

**AN APPROACH TO
CHRONIC
HEADACHES**

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Faculty/Presenter Disclosure

Faculty: Suvendrini Lena MD MPH FRCPC CSCN (EEG).

Relationships with commercial interests:

- Speakers Bureau/Honoraria:** Allergan (manufactures BOTOX)
- Other:** Employee of CAMH and WCH

Disclosure of Commercial Support

This program has not received financial support from any organization

This program has not received in-kind support from any organization

Potential for conflict(s) of interest:

- Suvendrini Lena has received honoraria from Allergan.
- Allergan developed and distributes a product that will be discussed in this program: ie Onabotulinum toxin A (Botox).

Objectives: Part One

- Develop a PRACTICAL evidence based approach to diagnosis, treatment and PREVENTION of chronic headaches

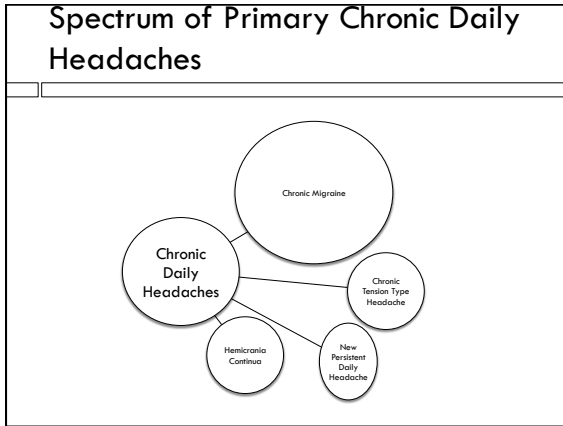
- Specifically:
 - chronic/transformed migraine
 - medication overuse headache
 - chronic cluster headache
 - other chronic headaches not to miss

Objectives: Part Two

- Apply approach to interactive five cases

- FOCUS on MULTIMODAL management of chronic migraine

PART ONE



Differential diagnosis of chronic daily headache, cont'd

Chronic migraine^{1,2}

- Can be unilateral or bilateral
- Migrainous pulsating quality
- Moderate/severe pain intensity
- Aggravation by routine physical activity

New daily persistent headache^{1,2}

- Defined by new onset (within 3 days) and persistency
- But characteristics of pain are not considered in making the diagnosis

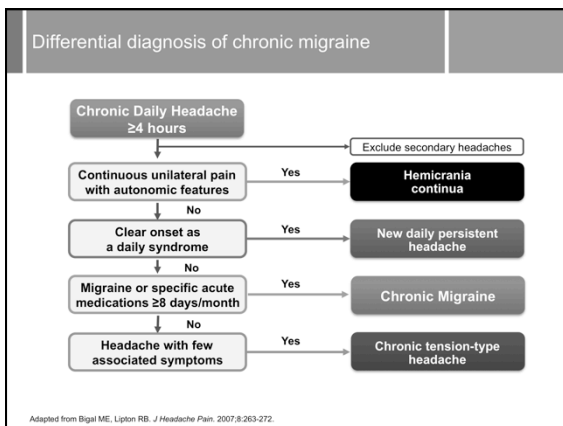
Hemicrania continua^{1,2}

- Strictly unilateral location
- Daily and continuous, without pain-free periods
- Moderate intensity, but with exacerbations of severe pain
- Indomethacin-responsive

Chronic tension-type headache^{1,2}

- Bilateral location
- Pressing/tightening (non-pulsating) quality
- Mild or moderate intensity
- Not aggravated by routine physical activity

1. Headache Classification Committee; Olesen J et al. Cephalalgia. 2004;24:9-160.
2. Dodick D. N. Engl J Med. 2006;354:158-165.



CDH – Secondary Causes

- Vascular Disease (dissections, clots, arteritis, posterior circulation stroke, autoimmune disease)
- CNS infection (cryptococcal, atypical bacterial, lyme disease)
- Homeostatic disorders (hypoxia, hypertension, thyroid dysfunction)
- Structural – cervicogenic (DDD, chiari, MSK), eyes, ears, nose, throat, sinuses, mouth, teeth, TMJ
- Post-traumatic
- Substance abuse
- Psychiatric

Hemicrania Continua

Diagnostic Criteria:

Headache for more than 3 months fulfilling:

All of the following:

- Unilateral pain without side shift*
- Daily and continuous without pain free periods*
- Moderate intensity w/exacerbations of severe pain

Atleast one of the following autonomic features during exacerbation ipsilateral to pain:

- Conjunctival injection/ lacrimation
- Nasal congestion/rhinorhea
- Ptosis and /or miosis

Complete response to therapeutic dose of indomethacin.
Not attributed to another disorder.

Hemicrania Continua

- patients often complain about the exacerbations, not the daily headache
- Additional features of HC:
 - Foreign body sensation in the ipsilateral eye
 - Ice pick pains, conjunctival injection, rhinorrhea
 - Ptosis, peri-orbital edema
 - Ice pick pains occur in 40% of migraineurs as well
 - Possible history of head trauma

Hemicrania Continua

- Use of a daily NSAID daily is frequently seen
- Daily headache can be mild (IHCD-2 says moderate)
- Exacerbations can mimic migraine
- Exacerbations in HC may respond to triptans
- Indomethacin trial may be only way to distinguish MOH/chronic migraine and HC
- Think of it in post-traumatic HA

Hemicrania Continua

- Indomethacin:** 25 TID X 10 days;
- If no change, 50 TID X 10 days;
- If no change 75 TID X 10 days
- Sometimes need up to 300 mg/day, sometimes for 2 weeks
- Proton pump inhibitor
- Melatonin, Gabapentin, Celebrex

Chronic TTH

- Bilateral location
- Non-pulsating quality
- Mild to moderate intensity
- Lack of aggravation with routine physical exercise
- ie CTTH is defined by what it is not

Transformed or Chronic Migraine

- Clinical Defn: headache > 15 days per month, current or prior diagnosis of migraine, with or without medication overuse.

Transformed or Chronic Migraine

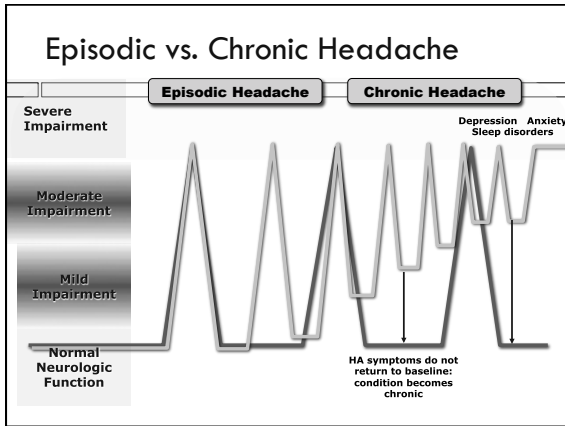
- Typical patient is female, migraine without aura
- As headaches become more frequent associated symptoms become less frequent and daily headache comes to resemble TTH, with superimposed attacks of full migraine.

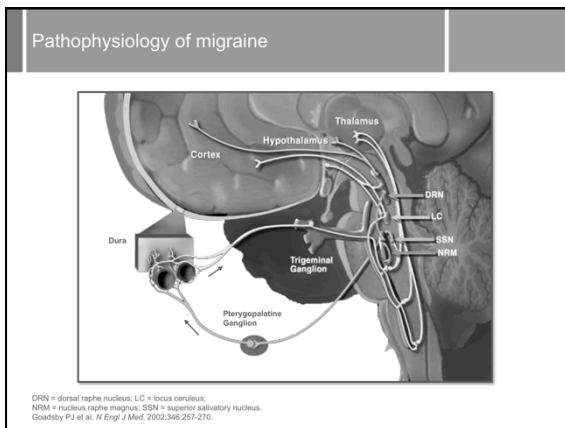
Migraine progression

- Transformation is often gradual and can evolve over several months or years^{1,2}
- Transformation is neither inexorable nor irreversible; spontaneous or induced remissions are possible and common^{1,2}
- Transformation happens in some but not all episodic patients (~3% of episodic migraine sufferers)²

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graph LR; A[No migraine] <--> B[Low-frequency episodic migraine]; B <--> C[High-frequency episodic migraine]; C <--> D[Chronic migraine]
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1. Lipton RB. Neurology 2009;72:53-57.
2. Bigal ME, Lipton RB. Curr Opin Neurology 2008;21:301-308.





- ### Risk Factors for Chronic Migraine
- Attack Frequency (OR 8 10-14d/m vs 1-4d at baseline)
 - Treatment Patterns (OR 4-5 acute meds > 10d/m)
 - Chronic Back Pain (OR 4)
 - Obesity
 - Low SES
 - Stressful life events ACE/ PTSD*
 - Head Injury
 - Snoring
 - Caffeine
 - Depression Anxiety
 - Allodynia
- Adapted from Dodick Scottsdale 2011

Chronic Migraine Epidemiology

	Chronic Migraine	Episodic Migraine	OR
Depression	30.2%	17.2%	2.1
Anxiety	30.2%	18.8%	1.9
Other Chronic Pain Disorders	31.5%	15.1%	2.6

Modifiable Risk Factors for Progression

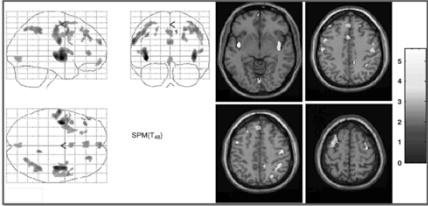
Risk Factor	Intervention
Acute Medication Use	Monitor and modify medication use, consider preventative and other non-oral treatments, behavioural management
Attack Frequency	Pharmacologic and behavioural interventions, headache journals
Major Life Events/ Stress	Interventions: BF, CBT, relaxation training, stress management, exercise, lifestyle modification
Snoring	Diagnose and treat sleep apnea, insomnia, weight loss
Allodynia	Early treatment of migraine and attack frequency reduction
Depression	Assess, treat and refer with pharmacologic and behavioural therapies (CBT, psychotherapy)
Anxiety	Assess treat and refer with pharmacologic and behavioural therapies (CBT, psychotherapy)
Caffeine Use	Education and gradual taper

- ### Why is prevention so important?
- a subset of patients may have a clinical progressive disorder
 - iron deposition in periaqueductal grey
 - increased risk of posterior circulation infarction in males with migraine
 - women with migraine – WM lesions.
 - Theoretical – repeated central sensitization may be associated with ? reversible changes in periaqueductal grey and other pain modulating structures in brain stem.

Why is prevention so important?

- Direct medical costs
- Economic costs
- 80% report migraine associated disability
- 50% experience reduced work/school productivity
- 25% require treatment in ER
- Average of 6.5 lost work days per year/migraineur
- ALL OF THIS IS PREVENTABLE!

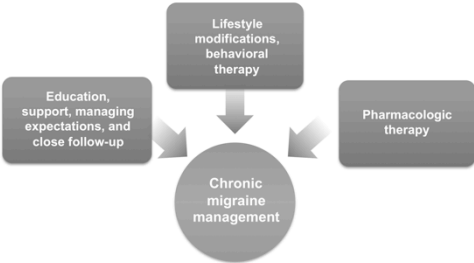
Structural alterations in the chronic migraine brain



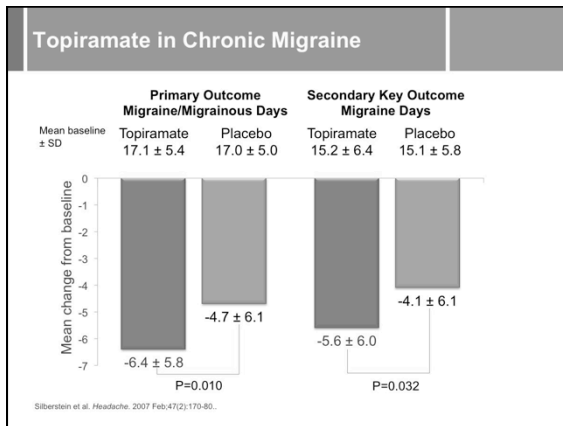
- Statistical parametric maps (SPM) demonstrating regional differences in grey matter volume (GMV) between migraine patients and controls.
- MRI template images show significant GMV reductions in bilateral insula, motor/premotor, prefrontal, cingulate cortex, right posterior parietal cortex, and orbitofrontal cortex

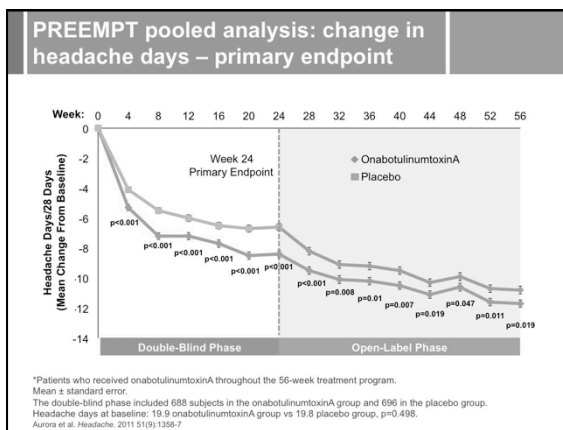
Kim JH et al. Cephalalgia. 2008;28:598-604.

Chronic migraine: multifaceted approach to therapy



Dodick DW. N Engl J Med. 2009;354:158-165.





Pharmacological Toolbox: "Nutraceuticals" and supplements

Magnesium

- Studies have demonstrated Mg deficiency in patients with migraine and cluster Has
- Deficiency in ionized Mg may be particularly important in patients with catamenial migraine.
- Other symptoms of Mg deficiency: muscle twitching, nocturnal leg or foot cramping, fatigue, cold extremities, cold intolerance, insomnia, palpitations, premenstrual symptoms (bloating, breast tenderness, irritability)

**Pharmacological Toolbox:
“Nutraceuticals” and supplements**

Magnesium

- In DBPCT Mg 400mg daily 41% decrease in HA days at three months
- Magnesium supplementation is contraindicated in renal disease
- Symptoms of toxicity: weakness, loss of DTRs, ultimately respiratory paralysis and death.
- Magnesium citrate less likely to produce diarrhea

**Pharmacological Toolbox:
“Nutraceuticals” and supplements**

Mitochondrial Co-factors:CoQ10

- adult and pediatric DBPC showing benefit with 100mg to 300mg, benefit seen at 1 month
- Expensive
- SE dyspepsia or insomnia if taken at night. (reduced disability and reduced headache frequency, reduced nausea) Supplementation effective within 1 month.

**Pharmacological Toolbox:
“Nutraceuticals” and supplements**

Mitochondrial co-factors: Riboflavin (B2)

- A single DBPC study 55 patient using 400mg daily for 3 months.
- Results positive benefits at 3rd month.
- 50% headache reduction in 50% of patients
- Side effects: diarrhea and polyuria.

Pharmacological Toolbox:
“Nutraceuticals” and supplements

Butterbur *Petasites Hybridus*

- Perennial shrub traditionally used as a remedy for fever, pain, spasms, wound healing.
- Hypothesized to act via regulation of calcium channels and inhibition of leukotriene biosynthesis (inflammatory cascade).
- Active ingredient petasin and isopetasin

Pharmacological Toolbox:
“Nutraceuticals” and supplements

Butterbur *Petasites Hybridus*

- Data from 2 DBPC studies support use in doses of 75-150 mg daily
- Magnitude of effect: 58% decrease in headache frequency vs 28% in placebo group.
- whole plant is potentially teratogenic, carcinogenic and hepatotoxic (pyrrolizidine alkaloids are removed in Weber formulation)

Pharmacological Toolbox:
“Nutraceuticals” and supplements

FeverFew *Tanacetum parthenium*

- May act as an antiplatelet, decreased platelet release of serotonin, or inhibit prostaglandin synthesis and phospholipase A
- Traditionally used to treat fever, headache, infertility, toothaches, inflammation and arthritis.
- Should not be used by pregnant women as it may cause uterine contractions.

**Pharmacological Toolbox:
“Nutraceuticals” and supplements**

FeverFew *Tanacetum parthenium*

- no significant known toxicity
- active ingredient is parthenolide.
- DBPC study of 170 patients showing significant decrease in headache frequency.
- But many negative studies, varying doses and formulations...

**Pharmacological Toolbox:
“Nutraceuticals” and supplements**

Folic Acid, Vitamin B12 and Vitamin B6

- MTHFR genetic risk factor in susceptibility to migraine aura
- DBPC study 52 migraines w/ aura patients were administered either placebo or 2mg of folic acid 400 micrograms of cyanocobalamin and 25 mg of pyridoxine
- This reduced homocysteine levels by 39%; supplementation also significant reduced headache frequency and severity

Tool box: Behaviour and Lifestyle Modification

Behavioural and physical treatments may be very effective particularly in patients who:

- preference for non-pharmacologic interventions
- poor tolerance for specific pharmacological treatments
- medical contraindications for specific pharmacologic treatments
- insufficient or no response to pharmacologic treatments
- pregnancy, planned pregnancy or nursing
- history of long-term frequent or excessive use of analgesics (decreased responsiveness to pharmacotherapies)
- significant stress or deficient stress coping skills

Tool box: Behaviour and Lifestyle Modification

- Pain patients with an internal locus of control have lower levels of anxiety, depression and disability than those who believe that they have no control over their condition
- **changing outlook from powerlessness to empowerment will often result in a reduction of headaches.
- Specific psychological approaches found to be effective in patient with pain are cognitive behavioural therapy and acceptance and commitment therapy (ACT).

Tool box: CBT

CBT

- Cognitive: identifying and challenging dysfunctional thoughts and the beliefs that give rise to these thoughts
- Behavioural: focus on identifying behaviours that may trigger, increase or perpetuate headaches

Tool box: CBT

CBT

- useful in patients with concurrent significant psychological or environmental problems that exacerbate headaches or prevent the implementation of self regulation skills, chronic work stress, mood disorders, adjustment problems
- address and manage co-morbidities depression, anxiety, panic attacks, eating disorders, sleep disorders
- target patients with low self efficacy (belief that only physician or medication can alter pain) or catastrophizing thinking patterns
- American HA Consortium Grade A evidence for CBT in migraine and chronic TTH (can decrease chronic TTH activity by 40-50%).

Tool box: Biofeedback

- Involves learning to control bodily functions that normally are not under our conscious control (such as muscle tone or skin temperature) all require achievement of deep state of relaxation
- Regular daily practice in addition to instructional sessions is necessary for success
- A 2007 meta-analysis (55 studies) provided strong evidence for efficacy and duration of treatment effect.
- **any form of meditation done daily is likely to produce significant benefits

Tool box: Physical Therapies

AEROBIC EXERCISE

- Swedish Study 40 minutes aerobic exercise 3 X per week vs topiramate vs. relaxation training – each method equally effective.
- ONLY TOPIRAMATE CAUSED SIDE EFFECTS (IN 33% OF PATIENTS).

Tool box: Physical Therapies

Isometric Neck Exercises

- neck pain is more frequently associated with migraine headaches than nausea
- Headache trigger vs. early manifestation
- Isometric neck exercises: can be effective in treatment of cervivogenic heaches and migraine accompanied by neck pain.
- Goal of exercises is to strengthen neck muscles which will render them more resilient and less likely to return to spasm

Tool box: Physical Therapies

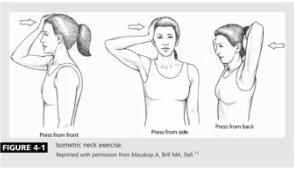


FIGURE 4-1 Nonstatic neck exercise.
Reprinted with permission from Masulap A, Bell MA, Bell T.

Continuum Headache 2012

Tool box: Other Alternative Therapies

Acupuncture

- DBPCT
 - considerable challenges
 - large placebo effect
- German study (where acupuncture is more integrated into standard HA care)
- 15,056 patients with relatively undifferentiated headache (TT, M)

Tool box: Other Alternative Therapies

Acupuncture

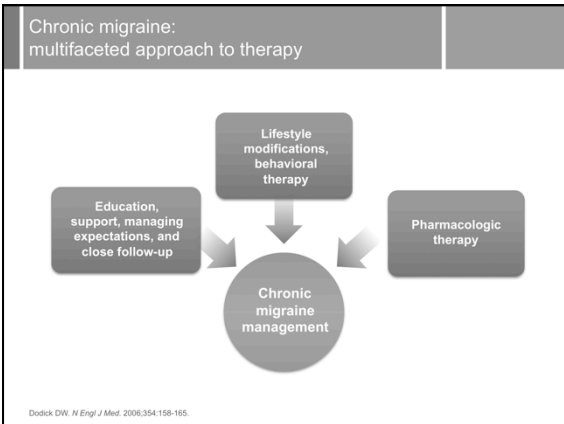
- acupuncture/acupuncture + standard care/standard care alone)
- 45% decrease in headache days in acupuncture patients vs. control.
- Duration of treatment: 10 sessions on a twice weekly basis

Toolbox: Common Sense

- regular meals
- regular sleep schedule
- avoidance of high simple carbohydrate foods
- increase protein intake
- adequate hydration (1.5 L/day minimum)
- restriction of caffeine intake
- regular aerobic exercise
- biofeedback and or meditation

Chronic Migraine - Summary

- Diagnosis of CM is straightforward (> 15 headache days per month, and a diagnosis of migraine)
- Most patients with CM have medication overuse
- Successful treatment requires a holistic approach



Medication Overuse Headache

- What is it?
 - An interaction between a therapeutic agent and a susceptible patient
- Prevalence:
 - European specialist clinics 10-20% of referrals
 - in US up to 80%.

MOH: the susceptible patient

- Two key studies:
 - Wilkinson 2001 studied a cohort of patients who underwent colectomy for UC.
 - All patients with Hx of migraine who overused opioids developed a chronic daily headache whereas none of the patients without migraine who overused opiates developed chronic headaches.
 - Bahra et al 2004 studied use of NSAIDs in rheumatological patients daily in large doses
 - no chronic daily headaches if no history of migraine,
 - if + migraine hx then NSAIDS were a strong risk factor for chronic daily headache.

MOH: the therapeutic agent

- Emerging evidence for triptan induced latent trigeminal sensitization mediated by nNOS
- sustained exposures produced neural adaptations which increase sensitivity to migraine triggers – in *normal* animals.

Denuelle et al Neurology 2011; 76: 213-216

Key Points

- Even when overused medication is prescribed for reasons other than headache – may still be associated with a chronic daily headache
- Acute medication overuse induces chronic daily headache only in those predisposed (ie hx of migraine)
- NB in some patients med overuse may be a response to an already refractory headache

MOH: Clinical Features

- Seen with analgesic use > 2-3 days/week
- Escalating doses with decreasing effectiveness
- Withdrawal symptoms when off medication
- Incomplete relief with re-dosing
- Patients 'fear' next attack

Medication Overuse Headache

- Headache on > 15d per month AND
 - Triptans: > 10d per month for > 3 months
 - Analgesics > 15d per month for > 3 months
 - Opioids > 10 days/m > 3 months
 - Combination of above > 10d/m > 3 months

Medication Overuse Headache

- Clinical studies suggest time to develop MOH is actually much longer
- HOW LONG?
- On average 5 years
- shortest for triptans 1-2 years

MOH

- What are the 3 most commonly over-used medications?

Medication Overuse Headache

- Most common: bulalbital, acetaminophen, opioids
- Also common with
 - Tylenol,
 - Codeine,
 - caffeine-containing meds
 - ibuprofen
 - triptans

MOH - Management

- Detox is essential:
- Penzien et al 2005
 - 1 year follow-up 73% decrease in headache frequency w/ successful detox vs. 17% w/out detox
 - 70 % returned to episodic headaches vs. 15.3% who continued med overuse.

Relapse 1 year post detox 38%

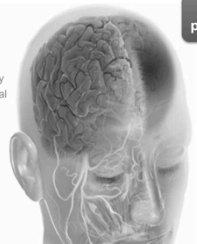
MOH - Management

- 1) Gradual preventative + gradual taper of opioid/ analgesic etc.
- 2) Abrupt discontinuation of offending drug and bridge therapy – then taper transitional medication (bridge steroids +/-triptans)
- 3) Rapid preventative and discontinuation of over used med AND bridge

- COMPREHENSIVE APPROACH TO TX OF UNDERLYING PRIMARY HEADACHE

Review DDx of CDH

Differential diagnosis of chronic daily headache, cont'd



- Chronic migraine^{1,2}**
 - Can be unilateral or bilateral
 - Migrainous pulsating quality
 - Moderate/severe pain intensity
 - Aggravation by routine physical activity
- New daily persistent headache^{1,2}**
 - Defined by new onset (within 3 days) and persistency
 - But characteristics of pain are not considered in making the diagnosis
- Hemicrania continua^{1,2}**
 - Strictly unilateral location
 - Daily and continuous, without pain-free periods
 - Moderate intensity, but with
- Chronic tension-type headache^{1,2}**
 - Bilateral location
 - Pressing/tightening (non-pulsating) quality
 - Mild or moderate intensity

ACE and Chronic headaches

- Childhood adversity/neglect
 - Dysfunctional Home
 - Alcoholic parent, parental discord/divorce, parent with mental illness
 - Witnessed or experienced abuse
 - Marital abuse/domestic violence, physical abuse, sexual abuse, emotional abuse, bullying
 - Death of a parent
 - Lack of nurturing

Migraine and ACE

- 1348 migraineurs (Tletjen 2010)
 - 21% physical abuse
 - 25% sexual abuse
 - 38% emotional abuse
 - 22% physical neglect
 - 38% emotional neglect

STRONG association with depression and anxiety

Migraine and ACE

- Female Migraineurs vs. Controls (Tletjen 2012)
 - ACE in 71% vs 46% of controls
 - ACE correlated with more frequent migraine and younger age of onset
- Association between ACE, migraine and inflammatory markers.

ACE and Chronic Headaches

- How does ACE translate to disease
 - Stress hormones regulate immunity and inflammation
 - Adults with ACE increased inflammatory biomarkers, increased cancer risk, chronic disease risk
 - In animal models differential gene expression in brain
 - In human studies
 - Abnormal cortical regulation, increased baseline levels
 - increased sensitivity to minimal stress
 - Hippocampal volume loss (depression, DM and PTSD)
 - Amygdala volumes increase

ACE and Chronic Headaches

- Some of these physiological changes are reversible
 - Hippocampal volumes increase with exercise and antidepressant therapy
 - Amygdala volumes normalize with mindfulness and other treatments directed at symptoms of anxiety.

 - So..in treating a chronic migraine at 30 you may be preventing a cancer at 50...you may also be reducing the risk of neurodegenerative disease in later life.

Migraine and Psychiatric Comorbidity



- Migraineurs are:
 - 2-4 times more likely to develop lifetime MDD
 - 2.5-3 times more likely to suffer from bipolar disorder


- Patients with Migraine and Mood Disorder
 - Have poorer health outcomes including disability, QOL, and health care utilization in population based studies
 - Have poorer response to migraine medication

Neurostimulation in CH

Non-invasive techniques

- Vagal Nerve Stimulation (gamma-core device)
- SPG Block







Neurostimulation in CH

Non-invasive techniques

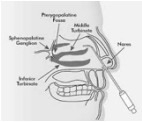
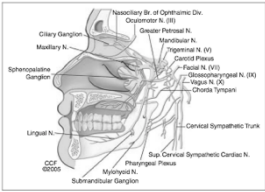
- Vagal Nerve Stimulation (gamma-core device)
 - 11 CCH (7 of whom were 'refractory')/8 ECH patients
 - Acute and prophylactic treatment combined over 12 months
 - No adverse effects
- RESULTS:
 - 15/19 patients reported average improvement from baseline of 50%
 - 1/2 of treated attacks aborted within 15 mins




Neurostimulation in CH

Non-invasive techniques


- SPG Block



Neurostimulation in CH

- Invasive techniques
 - ▣ Posterior Hypothalamic stimulation
 - ▣ SPG stimulation
 - ▣ Invasive Vagal Nerve Stimulation
 - ▣ Occipital Nerve Stimulation



Neurostimulation in CH


Stimulation of the sphenopalatine ganglion (SPG) for cluster headache treatment. Pathway CH-1: A randomized, sham-controlled study

Janik Schwaninger¹, Ralfmarc Halbach Jensen², Michael Lueder-Richter³, Ralfmarc Halbach Jensen⁴, Charly Guille⁵, Amy M Goodwin⁶, Anthony Caporaso⁷ and Anne May⁸

Table 3. Patient headache history — Four patients out of 22 reported a range of CH attacks per week, the minimum number of CH attacks was used for each of these patients.

Headache history (N = 22 patients)	Frequency/average (range)	Percentage of patients
Baseline CH attacks/week:	11.2 (4-20)	
CH attack laterality:	Left dominant	47%
Percentage of CH attacks with associated autonomic symptoms:	>75%	39%
	50-75%	13%
	25-50%	19%
	<25%	9%
CH attack-related associated and/or autonomic symptoms:		
Lacrimation	30	94%
Conjunctival injection	29	91%
Rhinorrhoea	26	81%
Sense of restlessness	24	75%
Nasal congestion	22	69%
Phosia	22	69%
Photophobia	18	56%
Phonophobia	16	50%

CH cluster headache.

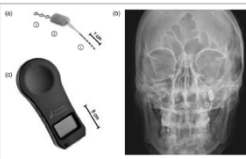



Neurostimulation in CH

- Invasive techniques
 - ▣ SPG stimulation

Significant Pain Relief with Full Stimulation vs. Sham
(p<0.0002)

Time Point	Pain Relief (%)	Pain Freedom (%)
T15	67%	7%
T30	56%	8%
T60	61%	12%
T90	60%	13%

Cervicogenic headache: features to differentiate from Chronic Migraine	
<p>Characteristics¹</p> <ul style="list-style-type: none"> • Source of pain in cervical spine • Clinical features may include: <ul style="list-style-type: none"> - Neck pain - Focal neck tenderness - Posterior onset of pain² - Mechanical exacerbation of pain - Unilaterality - Coexisting shoulder pain - Reduced range of motion in the neck - Nuchal onset - Nausea - Vomiting - Photophobia 	<p>ICHD-II Diagnostic Criteria¹</p> <ul style="list-style-type: none"> A. Pain, referred from source in neck and perceived in one or more regions of head and/or face, fulfilling criteria C and D B. Evidence of disorder or lesion within cervical spine or soft tissues of neck that is a valid cause of headache C. Evidence that pain can be attributed to neck disorder or lesion, based on at least one of the following: <ol style="list-style-type: none"> 1. Demonstration of clinical signs that implicate a source of pain in neck 2. Abolition of headache following diagnostic blockade of a cervical structure or its nerve supply using placebo or other adequate controls D. Pain resolves by 3 months after successful treatment of causative disorder or lesion
<small>1. Headache Classification Committee. Cephalalgia. 2004;24(suppl 1):9-160. 2. Becker WJ. Headache. 2010;50:699-705.</small>	

Explosive Headache
<ul style="list-style-type: none"> <input type="checkbox"/> Recommended W/U <ul style="list-style-type: none"> <input type="checkbox"/> Chest x-ray <input type="checkbox"/> CT and LP for bleed <input type="checkbox"/> MRI w/wo gad for posterior fossa lesion <input type="checkbox"/> MRA for aneurysm <input type="checkbox"/> MRV for cortical venous thrombosis <input type="checkbox"/> Arterial dopplers, dynamic vascular studies for thoracic outlet obstruction

Explosive Headache
<ul style="list-style-type: none"> <input type="checkbox"/> MRI with careful look at posterior fossa <input type="checkbox"/> Secondary causes for cough headache occur at least 40% of the time, usually Chiari I <input type="checkbox"/> MRI needed to rule out secondary cough HA: <ul style="list-style-type: none"> <input type="checkbox"/> Aneurysms <input type="checkbox"/> Pathology affecting carotid or vertebrobasilar system

Explosive Headache

- MRI with careful look at posterior fossa
- Secondary causes for cough headache occur at least 40% of the time, usually Chiari I
- MRI needed to rule out secondary cough HA:
 - Aneurysms
 - Pathology affecting carotid or vertebrobasilar system
 - Spontaneous Intracranial Hypotension

Explosive Headache

- Treatment
 - Traditional anti-migraine agents (Topamax?)
 - Triptans and/or ergots
 - Indomethacin
 - High volume removal of CSF via LP
 - Rib binder

Explosive Headache

- Pearls
 - 1st eliminate secondary causes
 - Indomethacin can successfully treat secondary cough headaches, so beware
 - Primary cough headache generally occurs over age 40
 - Higher index of suspicion for secondary causes in younger patients
 - Use of a daily NSAID is frequently seen in patients with indomethacin responsive syndromes
