 2021)

13

Migraine Prevention Nutraceuticals

Nutraceuticals	Likely mechanism
Riboflavin (vitamin B2; 400mg/day)	Improves mitochondrial functioning
Coenzyme Q10 (100mg, t.i.d.)	Improves mitochondrial functioning
Butterbur (50-75mg, b.i.d.)	Calcium channel inhibition; antileukotriene activity
Magnesium (400-800mg)	Blocks NMDA receptor functioning
Melatonin (3mg at night)	Hypothalamic regulation

Adapted from Robbins MS, JAMA, 2021 & Orofacial Pain Guidelines For assessment, Diagnosis and management, AAOP, upcoming 7th edition.

14

Other injectable therapies and Peripheral blocks in Headache Pharmacology

- Onabotulinum Toxin A
- Sphenopalatine ganglion Blocks (Maizels, M, JAMA, 1996; Cady R, Headache, 2015)
- Peripheral nerve blocks:
 - Greater and Lesser Occipital Nerve blocks (Young WB, Headache, 2008; Blumenfeld A et al, 2013)
 - Supratrochlear, supraorbital, and auriculotemporal injections (Blumenfeld A et al Expert Consensus Recommendations for the Performance of Peripheral Nerve Blocks for Headaches – A Narrative Review, 2013)

15

Non-Pharmacological Approaches Neuromodulation

- Neuromodulation**
 - Pain modulation by stimulation of the PNS or CNS.
 - Four devices have FDA clearance.
 - These devices have the advantage of being able to be used independently as a single therapy approach for management or together with pharmacological treatment
 - Good alternative in cases of medication overuse headache and during pregnancy.
 - Contraindications include patients with other implanted devices such as cochlear implants and pacemakers

(Digre KB, J Neuroophthalmol, 2019; Alliani et al, Headache 2021; Robbins, MS JAMA, 2021)

16

Non-Pharmacological Approaches Neuromodulation

Monotherapy or in conjunction with pharmacotherapy for acute management	Monotherapy or adjunctive therapy for preventive migraine management
Trigeminal nerve stimulation (eTNS)	eTNS
Non-invasive vagus nerve stimulation (nVNS)	nVNS
Remote electrical stimulation (REN)	
Single-pulse transcranial magnetic stimulation (sTMS)	sTMS

Adapted from AHS 2021 Consensus Statement: Update on integrating new migraine treatments into clinical practice (Alliani et al, Headache, 2021)

17

Non-Pharmacological Approaches for Preventive treatment of Migraine

- Behavioral Therapy**
 - Enhance personal control over migraine and reduce headache related psychological symptoms and distress
 - Significant stress or coping skills
 - Higher disability
 - Prefers nonpharmacological approaches.
 - Pregnancy, lactating or planning to become pregnant
 - Hx of medication overuse or MOH
 - Comorbidities
- CBT (Grade A)
- Relaxation therapies (Grade A)
- Biofeedback (Grade A)
- Mindfulness-Based Stress Reduction (MBSR) (Wells RE et al, JAMA Intern Med. 2021)

AHS 2021 Consensus Statement: Update on integrating new migraine treatments into clinical practice (Alliani et al, Headache, 2021)

18

Use of dual therapies

- As in the orofacial pain realm...
- Behavioral interventions are part of the multidisciplinary management and can improve patient outcomes (*Merrill RM & D Goodman, Oral Maxillofac Surg Clin North Am, 2016; VR et-al, JOP, 2009*)
- Combination of behavioral interventions with pharmacotherapy approaches may enhance benefits when compared to medication or either modality alone (*Harris P et-al, Br J Pain, 2015; Powers SW et-al, JAMA, 2013*)

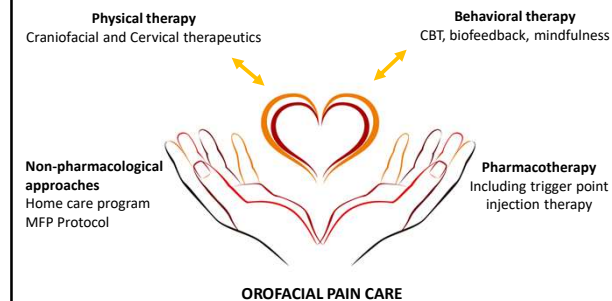
19

ICHD-3 8.2 Medication Overuse Headache (MOH)

- Headache occurring on 15 or more days/month in a patient with a pre-existing primary headache and developing as a consequence of regular overuse of acute or symptomatic headache medication.
- Check for: Triptans, ergots, acetaminophen, NSAIDs, opioids, aspirin...

20

TMD Management for the headache patient



21

Multidisciplinary care!



Building an OFP + Migraine/TTH management plan & toolbox!

22