

A young woman with an acute migraine attack

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This section focuses on the immediate management and investigation of an acute pain presentation in general practice.



Karen is a 22-year-old nonsmoking woman. She presented to you six months ago with a new-onset, severe unilateral headache associated with visual disturbance, nausea and vomiting. You arranged for transfer to a tertiary hospital where she was admitted under the care of a neurology team and fully investigated (including neuroimaging) for causes of secondary headache. All investigations were normal. Her symptoms fully resolved in hospital with simple analgesia and she was discharged with a diagnosis of probable migraine with aura. No new medications were commenced and no ongoing specialist follow up was arranged. She has no other significant medical history; however, she takes the combined oral contraceptive pill (COCP) levonorgestrel with ethinyloestradiol 20/100 µg daily for birth control. She is studying law and working part-time. She lives with her boyfriend of three years.

Today, Karen presents with another severe unilateral headache of 12 hours' duration, preceded by visual aura and associated with nausea, not responding to paracetamol, ibuprofen or rest. She reports she has had two similar headaches over the preceding six months.

What aspects of the history and examination would you focus on initially?

Answer: Although Karen has been extensively investigated for a similar headache before, history and examination should include a brief assessment for the presence of any worrying features of headache, particularly:^{1,2}

- history of recent head or neck trauma
- significant change in pain character or timing
- signs of infection, particularly fever and neck stiffness
- associated persistent neurological disturbance
- local tenderness or severe eye pain
- recent substance use, including regular over-the-counter analgesics and stimulants.

Having established that Karen's headache has no new features, your focus becomes the treatment of her current migraine with aura. What are the pharmacological options for Karen?

Answer: There are three different strategies for the treatment of an acute migraine attack, as described below.³

- **Stratified care:** the choice between simple analgesics plus antiemetic versus a triptan is based on the severity of the attack and consequent disability.
- **Step-up during an attack:** if no relief is obtained within two hours of simple analgesia, the patient 'steps-up' to a triptan.
- **Step-up across attacks:** if no relief is obtained from using only simple

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analgesics for the first three attacks, then a triptan is used as first-line medication for all subsequent attacks.

Simple analgesics for the treatment of migraine with evidence supporting their use are as follows:

- aspirin 600 to 900 mg plus metoclopramide 10 mg
- paracetamol 1000 mg
- ibuprofen 200 to 400 mg.

If simple analgesics fail to treat the migraine effectively, a triptan (selective 5-HT₁ receptor agonist) may be indicated. There are several triptans available for use in Australia (sumatriptan, zolmitriptan, naratriptan, rizatriptan and eletriptan). Sumatriptan can be delivered via the subcutaneous and intranasal routes, which generally provide greater efficacy and faster onset of symptom relief compared with oral preparations. Rizatriptan is available as a wafer. Karen should be warned of the potential adverse effects of triptan therapy. These include dizziness, fatigue, nausea, chest tightness, paraesthesia and other sensory disturbances. These have been reported more frequently with sumatriptan, especially via the subcutaneous and intranasal routes. Triptans are relatively contraindicated in patients with uncontrolled hypertension or significant cardiovascular disease.

It is also important to note that most medications used for an acute migraine attack have the potential to lead to medication-overuse headache. Current recommendations are that medication for an acute attack should not be used regularly for more than two days per week.¹

There is little evidence of significant benefit from opioid treatment in an acute migraine attack compared with other agents. Parenteral opioids, in particular pethidine, are not recommended because of lack of efficacy and potential for dependence. Use of regular codeine frequently causes medication-overuse headache.

You ask Karen for a urine sample to test for possible pregnancy (which is negative), and then prescribe her rizatriptan wafer 10 mg and metoclopramide 10 mg. She is escorted home by her mother, and you make a follow-up

appointment for two days' time to reassess her and discuss her migraines further. When Karen returns, her headache and associated symptoms have resolved. On further questioning, she reports she is feeling very overwhelmed by current events in her life, in particular her relationship is failing and she has fallen behind at university. What advice do you give Karen?

Answer: Preventive measures are very important in the management of migraine. You should help Karen to identify the triggers that potentially lead to her migraines. Common triggers of migraine are stress, sleep deprivation, alcohol, certain foods, exercise, hormone fluctuations, irregular meals, changes in weather and multiple other sensory stimuli. Keeping a careful headache diary can be a vital tool for identifying triggers and also for assessing the disability experienced by Karen during an attack. You may need to provide Karen with advice regarding lifestyle modification to minimise triggering events and the risk of migraine. It may be unrealistic, however, for many patients to avoid triggers, hence current psychology therapy for people with recurrent migraine focuses on developing strategies to cope with triggering events. You may also need to explore her psychosocial circumstances and mood more thoroughly because these may be contributing significantly to her clinical picture. She may need counselling or referral to a psychologist for techniques to help manage stressful life events.

During your consultation, Karen reports that a friend told her she shouldn't be taking the COCP if she suffers from migraines. What is your response to this?

Answer: Because of the increased risk of ischaemic stroke, the decision to prescribe the COCP to women with migraine is not straightforward.⁴ A careful assessment of the risks associated with the COCP in this patient population must be weighed against the benefits. Migraine without aura is generally considered to confer a significantly lower risk of cerebrovascular accident compared with

migraine with aura, hence both the World Health Organization (WHO) and the International Headache Society (IHS) consider that in women who have migraine without aura under the age of 35 years, without other cardiovascular risk factors (especially smoking), the benefits of taking the COCP often outweigh the risks. The effect of the COCP on migraine frequency and severity is unpredictable: it can increase, decrease or have no effect on headache pattern, and the effect in the individual patient should be monitored closely.

Migraine with aura is a statistically independent risk factor for ischaemic stroke, an association that does not appear to be related to the frequency of attacks (a single episode of migraine with aura may confer this risk). Use of the COCP on its own also doubles the risk of stroke, leading to a significant increase in relative risk when the two factors are combined. Migraine with aura in a smoker is an absolute contraindication to the COCP. The risk in otherwise healthy, nonsmoking women under 35 years of age is lower; however, the WHO does not advocate the use of COCP in any woman with migraine plus focal symptoms. The IHS again suggests an individual assessment, considering age and the presence of vascular risk factors. The suitability of alternative contraceptive options would also need to be considered.

Karen also asks during the consultation whether there is a medication she can take to stop her migraines from occurring.

Answer: You explain to Karen that there are several classes of medication that can be used as preventive treatment of migraine. The decision to commence a medication would be based on a combination of attack severity and frequency, response to first-line therapy and lifestyle modification, and the subsequent level of disability experienced by Karen as a result of her migraines. Consideration of Karen's headache diary, in combination with a disability assessment tool, such as the Migraine Disability Assessment Test (MIDAS), may be helpful to quantify her impairment and need for preventive therapy. The Australian *Neurology Therapeutic Guidelines* suggest

consideration of migraine prophylaxis if the patient is experiencing more than two to three attacks per month.⁵ The American Academy of Neurology and American Headache Society recommend offering prevention to patients with six or more days of headache per month, four or more days of headache with some impairment, or three or more days of headache with severe impairment or requiring bed rest.⁶ It would be important to counsel Karen that the aim of medication is not curative, but rather to reduce the number, severity and associated disability of migraine attacks. The potential adverse effects of medication would also need to be explained and carefully considered, especially in a woman of child-bearing age, as many of these medications are contraindicated in pregnancy.

Medications used for migraine prevention are varied and have different levels of evidence regarding their efficacy.⁷ The beta blocker propranolol, and anticonvulsants sodium valproate and topiramate, all have level I evidence supporting their use for migraine prevention, and are considered drugs of first choice by the American Academy of Neurology and European Federation of Neurological Sciences. Sodium valproate is not TGA approved for migraine. Topiramate is not PBS subsidised unless pizotifen and beta blockers are contraindicated or have caused adverse effects. The tricyclic antidepressant amitriptyline has level I evidence of efficacy; however, its use is off label for the treatment of migraine.

Widely used in Australia is pizotifen, a 5-HT antagonist, which is approved for use in migraine and has NHMRC level II evidence supporting its use. Weight gain is a major limiting side effect. Other drugs that have TGA approval for migraine, yet have lower levels of evidence include metoprolol, methysergide (5-HT antagonist and vasoconstrictor) and clonidine (alpha 2 agonist). Concerns about fibrotic complications associated with long-term use of methysergide have restricted its use to patients who have failed other agents.

Medications currently not approved for use in migraine, but with emerging evidence of benefit, include lisinopril (ACE inhibitor), candesartan (AT-II receptor blocker) and verapamil (calcium channel blocker). A recent Cochrane

review concluded that on the basis of current evidence, gabapentin is not efficacious for the treatment of episodic migraine.⁸ There are no studies to date of pregabalin.

If Karen's migraines met the criteria for preventive therapy, and a trial of medication failed, it may be appropriate to refer her to a neurologist or a multidisciplinary pain service for consideration of further prophylaxis and pain management strategies. For complex pain problems involving multiple perpetuating factors, a cognitive behavioural therapy program may be most appropriate.

Botulinum toxin is also a treatment option for patients experiencing chronic migraine (15 days or more of headache per month). Some specialist centres perform neuromodulation via occipital and supraorbital nerve stimulators for suitable patients with chronic headache conditions, including migraine. **PMT**

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