

AMERICAN ACADEMY OF NEUROLOGY HEADACHE & FACIAL PAIN FELLOWSHIP CORE CURRICULUM

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1. Introduction

Headache medicine with an emphasis on Migraine has been a “work in progress” since the initial publications of Wolff in the late 1930’s and 1940’s. Fundamental understanding of the processes underlying the majority of recognized head pains has grown as technologies and evidence base have been applied to this common area of medical diagnosis and treatment. Along with this expansion of our understanding has come an increasing demand for improvements in diagnosis and treatment of complex, chronic or comorbid headaches. Patients and payers are becoming more educated about the potential benefit which sub-specialty consultation can offer. Of greater importance is the recognized need for improving the acumen of the non specialist regardless of their field of endeavor, as headache is a ubiquitous phenomena associated with a vat array of commonly encountered medical and surgical disorders. A subspecialty-trained neurologist well versed in the current study and practice of headache medicine can best perform this function.

2. Goals & Objectives

The purpose of a core curriculum is to provide the minimum basic knowledge required for adequate practice of headache medicine. Headache medicine has the following components:

- a. Basic Science
- b. Clinical Science including drug trials
- c. Clinical Practice
- d. Teaching

In each domain, published knowledge is available to train practitioners, but also to introduce the concepts necessary for further study in any of the designated areas, i.e. for the purpose of creating clinician scientists, etc. As well a core curriculum in any area must provide appropriate learning to teach to others the scope of necessary knowledge appropriate to their area, e.g. family practice, internal medicine, etc. This function is fundamental to the perceived need for Neurology sub-specialty training in headache medicine. Excluded are areas where knowledge is either too sparse or so esoteric as to be intrinsic to that area such as the question: ?do pituitary microadenomas cause headache (posed to the neurosurgeon).

The Core Curriculum for Neurology Fellowship Training in headache medicine should adequately address the following core concepts:

- a. The mechanism of migraine and the applicability of this mechanism to acquired headache
- b. The pathophysiology of the recognized subtypes of head pain including cluster headache, trigeminal neuralgia and tension type headache

- c. The classification of headache including the International Headache Society Classification
- d. The neuroanatomy and neurochemistry of the systems underlying head pain and associated systems including comorbidity, neuropsychiatry and cerebral vascular disease
- e. An extensive knowledge of general neurology is required to critically evaluate the history and physical examination of the patient presenting with complex or intractable headache.
- f. The adequate teaching of headache medicine requires extensive knowledge of the epidemiology, economic and pharmacology of migraine and the other chronic headaches.
- g. Secondary, or symptomatic headache will present either with unique features and association such as classical pseudotumor cerebri wherein headaches of high pressure worsen with recumbency and are associated with papilledema and sixth nerve palsy, or with variants of primary headaches such as the frequently migrainous nature of the headache associated with grade 1 subarachnoid hemorrhage.

1. Definitions

Primary Headache: a head pain syndrome with associated symptoms and/or signs whose historical occurrence or phenomenology occur in the absence of cranial or systemic pathology.

Secondary Head or Face Pain: a head or face pain with or without associated symptoms and/or signs whose historical occurrence or phenomenology occur in temporal association with cranial, extra-cranial or systemic pathology.

2. Content of subjects to be taught

ANATOMY AND PHYSIOLOGY

- Know the peripheral ramifications of the Trigeminal nerve, including the ganglia and trigeminovascular connections.
- Know the common conditions associated with dysfunction in the peripheral branches of the trigeminal system including cutaneous nociception, muscular, osseous/and extradural sources (sinuses and teeth), and dural structures including blood vessels
- Know the presumed mechanisms of trigeminal neuropathy, myofascial pain of the face and head and the implications of the central processing of nociceptive input from the structures involved.
- Be aware of the existence of Exteroceptive Temporalis muscle Suppression, and its utility for diagnosing headache of various types.
- Understand the importance of the central processing of nociceptive signaling from the trigeminal nucleus caudalis (TNC) and the structures of the descending inhibitory pathways including the Periaqueductal Gray (PAG), median and dorsal raphe, and the Red Nucleus.
- Know the pathways for central processing of head and face pain via the ventral thalamus, and somatosensory cortex.

CLASSIFICATION OF HEADACHE

General

- Know the general principles underlying the International Headache Society Criteria classification schema for primary and secondary headache
- Know the concept of primary and secondary headache;
- Be aware of the existence of AAN endorsed Headache Consortium guidelines for Headache diagnosis and treatment

Acute Headache

- Know the steps necessary to rule out headache associated with acute morbidity and mortality (e.g. ASAH, Pheochromocytoma, acute glaucoma, Acute frontal, ethmoid or sphenoid sinusitis, meningitis with fever, etc.)
- Know the assessment of the patient with acute headache and concurrent medical or neurologic complaints;
- Know the probable diagnosis in a patient presenting with a chief complaint of acute headache;
- Direct the evaluation and care of acute headache;
- Guide treatment and appropriate follow-up of patients presenting with a chief complaint of acute headache;

Secondary Headache

- Know the steps necessary to rule in secondary causes of headache, especially those with reliable historical, physical examination and/or test-related features (e.g. Temporal arteritis, high and low cerebrospinal fluid pressure, traumatic brain injury, trigeminal neuralgia, meningitis, etc.)
- Know the assessment of the patient with subacute, non-recurrent headache and concurrent medical or neurologic complaints;
- Know the probable differential diagnosis in a patient presenting with complaint of subacute headache;
- Direct the evaluation and care of subacute non-recurrent headache including interpretation of test findings and results;
- Guide treatment and appropriate follow-up care of patients with secondary headache including considerations for concurrent medical, neurologic or surgical disease;
- Evaluate the secondary headaches associated with neurologic disease including cerebrovascular accidents other than ASAH;
- Discuss the natural history of post-traumatic headache in patients with mild to moderate head injury;
- Discuss the evaluation of patients presenting with headache or facial pain associated with cranial nerve complaints;
- Direct the assessment and treatment of conditions associated with neuralgic pain of the head (e.g. Trigeminal Neuralgia, Occipital Neuralgia, Glossopharyngeal Neuralgia, etc.);
- Assess the patient with complaints referable to the temporomandibular joint including Myofascial Pain and Dysfunction.

Primary Headache

- Distinguish headaches of primary origin from those resulting from secondary cause;
- Describe the differences among the primary headache types and make appropriate diagnosis based on evidence-based criteria;
- Diagnose the primary headaches in a non-acute, out patient setting
- Assess the severity of disease on the basis of headache type, frequency, severity, associated symptoms and comorbid features complicating diagnosis and treatment

Migraine

- Know the HIS criteria for migraine without aura, migraine with aura, and the subtypes of migraine including basilar, familial hemiplegic and migrainous stroke, and its implications for treatment.
- Know the epidemiology of migraine in America
- Know the neurovascular theories of migraine and their importance for treatment
- Know the genetics of Familial Hemiplegic Migraine and its implications for Migraine with and without aura
- Describe the significance of central and peripheral serotonin receptors and the relevance of current acute and preventive treatments for migraine
- Develop a treatment plan for patients with migraine with and without aura based on clinical presentation and evidence based Guidelines
- Evaluate the patient with chronic headache and develop appropriate test/treat strategies including behavioral and complimentary therapies
- Know the use of inpatient strategies for treating status migrainosis and chronic daily headache including repetitive dose DHE-45, behavioral management and detoxification.

Anatomy and Physiology of Migraine (Aura & cortical generators)

- Know the hypothesis of Spreading Depression (SD) and its possible importance in migraine aura
- Know the implications of the work of Lashley suggesting cortical spreading depression in humans as the underlying mechanism of migraine aura
- Be aware of the imaging evidence for cortical, subcortical and brainstem changes in provoked and unprovoked migraine with aura
- Understand the implications of electrophysiological evidence showing failure of extinction to repetitive stimuli in patients with migraine with and without aura.
- Be aware of the growing body of evidence from imaging studies confirming cortical activation before and during migraine headache.

Anatomy and Physiology of Migraine (Headache & peripheral generators)

- Know the influence of Woolf's vascular theory in determining the importance of the vascular structures of the head for migraine generation

- Know the importance of the Trigeminovascular hypothesis of Migraine (Moskowitz) and its components including the trigeminal nerve, the dural blood vessels, and the vasoactive peptides, Substance P and the kinins.
- Know the experimental evidence supporting the prime mediation of migraine via specific serotonin receptors including 5HT_{1D} α , β and 5HT_{1B}.
- Know the presumed sites of action of the triptans including possible central mediation of neuronal firing rates in the TNC.
- Be aware of the growing body of evidence from imaging studies for the existence of activation in other structures including the nucleus of the solitary tract, red nucleus and frontal/temporal areas mediating pain response.

Treatment of Migraine

General

- Be aware of the US Headache Consortium Guidelines for the Treatment of Migraine

Acute Treatment

- Understand the difference between acute, symptomatic and rescue treatment of migraine
- Know the mechanism of action of the triptans and the exclusionary criteria for use in adults.
- Be aware of the general considerations for use of the different triptans.
- Know the appropriate use of NSAID's and other short acting analgesics in the treatment of acute migraine attacks.
- Be able to treat a well-diagnosed migraine patient.
- Understand the implications of frequent analgesic use and analgesic rebound.

Preventive Treatment

- Know the major classes of preventives of migraine including beta-adrenergic blockers, Tricyclic antidepressants, calcium channel blockers, anticonvulsants and atypicals.
- Understand the use of methysergide.

Tension Type Headache

- Know the HIS criteria for Episodic and Chronic Tension Type Headache
- Differentiate Episodic Tension Type Headache from Migraine without Aura
- Assess the complex patient with frequent headache and recognize the presence or absence of analgesic rebound
- Develop a plan of treatment for the patient with Chronic Tension Type Headache and frequent headache

Cluster Headache and other Headaches of Short Duration

- Know the HIS criteria for Episodic and Chronic Cluster Headache.
- Describe the appropriate historical/clinical features of patients presenting with Episodic Cluster Headache

- Distinguish Cluster Headache from other headaches of short duration (e.g. CPH, “Ice pick pain”, etc.)
- Develop treatment plans for patients with Episodic and Cluster Headache

Other Headaches Unassociated with structural abnormalities of the brain

- Discuss the evaluation and treatment of patients presenting with Ice Pick pain
- Evaluate the patient with exercise induced or coital headache, and develop appropriate diagnostic and treatment strategies for those conditions

Pediatric Headache

- Discuss the evaluation of pediatric patients presenting with acute headache unassociated with systemic or neurologic complaints or findings.
- Understand the presentation of pediatric patients with precursors and equivalents of migraine
- Develop appropriate testing strategies and treatment for pediatric patients presenting with subacute and chronic headache.
- Coordinate multidisciplinary evaluation and care of the pediatric patient with significant social, familial or personal complications and comorbidities

5. Prerequisites for trainees

Type of residency: Neurology

Board eligibility: Required

Exclusions/exceptions: NA

Selection criteria: To be developed at each institution particular to the availability of specific services and faculty

6. Personnel

Program director: As in the Pain Fellowship, a recognized headache center or expert outside of the primary department (Neurology) may act as a Program Director, though the Medical Directorship should be held by a designated individual in the Department of Neurology

Number of faculty: The faculty should include a Medical Director, a Program Director and a mentor. The same person, or different individuals depending on department and level of expertise may preform these roles.

Additional faculty: clinical psychologist, clinical pharmacologists or equivalent, pain specialist

Support personnel: access to biofeedback either institutional or through preceptorship; secretarial per department

7. Qualifications of trainees

Completion of an accredited Neurology Residency

8. Facilities/equipment needed for the training

General requirements: at least 80% of time should be spent in the clinical realm of headache care
In-patient needs: if not available at the primary institution, inpatient headache care should be available by preceptorship

Ambulatory care requirements: a variety of patients from diverse demographic segments should be available. The presence of full time clinics in otolaryngology, neurosurgery, ophthalmology, (general medicine and family practice) is required to insure that the diagnostic spectrum of headache types will be represented.

Administrative support services: secretarial support should be made available per department

Need for multi-disciplinary teams: ideally this offers the best opportunity for training, especially for psychological assessment and management of head pain as a chronic pain disorder. The feasibility of this approach on a broad scale is unlikely to be high enough to provide an adequate number of trainees to fulfill the projected need for sub-specialists.

Library/educational resources: Medical library, web access and data systems appropriate to the institution

Educational environment: Academic

Affiliations: Recognized expertise in headache medicine outside of the primary, academic institution should be utilized in order provide instruction in clinic development and practice management

9. Set up for the training

Training will occur in the outpatient facilities of the training institution. In the absence of a sub-specialty clinic, the trainee will work in close physical association with the medical director and/or mentor.

10. Methods of training

Didactic
Clinical Methodology
Research techniques including clinical trials

11. Timetable for training

Duration of training: 1 year

Any special requirements: NA

12. Methods of evaluation of trainees

Suggested intervals:

- Monthly case conference and Quality Assurance
- Quarterly review of training progress
- Biannual review of credentialing

Suggested testing/monitoring

The trainee will be examined with on site Mock Board type direct patient evaluation and case vignettes at the biannual credentialing review.

13. Methods of evaluation of training process

- Monthly case conferences and tutorial
- Quarterly performance review
- Biannual credential review

14. Mechanisms for feedback

- Written summaries of the quarterly performance review and biannual credential review to be place in a permanent trainee file
- Ad hoc discussion of monthly progress

15. Methods of constantly upgrading knowledge

- Monthly journal review (see 13)
- Maintenance of a syllabus upgraded biannually and as required
- Attendance at AAN meeting
- Attendance at annual American Headache Society Scientific Meeting

16. References and resources

Headache Classification Committee of the International Headache Society, Classification and Diagnostic

Criteria for Headache Disorders, Cranial Neuralgias and Facial Pain 1988; Cephalalgia 8 (Supp 7)

Web site links

- American Headache Society: <http://ahsnet.org>
- US Headache Consortium Guidelines: <http://www.AAN.com>
- National Library of Medicine; <http://www.nlm.nih.gov>
- International Headache Society: <http://i.h.s.org>

Textbooks:

- Wolff H., Silberstein S., Lipton R., Dalessio D., Wolff's Headache and Other Head Pain. Seventh edition. Oxford; New York: Oxford University Press, 2001.
- Lance J., Goadsby P., Mechanism and Management of Headache, Sixth Edition, Butterworth; Woburn MA, 1998.

- Silberstein S., Lipton R., Goadsby P., Headache in Clinical Practice, Oxford: Isis Medical, US, 1998.

Journals:

- Neurology
- Archives of Neurology
- Headache
- Cephalalgia

Other (annual courses, CONTINUUM, etc.)

AAN Annual Meeting

Continuum

American Headache Society Annual Scientific Meeting

International Headache Congress (every other year)

n.b. upon approval of the Core Curriculum a Syllabus of relevant and essential primary source materials will be provided.

17. CME

Trainee must attend one national conference, sponsored by the training institution. This requirement can be satisfied by attendance at the AAN assuming that the headache curriculum is included in the courses attended.