The Connection Between Migraines and Mental Health in the Black Community

Benjamin Roy, MD
Immediate Past President, Black Psychiatrists of America

June 1, 2023

SAMHSA
Substance Abuse and Mental Health Services Administration

MHTTC
Mental Health Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

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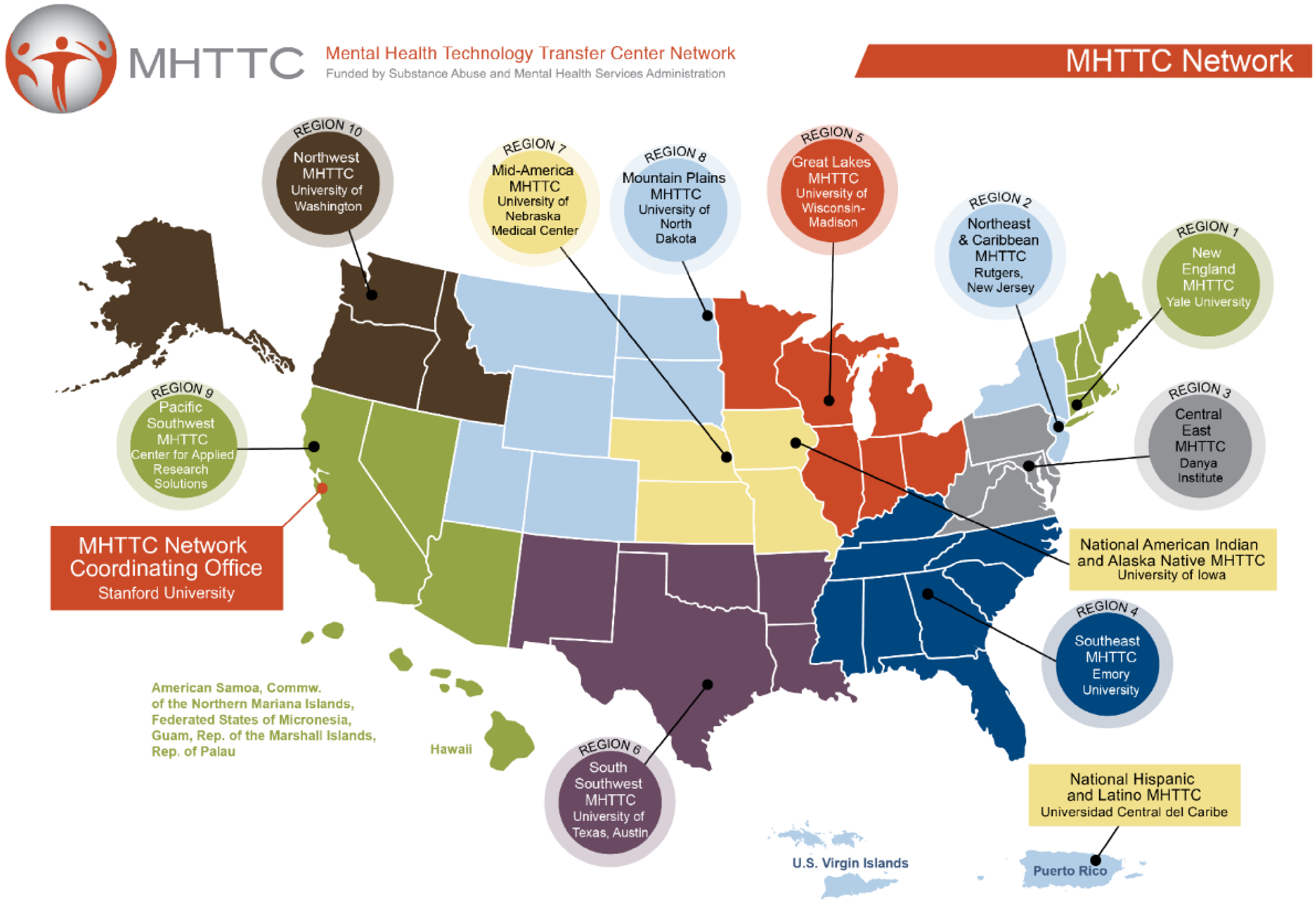
The purpose of the MHTTC Network is technology transfer - disseminating and implementing evidence-based practices for mental disorders into the field.

Funded by the Substance Abuse and Mental Health Services Administration (SAMHSA), the MHTTC Network includes 10 Regional Centers, a National American Indian and Alaska Native Center, a National Hispanic and Latino Center, and a Network Coordinating Office.

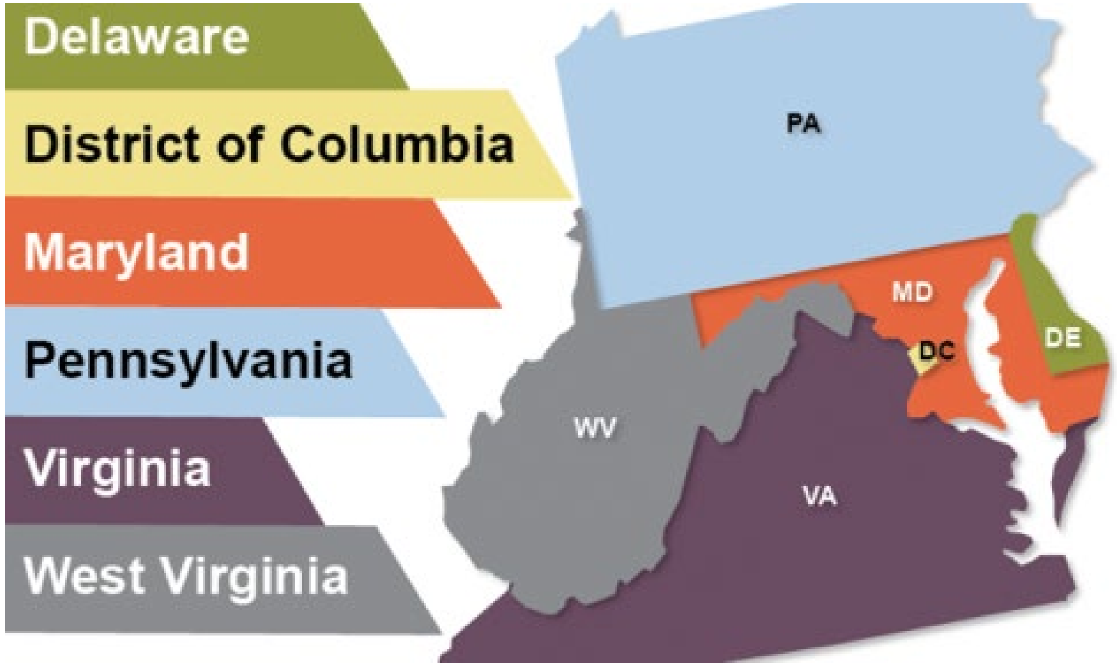
Our collaborative network supports resource development and dissemination, training and technical assistance, and workforce development for the mental health field. We work with systems, organizations, and treatment practitioners involved in the delivery of mental health services to strengthen their capacity to deliver effective evidence-based practices to individuals.
Our services cover the full continuum spanning mental illness prevention, treatment, and recovery support.

SAMHSA
Substance Abuse and Mental Health Services Administration

MHTTC Network



Central East Region 3



Central East (HHS Region 3)
MHTTC Mental Health Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

The MHTTC Network uses affirming, respectful and recovery-oriented language in all activities. That language is:

- Strengths-based and hopeful
- Inclusive and accepting of diverse cultures, genders, perspectives, and experiences
- Healing-centered and trauma-responsive
- Inviting to individuals participating in their own journeys
- Person-first and free of labels
- Non-judgmental and avoiding assumptions
- Respectful, clear and understandable
- Consistent with our actions, policies, and products

Adapted from: https://mhcc.org.au/wp-content/uploads/2019/08/Recovery-Oriented-Language-Guide_2019ed_v1_20190809-Web.pdf

Acknowledgment

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At the time of this publication, Miriam E. Delphin-Rittmon, Ph.D, served as Assistant Secretary for Mental Health and Substance Use in the U.S. Department of Health and Human Services and the Administrator of the Substance Abuse and Mental Health Services Administration.

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The Connection Between Migraines and Mental Health in the Black Community

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Today's Webinar

- June is Migraine and Headache Awareness Month (MHAM).
- This observance provides an opportunity to focus on the unique experiences of Black people with migraine headaches and co-occurring mental health concerns.
- We thank SAMHSA Region 3 CE-MHTTC for their partnership on the BPA Health Equity Webinar series.
- Content has both Central East region and national relevance.
- Our featured speaker is Benjamin Roy, MD.

Learning Objectives

- Recognize migraine headaches as defined by the International Classification of Headache Disorders criteria.
- Identify the epidemiology of migraine its comorbid diseases in African Americans.
- Learn the physiological mechanism of migraine.
- Review the medications available for migraine.
- Recognize the disparity and inequity in migraine care for African American migraineurs.

Headache Disorders

- Migraine without Aura
- Migraine with Aura
- Tension-Type Headache
- Post-traumatic Headache
- Trigeminal Autonomic Cephalalgia
  - Cluster Headache
  - Hemicrania Continua
  - Paroxysmal Hemicrania
  - Short-lasting Unilateral Neuralgiform with Conjunctival Injection and Tearing (SUNCT)
  - Short-lasting Unilateral Neuralgiform Headache Attacks with Cranial Autonomic Symptoms (SUNA)

- Primary Stabbing Headache (“ice pick”)
- Thunderclap Headache
- Nummular Headache (coin shaped area/parietal)
- Hypnic Headache (in sleep)
- Primary Headache associated with Sex
- Primary Exercise Headache
- Cold Stimulus Headache
- Primary Cough Headache
- New Persistent Daily Headache
- Idiopathic Intracranial Hypertension
- External Pressure Headache (hair extensions, ponytail, caps)

What is Migraine?

- The International Classification of Headache Disorders-3 sets criteria for the the diagnosis of migraine and all headache disorders
- Episodic headaches with sensitivity to light, sound, and/or movement
- Phasic and cyclical disorder
- Categories
  - Resistant migraine: failed 3 classes of medications and 8 debilitating headache days per month for at least 3 consecutive months without improvement
  - Refractory migraine: resistant headaches that last 6 months or more
- Classification by frequency
  - Episodic migraine: 14 headache days or less/month
  - Chronic migraine: ≥ 15 headache days/month and ≥ 8 full blown migraine days/month

Migraine without Aura

International Classification of Headache Disorders-3

A. At least 5 attacks fulfilling criteria B-D
B. Headache attacks lasting 4-72 h (untreated or unsuccessfully treated)
C. Headache has ≥2 of the following characteristics:
  1. unilateral location
  2. pulsating quality
  3. moderate or severe pain intensity
  4. aggravation by or causing avoidance of routine physical activity (*eg*, walking, climbing stairs)

D. During headache ≥1 of the following:
  1. nausea and/or vomiting
  2. photophobia and phonophobia

E. Not better accounted for by another ICHD-3 diagnosis

Migraine with Aura

International Classification of Headache Disorders-3

A. At least 2 attacks fulfilling criteria B and C

B. ≥1 of the following fully reversible aura symptoms:

1. visual; 2. sensory; 3. speech and/or language;
4. motor; 5. brainstem; 6. retinal

C. ≥3 of the following 6 characteristics:

1. ≥1 aura symptom spreads gradually over ≥5 min
2. ≥2 symptoms occur in succession
3. each individual aura symptom lasts 5-60 min
4. ≥1 aura symptom is unilateral
5. ≥1 aura symptom is positive
6. aura accompanied, or followed in <60 min, by headache

D. Not better accounted for by another ICHD-3 diagnosis

Hemiplegic Migraine

- Familial Hemiplegic Migraine Type 1 (FHM1): 50% of cases
  - mutation of CACNA1A gene for the alpha-1A subunit of the P/Q-type calcium channel
  - cerebellar degeneration, ataxia, nystagmus
  - recurrent coma
  - cortical laminar necrosis with symptoms of Erdheim-Chester disease non-Langerhans cell histiocytosis
- FHM2: mutation of the ATP1A2 gene for the alpha-2 subunit of Na/K ATPase of glial cells; 25% of cases
- FHM3: mutation of the SCN1A gene for the alpha subunit of the NaV1.1 sodium channel
- FHM4: no gene mutation identified
- Sporadic Hemiplegic Migraine

Acephalgic Migraine

- Aura without headache
- Visual hallucinations
- Visual illusions
- Scintillating scotomata (flashing lights)
- Transient monocular or binocular visual loss
- Differential diagnosis:
  - transient ischemic attack (40% have headache)
  - amaurosis fugax
  - retinal or occipital embolus
  - arteriovenous malformations
  - intra-cranial venous sinus thrombosis

Abdominal Migraine

- Age ≥ 3 years
- Nausea,
- Paroxysmal stomach pain 1-72 hours
- Anorexia
- Photophobia
- Pallor
- Headache
- Flatus
- Family history of migraine headaches
- 50-70% have or progress to migraine headaches
- Differential diagnosis: cyclic vomiting syndrome; inflammatory bowel disease
- Triptans, Pizotifen, a benzocycloheptene-based drug. Flunarazine, a calcium channel-blocking agent. Cyproheptadine, an anti-histamine. Propranolol

Migraine Equivalents in Children

- **Migraine with Benign Paroxysmal Torticollis**
  - Age ≥ 3 years old
  - 19% develop migraine (media age 9 years old)
  - Migraine higher with phonophobia (58%), photophobia and phonophobia (55%), and photophobia, phonophobia, and motion sensitivity (60%)
- **Retinal migraine (ophthalmic or ocular migraine)**
  - Age ≥ 7 years
  - 30% experience headache
  - a form of acephalgic migraine
  - Monocular blindness (50%), blurred vision (20%), scotomata (13%) , incomplete loss (12%), dimming (7%) spreading over 5 minutes or longer, lasting 5 to 60 minutes, with headache within an hour
  - family history of migraine in 50%
  - Comorbidity with lupus, atherosclerosis, and sickle cell disease

Migraine Equivalents in Children (cont.d)

- **Migraine with Dyscognitive Confusional States**
  - Children
  - Acute confusion/disorientation (100%)
  - Agitation (100%)
  - Memory deficits (50-80%)
  - Visual
  - Somatosensory
  - Speech difficulties

Migraine in Pregnancy

- Migraine 3 times more common in females
- Headache frequency increases in first trimester thereafter 89% of women have no or few attacks
- Acephalgic migraine more common
- 2.1% to 4.6% prevalence of birth defects in women with migraine
- Triptans are safe; AEDs and preventives are contraindicated
- 34% have headaches in first week postpartum

Migraine Epidemiology

- Headaches affect 50% of the global population
- Age-adjusted prevalence 1.1 billion (0.98–1.3) cases
- 1 in 7 experience migraine globally
- 1 in 6 Americans experience migraine (~ 35 million); 3-5% of US population)
- Age
  - ages 35-45
  - colic in infants
  - 10% children (is it ADHD, ODD or migraine?)

Migraine Epidemiology (cont.d)

- Gender
  - Equal incidence until puberty
  - After puberty 3:1 female to male ratio; 43% of women vs. 18% of men
  - Age-adjusted prevalence per 100,000 was greater in females (17,902) vs. males (10,338)
  - American Migraine Prevalence and Prevention study found the prevalence of chronic migraine in Hispanic women (2.26% compared with 1.2% for white females), whereas white males had the lowest prevalence at 0.46%
- Race:
  - The average prevalence of severe headache or migraine from 2005 to 2012 National Health Interview Survey was 17.7% for Native Americans, 15.5% for whites, 14.5% for Hispanics, 14.45% for Blacks, and 9.2% for Asians
  - 903,000 to 1.5 million African American men

Risk Factors for Migraine

- Advanced age
- Head trauma
- Caffeine
- Medication overuse
- Stress
- Sleep apnea
- Obesity (hypoventilation)
- Chronic pain syndrome
- Pro-thrombotic states
- Ineffective treatment of acute migraine

Comorbid Migraine

- Systemic Lupus Erythemtosus (SLE)
  - African American women 13 x males
  - AA females incidence rate 9.2 vs 3.5/100,000 for white females
  - 37.5% have intracranial lesions
  - 54% are tension headaches and 40% are migraine
- Sickle Cell Anemia in children
- Hypertension - higher diastolic BPs
- Breast Cancer
  - Triple negative (ER/PR/HER-2)
- Colon Cancer
- Lung Cancer
- Pancreatic Cancer - neuroendocrine tumors (insulin, glucagon, somatostatin, VIP)
- Lymphoma
  - T cell lymphoma/mycosis fungoides AA 11.69 vs. 7.9/100,00 for whites
- CNS cancers; CSF leak (base of skull; spinal leak)
- Nasopharyngeal cancer
  - Asian >> African American > white
- Uterine/Cervical cancer
- Brain Metastases
- Cancer treatment: chemotherapy, immunotherapy, radiation
- Peripheral Occlusive Artery Disease –
  - Prevalence 22.8% in AA vs. 13.2% of whites
- Coarctation of the aorta
- Subarachnoid hemorrhage
- Multiple Sclerosis - 30%, primarily brainstem lesions
- Sarcoidosis –
  - Incidence rate AA 39 vs 5/100,00 for whites
  - 67%, females > males,
  - leptomenigeal enhancement on MRI
  - noncaseating granulomatous neurosarcoidosis
- Hypercalcemia
- Sleep Apnea

Migraine and Comorbid Disease

- Depression
- Bipolar Disorder
- Anxiety disorders
- Epilepsy
- Coronary Artery Disease
- Hypertension
- Congestive heart failure
- Renal failure
- Gastic ulcers and GI bleeds
- Increased risk of cardiac death

Migraine and Comorbid Psychiatric Disorders

- Major Depressive Disorder:
  - 2.5 times higher in migraineurs especially chronic migraine
  - Prevalence from 41 - 47%
- Bipolar Disorder II prevalence greater than Bipolar I, 54% vs. 33%:
  - Migraine with aura > simple migraine
  - Onset at younger age
  - Women > men
  - Rapid cycling
  - Increased prevalence of panic attacks
- Posttraumatic Stress Disorder: prevalence 43%
- Anxiety: prevalence 51-58%
- Obsessive Compulsive Disorder - prevalence 5 times greater
- Panic Disorder - prevalence 10 times greater
- Attention Deficit Hyperactivity Disorder (ADHD) / Oppositional Defiant Disorder/ Conduct Disorder

Migraine is Phasic

- Pre-monitory phase
- Migraine aura
- Headache
- Postdromal phase

Migraine Neurophysiology: Premonitory Phase 1

- Hypothalamus implicated as site of initiation
  - increased parasympathetic tone activates superior salivatory nucleus (SSN) meningeal nociceptors
  - the SSN activates post-gangilonic parasympathetic neurons in the sphenopalatine ganglion (SPG)
  - the SPG activates nociceptors in the meninges releasing vasodilators Calcitonin Gene-Related Peptide (CGRP), Pituitary Adenylate Cyclase Activating Peptide (PACAP-38), and mast cell degranulation
- Positron Emission Tomography: glyceryl trinitrate-induced migraine attacks, activations were found in the posterolateral hypothalamus as well as in the midbrain tegmental area, periaqueductal gray, dorsal pons
- Functional MRI: stronger functional connections between the hypothalamus and areas of the brain related to pain transmission and autonomic function in patients with migraine compared with healthy controls

Migraine Neurophysiology: Aura Phase 2

- Cortical Spreading Depression (CSD): slow (2-6 mm/min) propagating wave of increased depolarization in neuronal and glial cell membranes with hypermia and inhibition of cortical activity for up to 30 minutes, coinciding with the initiation and progression of aura symptoms initiated by local elevations in extracellular K+ that chronically depolarize neurons for approximately 30-50 with impaired Na+ and Ca++, and release of glutamate followed by oligemia and decreased depolarization

- CSD can activate trigeminal nociception leading to headache

Migraine Neurophysiology: Headache Phase 3

- Trigeminovascular Pathway Activation:
  - Afferents from the ophthalmic (V1), maxillary (V2), and mandibular (V3) divisions of the trigeminal nerve impinge on the trigeminal ganglion (TG) which in turn incites the trigeminal cervical complex (TCC) ascending to the SSN, parabrachial nucleus (PN), periacqueductal gray (PG), hypothalamus, thalamus, and basal gangia on to the auditory, ectorhinal, insula; M1/ M2 motor cortices, parietal association; retrosplenial, and S1/S2 somatosensory cortices
- Hyperexcitability - lower threshold for excitation and exaggerated output to minor stimuli

Migraine Pharmacotherapy

- Anticonvulsants
  - Divalproex (Depakote)
  - Valproic acid
  - Topiramate (Topamax)
- Antidepressants
  - Amitriptyline (Elavil)
  - Venlafaxine (Effexor)
- Beta Blockers
  - Metoprolol (Toprol)
  - Propranolol (Inderal)
  - Timolol (Blocadren)
- Sumatriptan, naratriptan, zolmitriptan, rizatriptan, almotriptan, frovatriptan, and eletriptan are 5-HT1B and 5-HT1D agonists
  - inhibit vasoactive peptide release by trigeminal nerves
  - vasoconstrict dilated cerebral arteries
  - contraindicated in basilar and hemiplegic migraine

Migraine Pharmacotherapy (cont.d)

- Serotonin (5-HT) 1F Receptor Agonist
  - Lasmiditan (Reyvow)
- Anti-Calcitonin Gene-Related Peptide (CGRP) Monoclonal Antibodies
  - Fremaneumab (Ajovy)
  - Erenumab (Aimovig)
  - Galcanezumab (Emgality)
  - Eptinezumab (Vyepti)
- CGRP Receptor Antagonists
  - Ubrogepant (Ubrelvy)
  - Atogepant (Qulipta)
  - Rimegepant (Nurtec)
- Soluble N-ethylmaleimide-Sensitive Factor (NSF)-Attachment Protein Receptor (SNARE) protein SNAP25
  - OnabotulinumtoxinA (OnaB-A)

Disparity in Migraine Care

- More frequent and severe headaches
- Misdiagnosis or delayed diagnosis
- Higher prevalence of comorbid depression
- The rate of migraine diagnoses in the National Hospital Ambulatory Care Survey and National Ambulatory Care Survey per 10,000 visits was 176.3 for whites, 133.2 for African Americans, and 89.5 for Hispanics
- LGBTQ 83% more likely to experience migraine - prevelance rates: bisexual women: 36.8%, lesbians: 24.7%, bisexual men: 22.8%

Disparity in Migraine Care (cont.d)

- Poor utilization of migraine services (46% African Americans vs 72% whites)
- Premature termination of follow-up appointments
- Incorrect diagnoses are common
- Migraine diagnosed in 70% of whites, 50% of Hispanics, and 47% of African Americans
- Infrequent prescription of acute migraine attack medications (14% of African Americans vs. 37% of whites)
- Mistrust and miscommunication with physicians
- Increased migraine burden, frequency, and severity
- Higher risk for progression
- Higher prevalence of depression
- White children are significantly more likely to receive neuroimaging

Disparity in Migraine Care (cont.d)

- 20% of migraineurs have no health insurance
- 2 out of 5 migraineurs are poor
- Biologic pharmacotherapy averages $7,000/year
- Uninsured are twice as likely, and publicly insured 1.5 times as likely, to not receive treatment
- The major disparity of the insured not investigated in research:
- PRIOR AUTHORIZATION

Migraine Organizations

- American Headache Society
- American Migraine Foundation
- Association of Migraine Disorders
- Migraine Research Foundation
- National Migraine Foundation

Questions

Appreciation

Contact Us

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