Clinical Guidelines
for the State of Qatar

Headache in adults

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Headache in adults
(Date of next revision: March 2019)
1 Information about this guideline

1.1 Objective and purpose of the guideline
The purpose of this guideline is to define the appropriate diagnosis and management of headaches in adults. The objective is to improve the appropriateness of investigation, prescribing and referral of patients presenting to healthcare provider organisations in Qatar. It is intended that the guideline will be used primarily by physicians in both primary care and secondary care outpatient settings.

1.2 Scope of the guideline
Aspects of care covered in this guideline include the following:
- Diagnosis and assessment of headaches presenting in adults aged over 18 years.
- Diagnosis and management of primary headaches, including:
  - Migraine.
  - Tension headache.
  - Cluster headache, i.e. trigeminal autonomic cephalalgias.
- Consideration of medication-overuse headache.
- Red flags and indications for emergency referral.

Aspects of care covered in this guideline include the following:
- Management of the serious pathological causes of headache.

1.3 Editorial approach
This guideline document has been developed and issued by the Ministry of Public Health of Qatar (MoPH), through a process which aligns with international best practice in guideline development and localisation. The guideline will be reviewed on a regular basis and updated to incorporate comments and feedback from stakeholders across Qatar.

The editorial methodology, used to develop this guideline, has involved the following critical steps:

- Extensive literature search for well reputed published evidence relating to the topic.
- Critical appraisal of the literature.
- Development of a draft summary guideline.
- Review of the summary guideline with a Guideline Development Group, comprised of practising physicians and subject matter experts from across provider organisations in Qatar.
- Independent review of the guideline by the Clinical Governance body appointed by the MoPH, from amongst stakeholder organisations across Qatar.

Explicit review of the guideline by patient groups was not undertaken.

Whilst the MoPH has sponsored the development of the guideline, the MoPH has not influenced the specific recommendations made within it.

1.4 Sources of evidence
The professional literature published in the English language has been systematically queried using specially developed, customised, and tested search strings. Search strategies are developed to allow efficient yet comprehensive analysis of relevant publications for a given topic and to maximise retrieval of articles with certain desired characteristics pertinent to a guideline.
For each guideline, all retrieved publications have been individually reviewed by a clinical editor and assessed in terms of quality, utility, and relevance. Preference is given to publications that:

1. Are designed with rigorous scientific methodology.
2. Are published in higher-quality journals (i.e. journals that are read and cited most often within their field).
3. Address an aspect of specific importance to the guideline in question.

Where included, the ‘goal length of stay’ stated within this guideline is supported by and validated through utilisation analysis of various international health insurance databases. The purpose of database analysis is to confirm the reasonability and clinical appropriateness of the goal, as an achievable benchmark for optimal duration of inpatient admission.

1.5 Evidence grading and recommendations
Recommendations made within this guideline are supported by evidence from the medical literature and where possible the most authoritative sources have been used in the development of this guideline. In order to provide insight into the evidence basis for each recommendation, the following evidence hierarchy has been used to grade the level of authoritativeness of the evidence used, where recommendations have been made within this guideline.

Where the recommendations of international guidelines have been adopted, the evidence grading is assigned to the underlying evidence used by the international guideline. Where more than one source has been cited, the evidence grading relates to the highest level of evidence cited:

- **Level 1 (L1):**
  - Meta-analyses.
  - Randomised controlled trials with meta-analysis.
  - Randomised controlled trials.
  - Systematic reviews.

- **Level 2 (L2):**
  - Observational studies, examples include:
    - Cohort studies with statistical adjustment for potential confounders.
    - Cohort studies without adjustment.
    - Case series with historical or literature controls.
    - Uncontrolled case series.
  - Statements in published articles or textbooks.

- **Level 3 (L3):**
  - Expert opinion.
  - Unpublished data, examples include:
    - Large database analyses.
    - Written protocols or outcomes reports from large practices.

In order to give additional insight into the reasoning underlying certain recommendations and the strength of recommendation, the following recommendation grading has been used, where recommendations are made:

- **Recommendation Grade A1 (RGA1):** Evidence demonstrates at least moderate certainty of at least moderate net benefit.
• **Recommendation Grade A2 (RGA2):** Evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care.

• **Recommendation Grade B (RGB):** Evidence is insufficient, conflicting, or poor and demonstrates an incomplete assessment of net benefit vs harm; additional research is recommended.

• **Recommendation Grade C1 (RGC1):** Evidence demonstrates a lack of net benefit; additional research is recommended.

• **Recommendation Grade C2 (RGC2):** Evidence demonstrates potential harm that outweighs benefit; additional research is recommended.

• **Recommendation of the GDG (R-GDG):** Recommended best practice on the basis of the clinical experience of the Guideline Development Group members.

### 1.6 Guideline Development Group members

The following table lists members of the Guideline Development Group (GDG) nominated by their respective organisations and the Clinical Governance Group. The GDG members have reviewed and provided feedback on the draft guideline relating to the topic. Each member has completed a declaration of conflicts of interest, which has been reviewed and retained by the MoPH.

<table>
<thead>
<tr>
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### 1.7 Responsibilities of healthcare professionals

This guideline has been issued by the MoPH to define how care should be provided in Qatar. It is based upon a comprehensive assessment of the evidence as well as its applicability to the national context of Qatar. Healthcare professionals are expected to take this guidance into account when exercising their clinical judgement in the care of patients presenting to them.

The guidance does not override individual professional responsibility to take decisions which are appropriate to the circumstances of the patient concerned. Such decisions should be made in

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¹ Dr Ahmed Babiker attended the MOPH in his capacity as a Clinical Pharmacist and advisor on the availability of medications in Qatar.
consultation with the patient, their guardians, or carers and should consider the individual risks and benefits of any intervention that is contemplated in the patient’s care.
## 1.8 Abbreviations used in this guideline

The abbreviations used in this guideline are as follows:

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>ACE</td>
<td>Angiotensin converting enzyme</td>
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<td>ARBs</td>
<td>Angiotensin receptor blockers</td>
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<tr>
<td>CBT</td>
<td>Cognitive behaviourial therapy</td>
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<tr>
<td>COCP</td>
<td>Combined oral contraceptive pill</td>
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<tr>
<td>COPD</td>
<td>Chronic obstructive pulmonary disease</td>
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<tr>
<td>ECG</td>
<td>Electrocardiogram</td>
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<td>EMG</td>
<td>Electromyography</td>
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<tr>
<td>FDA</td>
<td>US Federal Drug Administration</td>
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<td>HRT</td>
<td>Hormone replacement therapy</td>
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<td>MOH</td>
<td>Medication-overuse headache</td>
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<tr>
<td>NSAID</td>
<td>Non-steroidal anti-inflammatory drug</td>
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<tr>
<td>TCA</td>
<td>Tricyclic antidepressants</td>
</tr>
<tr>
<td>TID</td>
<td><em>Ter in die</em> (three times per day)</td>
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<tr>
<td>TTH</td>
<td>Tension-type headache</td>
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2 Organisation of care in Qatar

2.1 Role of the Ministry of Public Health
The Ministry of Public Health of Qatar (MOPH) has been given the responsibility to guide reform in Qatar in order to establish one of the world’s most admired and renowned healthcare systems. The MOPH’s role is to create a clear vision for the nation’s health direction, set goals and objectives for the country, design policies to achieve the vision, regulate the medical landscape, protect the public’s health, set the health research agenda, and monitor and evaluate progress towards achieving those objectives.

The MOPH has the dual mandate to develop policies and programmes to improve the people’s health so that they may enjoy longer and more productive lives, and to lay the foundation for a vibrant country for decades to come.

The MOPH does not provide clinical services. Instead its goal is to vest responsibility for care in the hands of both public and private sector healthcare institutions, whilst regulating, monitoring, and evaluating this care against agreed upon outcomes. The MOPH is committed to establishing an environment that promotes quality and wellness through policies in such areas as public health, health insurance, information technology, licensure and credentialing; and continuing medical education.

2.2 Provision of care
Healthcare provision in Qatar comprises of the following main entities:

- Public Sector:
  - Primary care health centres - provided by the Primary Health Care Corporation of Qatar.
  - Secondary and tertiary care hospitals and outpatient clinics - provided by the Hamad Medical Corporation (HMC).
  - Paediatric Emergency Care provided by specialist Paediatric Emergency Centres within HMC.
  - QP Clinics for personnel and families of Qatar Petroleum.
  - Sports Medicine centre provided by a specialist Sport Medicine Hospital – Aspetar.
  - Ministry of Interior clinics for personnel and families of Qatar’s police services.
  - Ministry of Defence clinics for personnel and families of Qatar’s armed forces.
  - Specialist obstetric, gynaecological and paediatric care provided by Sidra Medical & Research Center.

- Private sector:
  - A range of single-handed generalist and specialist clinics.
  - Polyclinics.
  - Specialist hospitals.

The aim of the MOPH’s National Health Strategy is to rebalance healthcare delivery with a greater emphasis on primary and community care and an expansion of the role played by the private sector.
3 Key recommendations of the guideline

The key recommendations of this guideline are:

Investigation:
- Is indicated only when history or examination suggest headache is secondary to another condition [6][L2].
- Is not recommended simply to reassure patients who have a primary headache [6][L2, RGA1].
- Neuroimaging and lumbar puncture may be appropriate for patients presenting with red flag symptoms or signs (see Section 7) [2,10-12].

Tension-type headache:
When considering management options for tension-type headache note that [4][L2]:
- The type of management depends on the nature of the tension-type headache:
  - Use acute drugs in episodic tension-type headache:
    - Use simple analgesia as first-line treatment [2][L1, RGA1].
    - Use combination analgesics containing caffeine as second-line treatments [2,4][L1, RGA1].
  - Use prophylactic drugs in chronic tension-type headache:
    - Use amitriptyline as first-line prophylaxis [4,6][L2, RGA2].
    - Use either mirtazapine, venlafaxine, or gabapentin as alternative prophylactic choices [4,6][L2, RGA2].
  - Analgesics are often ineffective in chronic tension-type headache.
- Non-pharmacological treatment of chronic tension-type headache should always be considered (see Section 8.2.3).

Migraine headaches:
Pharmacological treatment of migraine:
- Simple analgesia:
  - Use paracetamol for migraines of mild to moderate severity [2,6][L1, RGA1].
  - Use an NSAID for migraines of all severities [2][L1, RGA1].
- Triptans (available triptans in Qatar) are:
  - Oral zolmitriptan and both oral and subcutaneous sumatriptan.
  - Consider subcutaneous sumatriptan (6 mg) [2][L1, RGA1]:
    - In severe migraine and those who were not adequately managed with oral triptans or those with vomiting early on during migraine attacks.
  - Consider a combination of oral sumatriptan (50-100 mg) and naproxen sodium (500-550 mg)[2][L1, RGA1]:
    - This may be particularly useful in patients with prolonged attacks and/or headache recurrence.
- Consider an oral anti-emetic even in the absence of nausea or vomiting [2,15][L1].

Pharmacological prophylaxis of migraine:
- Consider using one of the following as prophylactic treatment [2,6,16][L1, RGA1]:
  - Beta-blockers.
  - ARBs and ACE inhibitors.
  - Calcium-channel blockers.
  - Antidepressants.
  - Antiepileptics.
Cluster headaches:
- Refer all patients with a first-episode of cluster headache to a neurologist to confirm the diagnosis [R-GDG].
- Acute treatment options include:
  - 100% oxygen therapy [2,3][L2].
  - Subcutaneous triptan [3,23][L2].
- Acute treatment should not include any of the following [3][L2]:
  - Paracetamol.
  - NSAIDs.
  - Opioids.
  - Ergots.
- Transitional preventative treatment allows for rapid suppression of cluster attacks in the interim until the maintenance prophylaxis reaches therapeutic levels [18]. Options include [2,6,18]:
  - Corticosteroids.
  - Occipital nerve block.
- The goal of maintenance prophylaxis is to provide sustained suppression of headaches during the expected cluster period [2,22]:
  - Use verapamil as first-line prophylaxis.
  - Use lithium as second-line prophylaxis.
  - Melatonin may also be used in some patients [2][L1, RGA1].

Medication-overuse headache:
- Medication withdrawal should be attempted in all patients with medication-overuse headache [2][L3].
- Consider prescribing prophylactic treatment for the underlying primary headache disorder in addition to withdrawal of overused medication [3][L2].
- Do not routinely offer inpatient withdrawal for medication-overuse headache [3].
- Consider specialist inpatient withdrawal of overused medication for patients [3][L2]:
  - Who are using strong opioids; or
  - Who have relevant comorbidities; or
  - In whom previous repeated attempts at withdrawal of overused medication have been unsuccessful.
- Conduct a review [3,6]:
  - After 2-3 weeks to ensure withdrawal is achieved.
  - After 4-8 weeks to review the diagnosis and further management.
  - Most patients revert to their original headache type, e.g. migraine or tension-type headache within 2 months – further follow up may be necessary during this time [6,25]:
    - Overused medications may be reintroduced after 2 months, with explicit restrictions on frequency of use.
- Relapse is common and occur within the first year after withdrawal [6].
  - Consider treatment with behavioural therapies [6][L2].
- Manage failure to withdraw by [6][L2]:
  - Identifying and managing reasons for failure or relapse.
  - Considering counselling.
  - Referral to a neurologist for assessment and further management.
- In some cases, withdrawal of overused medication does not lead to recovery from headaches [6][L2].
4 Background information

4.1 Definitions

4.1.1 Primary headaches
Primary headaches are headaches that do not have an underlying pathological cause [1,2].
- The most common types of primary headache include [3]:
  - Tension-type headaches (TTH).
  - Migraine headaches.
  - Cluster headaches.

Tension type headaches
TTH are typically described as an episodic, non-pulsating, bilateral headache which is usually mild to moderate in severity [1,4].
- There are two subtypes of tension headache [4]:
  - Episodic TTH:
    - Intermittent TTH that occurs for up to 1-14 days per month.
  - Chronic TTH:
    - TTH that lasts for ≥ 15 days per month.

Migraine headaches
Migraine headaches are typically described as recurrent episodic, pulsating, unilateral headaches of moderate to severe intensity lasting 4-72 hours. Migraines are typically triggered by a variety of stimuli and are often accompanied by nausea and vomiting [1,3,5-7].
- There are two major subtypes of migraine [1,3]:
  - Migraine with aura:
    - A clinical syndrome characterised by gradual development of recurrent and fully reversible unilateral visual, sensory, or central nervous features lasting several minutes and usually followed by a headache within one hour [1,3].
  - Migraine without aura:
    - Migraine headaches that occur in the absence of visual, sensory, or central nervous features [1].

Cluster headaches
Cluster headaches are typically described as attacks of severe, strictly unilateral pain which is orbital, supraorbital, or temporal (or in any combination of these sites) and last for 15-180 minutes. Cluster headaches tend to occur in frequencies ranging from once every other day to up to 8 times a day [1].

4.1.2 Secondary headaches
Secondary headaches are headaches in which an underlying pathological condition is found [1,2].

The various pathologies that may cause secondary headaches include [1,3,6]:
- Vascular headaches, e.g.:
  - Intracranial haemorrhage.
  - Carotid dissection.
  - Vasculitis including:
    - Temporal arteritis.
- Non-vascular headaches, e.g.:
  - Raised intracranial pressure, e.g. from:
    - Space-occupying lesion.
- Idiopathic intracranial hypertension.
- Intracranial or systemic infections, e.g.:
  - Encephalitis.
  - Meningitis.
  - Brain abscess.
- Substance misuse or withdrawal, including:
  - Medication-overuse headache (MOH):
    - MOH is described as a headache that lasts ≥ 10-15 days for a period of ≥ 3 months in patients who regularly use medication. The duration of headache depends on type of medication used.
    - Illicit drug use.
- Trauma of the head or neck, e.g.:
  - Head injury.
  - Whiplash.
- Disorders of surrounding structures, e.g.:
  - Acute glaucoma.
  - Sinusitis.
- Disorders of homeostasis, e.g.:
  - Hypertensive headache.
  - Hypoxia/hypercapnia-induced headache.
- Psychiatric conditions, e.g.:
  - Somatoform disorder.

4.2 Epidemiology
Headache is a very common clinical disorder and is one of the main reasons for patients to consult a primary care physician [6].

The prevalence of headache in Qatar may be as high as 72.5%, with prevalences for subtypes reported as follows [8,9]:
- Migraine headache: 7.9%.
- TTH: 11.2%.
- Mixed-type headaches: 16%.
5 Clinical presentation

Take a comprehensive medical history including the following aspects of the headache [2,6][L2, RGA2]:
- Temporal profile.
- Character.
- Pain location.
- Exacerbating or alleviating factors.
- Health between attacks.
- Consider the presence of co-existent conditions that may influence treatment choice:
  - Depression.
  - Insomnia.
  - Anxiety.
  - Asthma.
  - Hypertension.
  - History of heart disease or stroke.

Conduct a physical examination including [2,5,6]:
- Vital signs.
- Examination of extracranial structures, such as:
  - Carotid arteries.
  - Sinuses.
  - Scalp arteries.
  - Cervical para-vertebral muscles for abnormalities.
- Neck examination including:
  - Neck posture.
  - Range of movement.
  - Palpation of muscle for tender points.
- Focused neurological examination.

Consider performing the following, if indicated [2]:
- Examine for temporomandibular joint disorders:
  - Assess jaw movements.
  - Palpate the muscles of mastication for tender points.
- Eye examination.

6 Investigations

Investigation of headache:
- Is indicated only when history or examination suggest headache is secondary to another condition [6][L2].
- Is not recommended simply to reassure patients who have a primary headache [6][L2, RGA1].

NB: Neuroimaging and lumbar puncture may be appropriate for patients presenting with red flag symptoms or signs (see Section 7) [2,10-12].
7 Red flags

The indications for emergency referral and investigation are as follows [2,10-12]:

- First and/or worst headache of the patient’s life.
- Focal neurological signs (other than typical migrainous aura).
- Headache with change in personality, mental status or level of consciousness.
- Symptoms or signs of raised intracranial pressure, e.g. headache worsening with Valsalva manoeuvre or papilloedema.
- Rapid onset headache with exercise.
- New headache in older patients (aged over 50 years).
- New headache in pregnancy or the post-partum period.
- New-onset headache in a patient with risk factors for HIV infection, cancer, or immunosuppression.
- Headache with signs of systemic illness (e.g. fever, stiff neck, rash).
- Sudden onset of headache (maximal intensity within seconds to minutes).
- Tenderness over the temporal artery.
- Headache subsequent to head trauma.
- Headache increasing in frequency and severity.
- History of dizziness or lack of coordination.
- Headache associated with severe unilateral eye pain, red eye, fixed and dilated pupil, hazy cornea, or diminished vision.

8 Tension Type Headache

8.1 Presentation

Key features of TTH typically include [1,3,4,6]:

- Bilateral headache.
- Pressing or tightening in quality.
- Mild-to-moderate in intensity.
- Not aggravated by routine physical activity.
- Not associated with accompanying symptoms such as nausea or vomiting.
- Sometimes accompanied by the presence of photophobia or phonophobia, but not both.
- May be associated with peri-cranial tenderness.
- Not caused by other conditions, such as a pyrexial illness or medication-overuse.

8.1.1 Episodic type TTH

Clinical diagnostic features include [1,2][L2, RGB]:

- \( \leq 10 \) episodes of headache occurring on average < 1 day per month; and
- Duration lasting from 30 mins to 7 days; and
- Both of the following features:
  - No nausea or vomiting.
  - Either none or one of the following:
    - Photophobia; or
    - Phonophobia.
- The patient has at least two of the following:
  - Bilateral location.
  - Pressing/tightening (non-pulsating) quality.
8.1.2 Chronic TTH

Chronic TTH clinical features include [1,6]:

- Headache occurring on ≥ 15 days per month on average for ≥ 3 months.
- Headache lasts hours or may be continuous.
- Has at least two of the following characteristics:
  - Bilateral location.
  - Pressing/tightening (non-pulsating) quality.
  - Mild-to-moderate intensity.
  - Not aggravated by routine physical activity.
- Has both of the following features:
  - No nausea or vomiting.
  - Either photophobia or phonophobia.
- May be stress-related, associated with functional or structural cervical abnormalities, or the result of a cranial musculoskeletal abnormality.
- Headache not attributed to another disorder.

8.2 Management

When considering management options for TTH note that [4][L2]:

- The type of management depends on the nature of TTH:
  - Use acute drugs in episodic TTH.
  - Use prophylactic drugs in chronic TTH.
- Analgesics are often ineffective in chronic TTH.

8.2.1 Episodic TTH

First-line treatment [2][L1, RGA1]:

- Non-steroidal anti-inflammatory drug (NSAID).
- Paracetamol.

If first-line treatments are unsuccessful, consider treatment with second-line medication as follows.

Second-line treatment:

- Combination analgesics containing caffeine [2,4][L1, RGA1].
- NB: Beware of risk of MOH if [4,6][L2, RGA2]:
  - Simple analgesics are used regularly on ≥ 14 days a month, or combination analgesics are used regularly on ≥ 10 days a month.
  - Combining simple analgesics with codeine, dihydrocodeine, or barbiturates.

Avoid using the following drugs in acute treatment of TTH [2,4][L1, RGA1]:

- Triptans.
- Muscle relaxants.
- Opioids.
8.2.2 Prophylactic treatment in chronic TTH
For patients with chronic TTH, preventative treatment should be considered [2,4,5][L2, RGA2].

First-line prophylaxis:
- Amitriptyline [6][L2, RGA2]:
  - Use nortriptyline if amitriptyline is poorly tolerated.
  - Withdrawal of amitriptyline may be attempted after improvement has been maintained for 4-6 months.

When prescribing tricyclic antidepressants (TCA) [4,6][L2, RGA2]:
- Inform the patient that while it is an antidepressant, it also has an independent action on pain.
- Try an alternative treatment if there is no improvement within 4 weeks on maintenance treatment.

Second-line prophylaxis [2]:
- Mirtazapine.
- Venlafaxine.
- Gabapentin.

NB: Avoid routine use of botulinum toxin A for prophylactic treatment of chronic TTH [2][L1]. The drug should only be administered for headache by neurologists [R-GDG].

8.2.3 Non-pharmacological therapy
Non-pharmacological treatment of chronic TTH should always be considered and should include:
- Regular exercise and/or physiotherapy [4,6][L2, RGB].
- Stress management [4][L2, RGA2].
- Relaxation therapy [4,6][L2, RGB].
- Cognitive behavioural therapy (CBT) may be beneficial for some patients [2,4,6][L2, RGB].
- Acupuncture – consider a course of up to 10 sessions over 5-8 weeks [2,3][L2, RGA2].
- Electromyography (EMG) biofeedback [4][L2, RGA2].

Management of TTH triggers is effective and involves lifestyle advice such as [4]:
- The importance of regular and appropriate meals.
- Adequate hydration.
- Avoidance of caffeine containing drinks.
- A regular sleep pattern (avoiding too little or too much sleep).

8.3 Tension-type headache in pregnancy
The use of medication for TTH should be avoided during pregnancy [2][L2, RGB]:
- TTH does not cause nausea and vomiting, therefore it does not pose a medical risk in itself.
- Where used, the benefits and risks should be carefully considered.

8.3.1 Treatment in pregnancy
Paracetamol [2][L3, RGB]:
- When headache requires management with analgesia.
  - FDA Pregnancy Category C [13].
Ibuprofen [2][L3]:

Headache in adults
(Date of next revision: March 2019)
- Use only if paracetamol is not adequate.
  - FDA Pregnancy Category C [13].

NSAIDs during pregnancy [2,13]:
- May cause an increased risk of spontaneous abortion during the first trimester.
- Increase the risk of premature closure of the ductus arteriosus when used during the third trimester.
- May be used in the second trimester of pregnancy only.
- Avoid all NSAIDs in the third trimester, including ibuprofen.

8.3.2  Prophylaxis in pregnancy
Prophylactic management of TTH should be avoided in pregnant patients [2][L3, RGB]:
- Seek specialist advice if prophylactic treatment is required during pregnancy.
- Headache medications should be gradually discontinued prior to the start of a planned pregnancy.
- Headache medications started before the beginning of pregnancy should be discontinued as soon as possible.

9  Migraine

9.1  Presentation

Migraine without aura:
Clinical diagnostic criteria [1,2][L2]:
- At least 5 attacks of:
  - Headache lasting 4-72 hours.
  - Associated with at least two of the following:
    - Unilateral headache.
    - Pulsatile quality.
    - Moderate or severe intensity.
    - Aggravation or avoidance of routine physical activity.
  - At least one of the following occurs during the headache:
    - Nausea and/or vomiting.
    - Photophobia and phonophobia.

NB: Episodic TTH often coexists with migraine without aura [1,2].

Migraine with aura:
Clinical diagnostic criteria [2,3,5,6][L2]:
- At least two attacks of:
  - One or more of the following fully reversible aura symptoms:
    - Visual.
    - Sensory.
    - Speech or language disturbance.
    - Motor disturbance.
    - Brainstem symptoms.
    - Retinal symptoms.
  - At least two of the following:
- At least one aura symptom which spreads gradually over ≥ 5 mins and/or:
  - Two aura symptoms occurring in quick succession.
- Each individual aura symptom last 5-60 mins (motor symptoms may last up to 72 hours).
- At least one aura symptom is unilateral.
- Headache occurs either with aura or followed within 60 mins of the aura.
  - Transient ischaemic attack is excluded.

**Chronic migraine:**
Diagnose chronic migraine when [2][L2]:
- The patient fulfils the criteria for a migraine diagnosis; and
- The patient experiences ≥ 15 days of migraine per month for > 3 months; or ≥ 8 migrainous attacks per month.

Chronic migraine with medication-overuse may be diagnosed if [2][L2]:
- The patient uses any of the following for ≥ 10 days per month:
  - Opioids.
  - Triptans.
  - Ergots.
  - Combination analgesics.
- The patient uses any of the following for ≥ 15 days per months or more:
  - Paracetamol.
  - NSAIDs.

**9.2 Management**
Migraine can cause significant disability despite drug therapy.

The management approach should include [2,6]:
- Acute pharmacological treatment during individual migraine attacks.
- Prophylactic pharmacological therapy to reduce frequency of attacks.
- Non-pharmacological management including lifestyle advice.
- Investigation and management of any co-existing psychiatric and medical disorders.
- Patient encouragement to take an active role in their treatment and take on self-management principles, including [2,6,14][L2]:
  - Self-monitoring to identify factors that influence their migraine.
  - How to manage their own migraine triggers.
  - Relaxation techniques.
  - Good sleep hygiene in combination with drug treatment.
  - Stress management techniques.
  - Cognitive restructuring to avoid negative thinking.
  - How to communicate with their family and others about their pain.
  - How to use their medications, e.g. advice on taking drugs early on during a migraine attack.
  - Stopping smoking and not using the combined oral contraceptive pill (COCP), if the patient has migraine with aura.

**9.2.1 Treatment**
For the treatment of migraine [2]:
- Use treatments for migraine early in the attack.
• Use treatments in combination with anti-emetics.

**Simple analgesia:**
- Use paracetamol for migraines of mild to moderate severity [2,6][L1, RGA1].
  - The evidence for its use as a stand-alone drug is low.
- Use an NSAID for migraines of all severities [2][L1, RGA1], e.g.:
  - Ibuprofen.
  - Diclofenac.

**Triptans:**
- The available triptans in Qatar at present are [R-GDG]:
  - Oral zolmitriptan.
  - Oral and subcutaneous sumatriptan.
- If no response to the initial dose of oral triptan, take further doses every two hours up to the maximum dose [2].
- If the patient does not demonstrate an adequate response with one triptan, consider an alternative triptan [2][L1, RGA1].
- Consider subcutaneous sumatriptan (6 mg) [2][L1, RGA1]:
  - In severe migraine and those who were not adequately managed with oral triptans.
  - In patients with vomiting early on during migraine attacks.
- Consider a combination of oral sumatriptan (50-100 mg) and naproxen sodium (500-550 mg) [2][L1, RGA1]:
  - This may be particularly useful in patients with prolonged attacks and/or headache recurrence.
- NB: Triptans should be avoided in patients at risk of TIA, stroke, or MI [2].

**Anti-emetics in migraine:**
Consider an oral anti-emetic, e.g. [2,15][L1]:
- Domperidone
- Metoclopramide:
  - Has more side effects than domperidone.
- Prochlorperazine:
  - Indicated when poor response to domperidone or metoclopramide.
  - Use suppositories if oral intake is restricted due to active vomiting.
- Anti-emetics can be considered even in the absence of nausea and vomiting.

NB: Narcotics are not recommended for the emergency treatment of migraine [6].

**9.2.2 Lifestyle advice and pharmacological prophylaxis**
Advise the patient to avoid trigger factors, such as [2]:
- Change in sleep pattern.
- Skipped or irregular meals.
- Change in stress levels.
- Specific foods.

Ask the patient to complete a headache diary and consider preventative treatment if [2,3][L2, RGA1]:
- Migraine attacks are causing frequent disability, e.g. ≥ 2 attacks per month that result in disability lasting for ≥ 3 days.
- Standard analgesia and triptans are either contraindicated or ineffective.
• Migraine attacks are suspected of causing medication-overuse.

Before starting pharmacological prophylaxis:
• Benefits and risks should be discussed, including [3][L2, RGA2]:
  o Patient preferences.
  o Comorbidities.
  o Risk of adverse events.
  o Impact of headache on quality of life.
• Advise the patient that [2][L2, RGB]:
  o A reduction of headache frequency, severity or duration can take up to 8 weeks for the benefit to be seen.
  o At present there is no cure for migraine and headache attacks are not likely to be abolished completely.
  o Preventive treatment reduces the frequency of attacks but acute treatment will still be required.

Pharmacological prophylaxis:
Consider using one of the following as prophylactic treatment [2,6,16][L1, RGA1]:
• Beta-blockers, e.g.:
  o Metoprolol.
  o Propranolol.
  o NB: Not suitable for patients with asthma, peripheral vascular disease, heart failure, or depression.
• Angiotensin-receptor blockers (ARBs) and angiotensin converting enzyme (ACE) inhibitors, e.g.:
  o Candesartan:
    ▪ Preferable in patients with concomitant hypertension.
• Calcium channel blockers (CCBs) e.g.:
  o Flunarizine:
    ▪ Induced headache as side effect.
    ▪ Contraindicated in depression.
  o Verapamil.
• Antidepressants:
  o Amitriptyline [5,43][L1, RGA1]:
    ▪ Amitriptyline at early evening, when migraine co-exists with:
      • TTH.
      • Another chronic pain condition.
      • Disturbed sleep.
      • Depression.
    ▪ Should be started at a low dose and titrated.
  o Nortriptyline.
  o Venlafaxine.
• Anti-epileptics:
  o Topiramate [2,3,16][L1, RGA1]:
    ▪ Topiramate may be preferred in patients with obesity.
    ▪ Associated with potentially serious adverse effects including serious memory impairment and depression.
    ▪ Should be avoided in patients with closed-angle glaucoma or renal calculi.
Advise female patients of childbearing potential that topiramate is associated with a risk of foetal malformations and can impair the effectiveness of hormonal contraceptives.

- Divalproex sodium [2][L1, RGA1]:
  - May be a preferred option in patients with comorbid depression.
  - Should be avoided in patients with liver disease, pregnant women, and women of childbearing age.
    - Results in serious foetal malformations and may result in weight gain.

**Vitamins, minerals, and herbal remedies for migraine prophylaxis:**
Have minimal side effects, however lower efficacy than drug prophylaxis. Examples include [2,3][L1, RGA1]:
- Butterbur (*Petasites hybridus*).
- Riboflavin.
- Magnesium citrate.
- Co-enzyme Q10.

**Botulinum toxin type A:**
- Botulinum toxin type A may be used for chronic migraine in the following circumstances [2,17]:
  - Headache has not responded to at least 3 prior pharmacological prophylaxis therapies; and
  - The patient is appropriately managed for medication-overuse.
  - The drug is to be administered by a neurologist.
- Stop treatment with botulinum toxin type A in patients whose condition [17][L2, RGA2]:
  - Is not adequately responding to treatment (defined as < 30% reduction in headache days per month after two treatment cycles); or
  - Has changed to episodic migraine (defined as < 15 headache days per month for 3 consecutive months).

### 9.2.3 Other prophylaxis options
Consider non-pharmacological management, such as:
- Acupuncture [2,3][L2, RGA1]:
  - A course of up to 10 sessions of acupuncture over 5-8 weeks.
- Stress management [2,5][L2, RGA1]:
  - Exercise, including cranio-cervical exercises, and physical therapy may help.
  - CBT may be beneficial for some patients.

NB: Homeopathy has no known benefit [6,18].

### 9.2.4 Indications for referral to neurology
Consider outpatient referral to a neurologist if [15]:
- A complication of migraine has developed, e.g. migraine has become chronic.
- Diagnosis of migraine is uncertain, e.g. another primary or secondary headache disorder is suspected.
- Maximal treatment available in primary care does not adequately control the symptoms – suspect MOH.
- Preventative treatment does not adequately reduce the frequency of headaches.
9.3 Follow-up

Prophylaxis:
- Continue prophylaxis for two months at the target dose, if no benefit is seen after this time the drug may be discontinued or changed [47][L2].
- NB: It may take several months for the benefit to fully manifest.

After 6-12 months of successful prophylaxis [3,6,19][L2, RGA2]:
- Review the need for continuing migraine prophylaxis.
- Consider withdrawal to establish continued need:
  - Taper over 2-3 weeks.
- Success for prophylactic treatment of migraine is defined as one or more of the following [5]:
  - A decrease in migraine attack frequency by > 50%.
  - A decrease in pain and disability with each individual attack.
  - An enhanced response to acute, specific, anti-migraine therapy.

Treatment of migraine attacks:
Success for treatment of migraine is defined as:
- Complete pain relief and return to normal function within 2 hours of taking medication – in addition, patients should [5,18]:
  - Not have intolerable side effects; and
  - Should find their medications reliable enough to plan daily activities despite migrainous headaches.

If symptomatic treatment has been effective and well tolerated [15]:
- Continue indefinitely and ensure review of medication occurs on a regular basis.
- Ask the patient to re-consult only if they experience problems in the future, e.g. increasing severity or frequency of migraine.

If treatment has not been adequate or was poorly tolerated [15]:
- Reconfirm diagnosis and exclude conditions that may mimic migraine.
- Reassess lifestyle advice and check that usage of treatment is correct.
- Rule out MOH.

9.4 Migraine during pregnancy

Migraine during pregnancy frequently improves but may recur following childbirth [6]. Offer lifestyle advice and consider encouraging the patient to use a migraine diary to identify triggers [5][L2].

9.4.1 Pharmacological management
Where possible, pharmacological therapy for migraine management should be avoided during pregnancy [2][L3, RGB]:
- Use the lowest dose possible, and for the shortest time.
- Offer paracetamol either alone or in combination with codeine for acute treatment.
- Consider prescribing an NSAID or triptan after discussing the patient's need for treatment and the risks associated with the use of each medication during pregnancy [2,13][L2].
9.4.2  Prophylaxis in pregnancy
Seek specialist advice if prophylactic treatment is required during pregnancy [2,3][L3]:
• Medications should be gradually discontinued prior to the start of a planned pregnancy.
• Medications started before the beginning of pregnancy should be discontinued as soon as possible.

9.5  Hormone-related migraine
Menstrual migraine [3,6][L2, RGA2]:
• Should be suspected in female patients who experience migraines predominantly between 2 days before and 3 days after menstruation in at least 2 of 3 consecutive menstrual cycles:
  o Confirm diagnosis using a headache diary for at least two menstrual cycles.
• Subtypes include:
  o Pure menstrual migraine:
    ▪ Patient is free from migraine at all other times.
    ▪ Affects < 10% of patients with migraine.
  o Menstrually-related migraine:
    ▪ Additional attacks of migraine (with or without aura) at other times.

Menopause [6]:
• May exacerbate migraine, particularly if surgically-induced without replacement therapy.
• HRT is not contraindicated.

COCP [3,6,16,18,20]:
• Should not be prescribed to women with migraine with aura.
• Are contraindicated in patients with migraine treated with ergotamine.
• Should be stopped in patients who develop new:
  o Migraine with aura.
  o Focal neurological signs.

NB: Progesterone-only contraceptives are indicated in these circumstances [16].

9.6  Complications of migraine
Complications of chronic migraine include [4,8]:
• Status migrainosus is a debilitating migraine which lasts for > 72 hours.
• Persistent aura without infarction refers to aura symptoms lasting for ≥ 1 week, with no radiographic evidence of infarction.
• Migrainous infarction occurs when symptoms of aura last for ≥ 60 minutes and neuroimaging shows signs of infarction.
• Migraine is associated with increased risk of ischaemic stroke.
10 Cluster headache

10.1 Presentation
Typical features of a cluster headache [1-3,5,21]:
- Pain is defined as:
  - Unilateral (around the eye, above the eye, and along the side of the head/face).
  - Severe or very severe intensity.
  - Variable quality (can be sharp, boring, burning, throbbing, or tightening).
- Rapid onset and short-lasting – for 15-180 minutes.
- Patient is restless during an attack.
- Often a striking circadian or circannual rhythm.
- Attacks may be associated with migrainous features such as photophobia, phonophobia, nausea, and vomiting.

Highly characteristic and strictly ipsilateral autonomic features, including any of the following [3]:
- Red and/or watery eye.
- Nasal congestion and/or runny nose.
- Swollen eyelid.
- Forehead and facial sweating.
- Constricted pupil and/or drooping eyelid.

Paroxysmal hemicranias [1]:
- Are attacks with similar characteristics of pain and associated symptoms and signs to those of cluster headaches but are shorter-lasting, more frequent, and do not occur in males.

NB: Refer all patients with a first-episode of cluster headache to a neurologist to confirm the diagnosis [R-GDG].

10.2 Pharmacological management
Acute treatment:
Treatment may be initiated in primary care whilst awaiting referral [22]. Prescribe:
- 100% oxygen therapy (flow rate of at least 12 L/min with a non-rebreathing mask and a reservoir bag) for treatment of acute attacks [2,3][L2]:
  - Particularly useful for patients:
    - Having ≥2 attacks a day, which require treatment.
    - Who respond poorly to treatment of acute attacks with a triptan.
    - Patients with a contraindication to triptans.
    - Who do not have COPD.
    - Arrange provision of both home and ambulatory oxygen.
- A subcutaneous triptan to be taken when required for treatment of acute attacks [3,23][L2]:
  - Especially useful to treat acute attacks that occur away from home when the patient does not have access to oxygen therapy:
    - E.g. subcutaneous sumatriptan:
      - The most effective relief of acute attacks of cluster headache.
      - Can be used up to twice daily.
  - Ensure the patient is offered an adequate supply of triptans calculated according to their history of cluster bouts, based on the manufacturer’s maximum daily dose.
NB:
- Do not offer paracetamol, NSAIDs, opioids, or ergots for the acute treatment of cluster headache [3][L2].
- Advise the patient to avoid drinking alcohol as this may trigger an attack during an active period of cluster headaches [22].

Transitional prophylaxis:
Transitional preventative treatment allows for rapid suppression of cluster attacks in the interim until the maintenance prophylaxis reaches therapeutic levels [18].

Options for transitional prophylaxis are [2,6,18]:
- Corticosteroids:
  - Prednisolone – short term use:
    - 60 mg daily for 5 days, reduced by 10 mg every two days until discontinued.
    - May be used in patients with several attacks per day while verapamil prophylaxis is being established.
  - IV methylprednisolone can be used if preferred.
- Occipital nerve block – corticosteroid with lidocaine or other local anaesthetic.

Maintenance prophylaxis:
Maintenance prophylaxis is intended to provide sustained suppression over the expected cluster period [2,22]:
- Verapamil (first-line prophylaxis) [3]:
  - Use 240-480 mg daily.
  - Start at 80 mg TID and increase the dose as tolerated by 80 mg every two weeks.
  - Each dose increase above 480 mg requires an ECG to monitor for cardiac arrhythmias and a prolonged PR interval.
  - Seek specialist advice before starting if unfamiliar with its use for cluster headache, including advice on ECG monitoring [3][L2, RGA2].
- Lithium (second-line prophylaxis) [2,6][L2]:
  - Target dose of 900-1200 mg daily.
  - May be used if verapamil is ineffective or contraindicated.
  - More adverse effects than verapamil.
  - Drug levels should be monitored.
  - Can be combined with verapamil but with caution because there is increased risk of toxicity without increase in the plasma concentration of lithium.
- Melatonin [2][L1, RGA1]:
  - Doses up to 10 mg per day may be beneficial in some patients.

10.3 Transcutaneous electrical stimulation
Transcutaneous stimulation may be considered by neurology specialists in conjunction with pain specialists in selected patients in whom medical management is unsuccessful [24].
11 Medication overuse headache

If taken too frequently, acute medications may worsen a pre-existing headache disorder. Patients who suffer from migraines and other chronic pain disorders appear to be particularly vulnerable to developing an MOH [2].

11.1 Presentation
Clinical features include [3,6,18]:
- Headache that has developed or worsened while the patient is taking the following drugs for ≥ 3 months:
  - Taking for 10 days per month or more:
    - Triptans.
    - Opioids.
    - Ergots.
    - Combination analgesic medications containing barbiturates, caffeine, and/or codeine.
  - Taking for 15 days per month or more, either alone or in combination:
    - Paracetamol.
    - Regular-dose aspirin or other NSAIDs.

Typical history [6]:
- Episodic tension headaches or migraine that have gradually worsened over time.
- Increasing frequency of both headache and medication use.
- Relapse of headache at shortening periods following medication administration.
- Increasing strengths of analgesia required to bring relief.
- Variable location and character of headache.
- Pre-emptive use of medications.
- Symptoms improve after withdrawal of medication.

NB: A detailed history of all medications used, including over-the-counter medicines, should be recorded [6][L2, RGA2].

If a patient is presenting with MOH, consider evaluating for the following [2]:
- Psychiatric comorbidities e.g. [2][L2, RGA2]:
  - Depression and/or anxiety.
    - If present, these will need to be considered when planning management.
  - Drug dependence, both psychological and physical.
  - Use of inappropriate coping strategies.

11.2 Medication withdrawal
Medication withdrawal should be attempted in all patients with MOH [2][L3]. Medication withdrawal can usually be managed in primary care but referral should be considered for patients who [6,21,25]:
- Are taking a narcotic as their predominant treatment (usually need to be withdrawn slowly).
- Have significant coexisting conditions, including:
  - Psychological problems such as anxiety or depression, especially if the patient is thought to be at increased risk of suicide.
  - Physical problems, such as angina or diabetes, especially if the patient is elderly or frail.
• Are pregnant.
• Have painful conditions requiring continued symptomatic treatment.
• Are poorly motivated to stop symptomatic treatments.
• Have been unsuccessful at previous attempts to withdraw, or have relapsed.
• Continue to experience persistent daily headache after withdrawal.

Manage withdrawal from the overused medication by [3,6,25]:
• Explaining the cause of the patient’s headache and its prognosis.
• Agreeing a date to begin treatment.
• Advising the patient to stop taking all overused acute headache medications for at least 1 month.
• Warn patients that withdrawal initially aggravates symptoms, so should be planned in advance to avoid unnecessary lifestyle disruption, e.g. by taking sick leave for 1-2 weeks.
• Recommending patients keep a diary to record symptoms and medication use during withdrawal.
• Prescribing an anti-emetic for use if required.
• Withdrawing ergots, triptans, and non-opioid drugs abruptly:
  o Abrupt withdrawal can lead to withdrawal headache usually lasting from 2-10 days (the average length is 3.5 days).
  o Withdrawal symptoms include:
    ▪ Nausea.
    ▪ Vomiting.
    ▪ Hypotension.
    ▪ Tachycardia.
    ▪ Sleep disturbances.
    ▪ Restlessness.
    ▪ Anxiety and nervousness.

Consider prescribing prophylactic treatment for the underlying primary headache disorder in addition to withdrawal of overused medication [3][L2].

NB: Do not routinely offer inpatient withdrawal for MOH [3].

Consider specialist inpatient withdrawal of overused medication for patients [3][L2]:
• Who are using strong opioids; or
• Who have relevant comorbidities; or
• In whom previous repeated attempts at withdrawal of overused medication have been unsuccessful.

11.3 Follow-up
Conduct a review [3,6]:
• After 2-3 weeks to ensure withdrawal is achieved.
• After 4-8 weeks to review the diagnosis and further management.

Most patients revert to their original headache type, e.g. migraine or TTH within 2 months − further follow up may be necessary during this time [6,25]:
• Overused medications may be reintroduced after 2 months, with explicit restrictions on frequency of use.

Relapse is common [6]:
The majority of relapses occur within the first year after withdrawal.

The main risk factors for relapse are:
- Male sex.
- Intake of combined analgesic drugs.
- TTH as the primary headache disorder.

Consider treatment with behavioural therapies, e.g. [6][L2]:
- CBT.
- Stress reduction.
- Biofeedback.

Manage failure to withdraw by [6][L2]:
- Identifying and managing reasons for failure or relapse.
- Considering counselling.
- Referral to a neurologist for assessment and further management.

In some cases, withdrawal of overused medication does not lead to recovery from headaches. Manage such patients by [6][L2]:
- Reassessing the diagnosis and/or considering specialist referral when chronic daily headache persists more or less unabated.
- Checking that medication overuse is not continuing – once this cause has been eliminated, consider the use of preventative medication.
- Considering referral to a pain management clinic for persistent daily headache after withdrawal.
References