Migraine: Clinical Overview and Hormonal Links

Esther Tomkins

Clinical Nurse Specialist

March 2018

Institutions & Organisations

- National organizations – Migraine Association of Ireland (MAI) & Migraine Trust (UK)
- European Headache Federation (EHF)
- World Health Organization (WHO)
- European Brain Council
- Lifting The Burden (LTB)
- Focus on the high prevalence and high disability of headache

Clinical Burden of Headache

- Tension-type headache and migraine are the second and third most prevalent medical disorders on the planet
- Believed to be more than 1,000,000,000 people with migraine in the world
- Account for 4% of consultations in primary care in the UK[1]
- GP's refer 2% to neurology clinics
- Accounts for 30% neurology outpatient consultations in the UK[1]
- Migraine is the most common primary headache seen by doctors (population prevalence of 15-20%)[1] and it affects over 600,000 people in Ireland[2]
- Causes severe disability in some patients[3]

1. NICE Clinical Guideline 150. Headaches costing report. September 2012
2. The Irish Nurses & Midwives Organisation http://www.inmo.ie/Home/Index/7066/8626 Accessed OCTOBER 2013
3. World Health Organization. The Global Burden of Disease: 2004 update, Part 3, p28–37. http://www.who.int/healthinfo/global_burden_disease/2004_report_update/en/ last accessed October 2013

Burden of Migraine

- World Health Organisation (WHO) – in 2000, migraine ranked as the 12th most disabling medical condition for women
- WHO (Global Burden of Disease study, 2016) - migraine ranked as the 4th most disabling medical condition for women (7th most disabling overall)[2]
- Chronic Daily Headache >15 days per month (affects 3-4% of people in the UK)[3]
- In lower socioeconomic populations, higher prevalence of CDH (for example, 10% Russia & 8% Georgia)

1. WHO (2001) The World Health Report 2001: Mental health, new understanding new hope. World Health Organization, Geneva, Switzerland www.who.int/whr/2001/en/whr01_en.pdf Accessed October 2013
2. World Health Organization and Lifting The Burden. Atlas of headache disorders and resources in the world 2011. WHO, Geneva; 2011.
3. NHS UK http://www.nhs.uk/Livewell/Pain/Pages/Headachesandmigraines.aspx Accessed October 2013

Burden of Migraine

- Estimated migraine costs
- Direct costs – medication, out patient visits, healthcare[1-2]
- Indirect costs - work, productivity, impaired quality of life, financial burden[1-2]
- Annual cost per patient - €1,200/year (plus medication overuse €3,500/year)
- Migraine - in the EU, migraine is estimated to cost €50,000,000,000 per annum (plus 37 billion per annum for medication overuse headache)

1. Steiner TJ *et al. Cephalalgia* 2003;**23**:519–527.
2. Hawkins K *et al. Headache* 2008;**48**:553−563.

Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010

THE LANCET

Lancet 2012; 380: 2197–223

Tension-type headache and migraine are the **2nd and 3rd most prevalent** medical disorders on the planet

Migraine accounts for **30%** of the global burden and more than **50%** of the disability burden attributable to all neurological disease worldwide.

Overall, it is the **4th** ranking cause among women and the **7th** ranking cause of all disease-associated disability worldwide.

Migraine

- Neurological Condition - brain disorder
- Complex syndrome - not just Headache
- Headache with associated features
- Dysfunction of nerve cells in the brain
- Causes brain hypersensitivity
- Genetic factors - family history
- Three genes for familial hemiplegic migraine (FHM) are known

Migraine – How common?

- Very common
- Prevalence 4/10 Women, 2/10 Men
- More than 90% patients attending GP with headache were diagnosed with Migraine (Tepper et al., 2004)
- Patients are often diagnosed with tension-type headache, neck problems or sinusitis

Migraine – Diagnostic Criteria

- IHS Classification (2004)
- Repeated attacks lasting 4-72 hours:
  - Normal physical examination
  - No other reasonable cause for the H/A
  - At least 2 of: pain on one side, throbbing/pounding pain, movement aggravation, moderate/severe intensity
  - Nausea, vomiting, photophobia or phonophobia

Migraine – Human Cost

- Patients – 25% will have four or more severe attacks per month (lasting 24 hours)
- Episodic migraine often changes into a chronic daily headache (CDH – defined as headache on more than 15 days per month – often daily)
- The headache is usually mild for most of that time – superimposed severe episodes
- Transformed migraine or chronic migraine

Most Important Clinical Points

- Patients history – all important
- Aim is to get a definite diagnosis and exclude secondary causes of headache
- Inadequate history is the cause of most misdiagnosis
- Most headache groups have developed standard questions to help with history taking (for example, the Headache Information Board in Beaumont)

Tools to Aid the Clinical History

- Almost all headache experts use headache diaries and appropriate assessment questionnaires to diagnose and manage headache
- Headache Impact Test (HIT/HIT6) & Migraine Disability Assessment (MIDAS)
- ID Migraine

Migraine – Patients Symptoms

- **Headache** – pounding, tight, pressure, dull ache, muzziness, fullness or abnormal sensation
- Headache may not be a prominent feature
- **Location**: top, front or back of head – not always one sided
- Photophobia, Phonophobia & Osmophobia
- **Nausea/Vomiting** – travel sickness, repeated abdominal pain
- **Unsteadiness/dysequilibrium** – like being on a boat or drinking alcohol (without the alcohol)

Migraine – Symptoms

- **Eyes** – drooping eyelids, swelling around eyes, tearing or conjunctival injection (bloodshot)
- **Visual** – wavy lines, visual loss of part of vision (eg. tunnel vision)
- **Nose** – stuffed (nasal congestion) in 87% of people with migraine - confused with sinusitis
- **Face** – neuropathic facial pain: pain in teeth, jaw, cheeks, TMJ
- **Limbs** – pain, tingling, numbness, “heaviness”, weak (hemiplegic migraine)
- **Ears** – pain, fullness, deafness or tinnitus
- **Neck/back** – stiff neck, shoulder & back pain

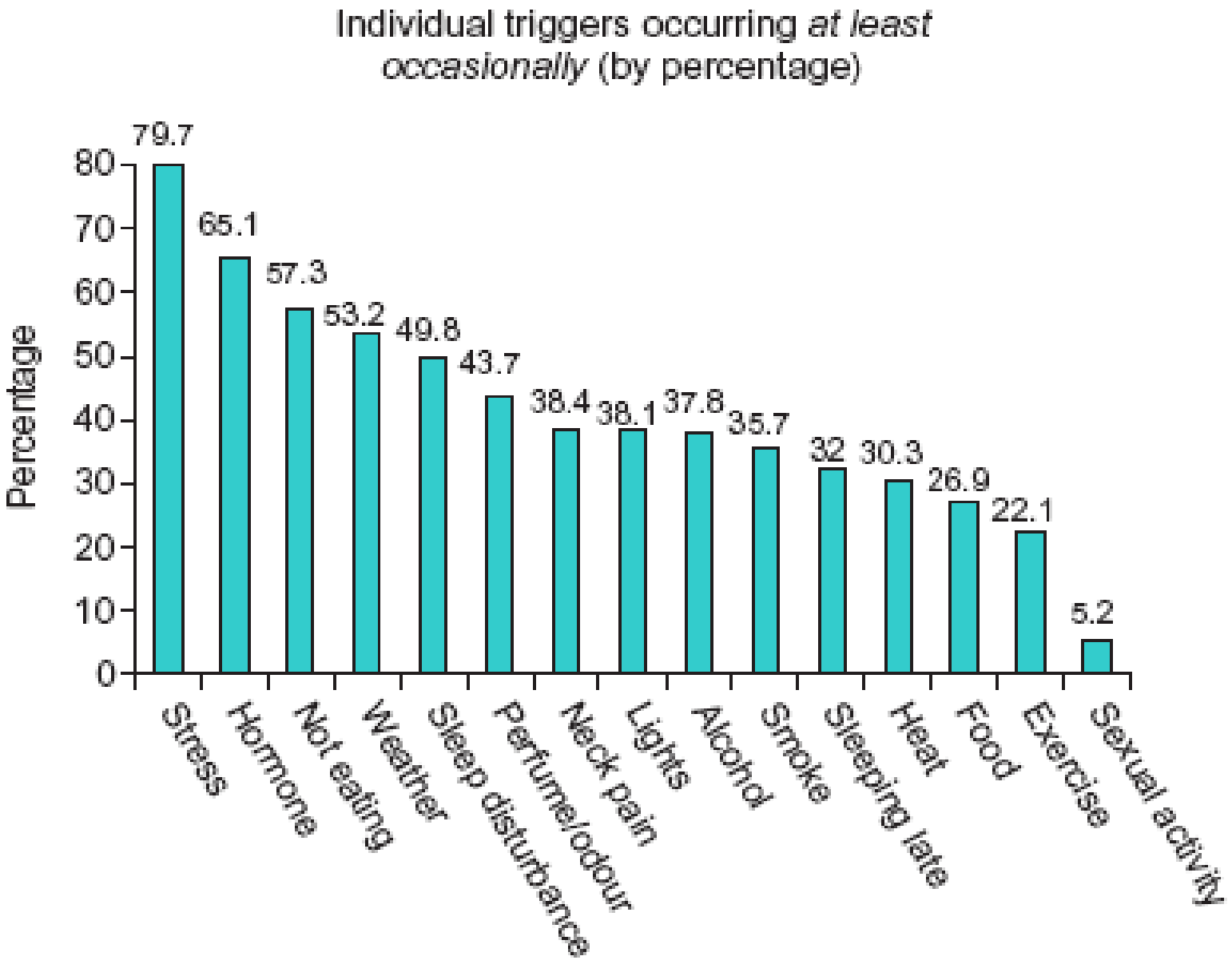
Symptoms - Summary

- Migraine patients often have a variety or constellation of different symptoms affecting head, vision, balance, neck, ears, nose, eyes, scalp, face & limbs
- Headache may NOT be the most prominent symptom
- Often labelled as depressed, tension type headaches, neck related headaches, jaw/teeth problems or sinusitis

Migraine – Triggers

- Change in routine
  - Sleep habits – sleeping in, sleep deprivation
  - Eating habits – going hungry (low sugar levels)
- Stress
- Hormonal changes
- Alcohol
- Weather – stormy weather
- Food and drinks

COMMON TRIGGERS (Kelman 2007)



Hormonal Factors

- Pure Menstrual Migraine: 7-14%
- Strict definition: occurs on days (-2) to +(3) of menstruation and at no other time
- Menstrual-related migraine: 60-70%
- Most common type
- Occurs at menstruation in two thirds of attacks and at other times during the month

Headache Diary

- Menstrual-related migraine becomes apparent after reviewing a headache diary
- Reluctance to discuss with GP
- Patients often believe symptoms are part of the menstrual cycle
- Puberty: important to keep a diary

Pathophysiology

- Significant factor in hormonal migraine is the fall in oestrogen which occurs at ovulation and menstruation
- This decrease in oestrogen hormone often contributes to migraine attacks

Acute Treatment

- Critical time is (-2) to (+3) days of menstrual cycle
- Treatment is the same whether it is menstrual or non-menstrual migraine
- Triptans such as frovatriptan (Frovex) or naratriptan (Naraverg) are usually drug of choice + NSAID'S (naproxen/Naprosyn 500mg twice daily) two days before cycle and continues through menses
- Often helps menstrual cramps

Cycle Treatment

- Mini prevention or prophylaxis, 3-6 days
- Try to limit triptan (frovatriptan/Frovex or naratriptan/Naraverg) use to 4-6 days
- Risk rebound headache or medication overuse
- Caution (theoretical) - patients with vascular disease

Alternative Prevention

- Increase existing preventive medication for a total of five days before and during the menses
- Add magnesium 500mg daily
- Consider additional vitamins or minerals such as co-enzyme Q10

Oral Contraception Points

- Rule of Third's is the general principle
- Progesterone only: contraceptive of choice
- Women may have their first attack when using OCP
- Stopping OCP: frequency and severity of migraine may increase. New onset aura, unusual or prolonged migraine aura
- Risk of stroke: significant increased risk if triad of migraine aura, COCP and smoking

Pregnancy

- 50% pregnancies are unplanned
- Caution when prescribing to women of childbearing age (especially valproate)
- Education is the key
- Less than 8% women worsen
- Most women improve during 2nd and 3rd trimester

Treatment in Pregnancy

- Lifestyle, Diet, Stress management, Hydration, yoga
- Paracetamol
- Stop valproic Acid or valproate (Epilim)
- Low dose propranolol or amitriptyline ok?
- Steroids should not be routinely used
- GON Blocks (small steroid dose)
- A&E – IV fluids / Ondansetron 8mg IV
- Metoclopramide

Breastfeeding

- Half of migraine patient's will have a recurrence of migraine within one month of giving birth.
- Pump and Dump. Most medications are passed into breast milk.
- Can store frozen breast milk.

Menopause & hormones

- Perimenopause: defined as the decade preceding menopause
- Menopause: defined as the absence of menstruation for one year
- Average age natural menopause is 53
- 5-7 years
- Natural menopause 60-70% improve
- Surgical menopause 40-70% worsen

HRT

- Variable effect on migraine
- 50% no change, 25% worsen, 25% improve
- Transdermal HRT preferable to oral HRT
- Less variable absorption

General Principles of Acute Migraine Treatment

- Painkillers/analgesics, triptans and NSAID's are excellent drugs if used infrequently or for short courses
- Number of days per month is the key
- Regular use of even small doses (more than one/two days per week) is a bad idea
- Avoid codeine and opiates
- Naproxen (Naprosyn) more frequently

Migraine Preventive Treatment

- 10 different preventives or prophylactic agents for migraine (at least)
- Start low dose and go slowly upwards
- Combine preventives with acute medication or GON blocks or Botox or DHE or other treatments
- Monitor for efficacy and side effects

Beaumont & Mater Hospital Headache Clinics

- Multidisciplinary (doctors, nurses, PT, etc.)
- 45-60 patients per week
- Vast majority of patients have migraine
- >50% of patients have chronic daily headache (CDH)
- Medication overuse is a major problem