College of Registered Nurses of Saskatchewan

Migraine Headaches: Adult

Central Nervous System

Clinical Decision Tools for RNs with Additional Authorized Practice [RN(AAP)s]

Effective Date: May 4, 2022

Background

Migraine headaches are a disorder (sometimes familial) marked by periodic, often unilateral, pulsatile headaches that begin in childhood or early adult life and tend to recur with diminishing frequency in later life (Winland-Brown, Horn, & Keller, 2019). Migraine headaches are often aggravated by routine physical activity and accompanied by nausea, vomiting, photophobia, and phonophobia (Winland-Brown et al., 2019).

Manifestations of individual migraine attacks vary between and among individuals (Winland-Brown et al., 2019).

Immediate Consultation Requirements

The RN(AAP) should seek immediate consultation from a physician/NP when any of the following circumstances exist:

- first or worst headache of the client's life especially if > 50 years of age which may suggest a central nervous system (CNS) infection, or intracranial hemorrhage;
- thunderclap headache in a client of any age, which may suggest a subarachnoid hemorrhage;
- focal neurologic signs (not typical aura) which may suggest an arteriovenous malformation, collagen vascular disease, or intracranial mass lesion;
- headache triggered by coughing or exertion, including sexual intercourse which may suggest a mass lesion, or subarachnoid hemorrhage;
- headache with change in personality, mental status, level of consciousness which may suggest a CNS infection, intracerebral bleed, or mass lesion;
- neck stiffness or meningismus which may suggest meningitis;
- new onset of severe headache in pregnancy or postpartum;
- papilledema;
- systemic illness with headache (e.g., fever, rash);
- tenderness over temporal artery;
- worsening headache pattern;

- less than 18 years of age; and/or
- new headache type in a client with cancer, human immunodeficiency virus, or Lyme disease (Becker et al., 2015; Interprofessional Advisory Group [IPAG], personal communication, October 20, 2019; Winland-Brown et al., 2019).

Predisposing and Risk Factors

Predisposing and risk factors for migraine headache include:

- age (e.g., first migraines usually occur during adolescence but can occur at any age, usually before 40),
- hormonal changes in female clients (e.g., low estrogen level, increased prostaglandin level),
- environmental (e.g., weather changes, excessive or flickering lights, strong odours),
- diet (e.g., chocolate, cheese, smoked meats, alcohol, artificial sweeteners, monosodium glutamate, dehydration, missing meals),
- lifestyle (e.g., fatigue, excessive sleep, stress, smoking),
- family history of migraine (Winland-Brown et al., 2019).

Health History and Physical Exam

Subjective Findings

Most headache diagnoses are based entirely on the client history. Physical examination rarely provides clues to the diagnosis.

Elicit the following from the client presenting with headache for the first time or with a significant change in headache pattern:

- headache onset (thunderclap, association with head or neck trauma);
- previous attacks (progression of symptoms), duration of attacks (less than three hours, greater than four hours, continuous), and days per month or week with headache;
- pain location (unilateral, bilateral, frontal, periorbital, occipital; associated neck pain);
- headache associated symptoms (e.g., nausea, vomiting, photophobia, phonophobia, osmophobia, conjunctival injection, rhinorrhea);
- chills, tremors, and/or diaphoresis;
- relationship of headache to possible precipitating factors (e.g., stress, posture, coughing, exertion, straining, neck movement, jaw pain, regular perimenstrual or periovulatory timing, etc.);
- headache severity and effect of the headaches on work and family activities;
- acute and preventive medications tried in the past, and response to these medications;
- prodrome (e.g., irritability, mood swings, changes in energy level, food cravings, fluid retention);
- enquire about aura (including visual defects and sensory losses). An aura usually precedes the headache, lasts approximately five to 30 minutes, and recedes with onset of headache (although sometimes aura and headache may overlap). Most (80%) migraines occur without aura;

- aura associated with migraine lasts 60 minutes or less. Therefore, headache with aura-like symptoms should not be assumed to be benign or a primary headache when aura-like symptoms are present for more than 60 minutes;
- past medical history that may influence treatment choice (e.g., insomnia, depression, anxiety, hypertension, asthma, heart disease, stroke) (Winland-Brown et al., 2019).

Objective Findings

The following findings may be present in a client experiencing migraine:

- cranial/cervical muscle tenderness,
- Horner syndrome (e.g., relative miosis with 1 to 2 millimetres of ptosis on the same side as the headache),
- conjunctival injection,
- tachycardia/bradycardia,
- hypertension/hypotension,
- hemisensory or hemiparetic neurologic deficits (e.g., complicated migraine), and/or
- Adie-type pupil (e.g., poor light reactivity, with near dissociation to light) (Becker et al., 2015; Winland-Brown et al., 2019).

Any neurologic abnormalities require referral to a physician/NP for evaluation.

Differential Diagnosis

The following should be considered as part of the differential diagnosis:

- cluster headache (refer to Appendix for additional information),
- tension type headache (refer to Appendix for additional information),
- medication overuse headache (using medications [e.g., ibuprofen] for migraine pain relief more than 2 to 3 times per week),
- mass lesion,
- intracerebral hemorrhage,
- arteriovenous malformation,
- subarachnoid hemorrhage,
- subdural hemorrhage,
- cerebral venous thrombosis,
- spontaneous internal carotid artery dissection,
- temporal arteritis,
- meningitis, and/or
- acute angle closure glaucoma (Becker et al., 2015; Winland-Brown et al., 2019).

Making the Diagnosis

The diagnosis of migraine with or without aura is based on history and physical findings and the following criteria:

Migraine with Aura At least two episodes with the following criteria:	Migraine without Aura At least five episodes with the following criteria:
• Aura consisting of at least one of the following, but no motor weakness: fully reversible visual symptoms including positive features (e.g., flickering lights, spots or lines) and/or negative features (e.g., loss of vision); fully reversible sensory symptoms including positive features (e.g., pins and needles) and/or negative features (e.g., numbness); fully reversible dysphasic speech disturbance. • At least two of the following: homonymous visual symptoms and/or unilateral symptoms; at least one aura symptom develops gradually over five or more minutes and/or different aura symptoms occur in succession over five or more minutes; each symptom lasts at least five minutes, but no longer than 60 minutes. • A headache that fulfills the criteria for migraine without aura and begins during the aura or follows the aura within 60 minutes. • Headache not attributed to another disorder.	• Headache episodes lasting four to 72 hours (untreated or unsuccessfully treated). • Headache has at least two of the following characteristics: unilateral location, pulsating quality, moderate or severe pain intensity, aggravated by routine physical activity such as walking or climbing stairs. • During the headache, the client experiences at least one of the following: nausea and/or vomiting; photophobia, phonophobia. • Headache is not attributed to another disorder.

(Becker et al., 2015; Winland-Brown et al., 2019)

Investigations and Diagnostic Tests

Investigations and diagnostic tests are typically not indicated. Neuroimaging is only indicated in clients who present with signs or symptoms listed in the *Immediate Consultation Requirements* section because they are at increased risk of intracranial pathology.

Management and Interventions

Goals of Treatment

The primary goals of immediate treatment are to identify trigger factors, relieve symptoms, and prevent recurrences.

Non-Pharmacological Interventions

The RN(AAP) should recommend, as appropriate, non-pharmacological options:

- rest in a dark, quiet room;
- ice packs to an area that provides relief;
- alternative therapies (e.g., massage, relaxation therapy); and
- cognitive behavioural therapy (e.g., stress management training) (Becker et al., 2015).

Pharmacological Interventions

The pharmacological interventions recommended for the treatment of migraine headaches are in accordance with the *Pharmacologic Management of Acute Migraines in the Emergency Department* (Jesani & Simerson, 2019), *RxFiles: Drug comparison charts* (RxFiles Academic Detailing Program, 2021), *Guideline for Primary Care Management of Headache in Adults* (Becker et al., 2015).

The RN(AAP) should assess the client's hydration and symptom severity (e.g., nausea and vomiting) and consider intravenous fluid replacement as ordered by the physician/NP or as contained in an applicable RN Clinical Protocol within RN Specialty Practices.

Analgesics

Non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophen are the first line medications for acute migraine treatment. A triptan (serotonin receptor agonist) should be considered when NSAIDs and/or acetaminophen are not effective or are being used for more than 15 days per month. A prescription for triptans requires referral to a physician/NP.

	Drug	Dose	Route	Frequency	Duration
Adult					
	Naproxen	500 mg (maximum 1500 mg/day)	p.o.	q8h prn	as needed
OR	Ibuprofen	400-800 mg (maximum dose of 3200 mg/day)	p.o.	q4-6h for 2 doses and then q8h prn	as needed
OR	Ketorolac (Toradol)	30 mg	IM	q6h prn	1 day
AND/ OR	Acetaminophen	500-1000 mg (maximum dose of 4 g/day)	p.o.	q4h prn	5-7 days

Antiemetics

	Drug	Dose	Route	Frequency	Duration
Adult					
	Metoclopramide	5-10 mg (maximum 30 mg per day)	p.o.	q6-8h prn	as needed
OR	Metoclopramide	10 mg (maximum 30 mg per day)	IM or IV	q6-8h prn	as needed
OR	DimenhyDRINATE (Gravol)	25-50 mg	p.o., IM, IV	q4-6h prn	as needed

Client and Caregiver Education

The RN(AAP) provides client and caregiver education as follows:

- Counsel about appropriate use of medications (dose, frequency, compliance, etc.).
- Advise to take their medications early in their migraine attack, where possible, to improve effectiveness.
- Recommend keeping a headache diary to record headache characteristics, use of medications, potential triggers and response to therapy.
- Explain expected disease course as per Background.
- Recommend regular rest and activities, and dietary changes as appropriate (e.g., coffee, chocolate, alcohol, nuts, cheese).
- Assist in the identification of trigger factors and recommend ways to reduce or eliminate them.
- Provide resources on cognitive restructuring to avoid catastrophic/negative thinking (Becker et al., 2015; Winland-Brown et al., 2019).

Monitoring and Follow-Up

Encourage regular follow-up until headaches are effectively controlled. Frequency of follow-up should be individualized to each person's unique circumstances. Migraine prophylactic therapy should be considered in clients whose migraine attacks have a significant impact on their lives despite appropriate use of medications for acute management, and trigger management/lifestyle modification strategies (Becker et al., 2015; Winland-Brown et al., 2019).

Complications

The following complications may be associated with migraine headache:

- chronic migraine;
- migraine-triggered seizures;
- migrainous infarction (stroke with migraine);

- persistent aura (e.g., 30-60 minutes) without infarction;
- ischemic stroke may occur as a rare, but serious, complication of migraine;
- hemorrhagic stroke is also possible, but a rare complication associated with migraines with an aura;
- family and marital dysfunction if headaches frequent;
- absenteeism from work or school;
- depression; and/or
- substance use disorder (e.g., to prescription opioid analgesics) (Becker et al., 2015; Winland-Brown et al., 2019).

Referral

Refer to a physician/NP if the client presentation is consistent with the *Immediate Consultation Requirements* section, symptoms are unresponsive to first-line drug therapy or are not controlled with current medications (IPAG, personal communication, October 20, 2019).

References

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Appendix

Classifications of Headaches

Cluster Headache

- At least five episodes fulfilling the following criteria:
  - severe or very severe unilateral orbital, supraorbital, or temporal pain lasting 15-180 minutes if untreated;
  - headache is accompanied by at least one of the following ipsilateral autonomic symptoms: conjunctival injection or lacrimation, nasal congestion or rhinorrhea, eyelid edema, forehead, and facial sweating, miosis or ptosis, restlessness, or agitation;
  - headache episodes occur from one every other day - eight per day
  - not attributable to another disorder.
- Episodic cluster headache
  - Fulfills all the above criteria
  - At least two cluster periods lasting seven to 365 days and separated by pain-free remissions ofmore than one month
- Chronic cluster headache
  - Fulfills all the above criteria
  - Episodes recur for more than one year without remission periods or with remission periods lasting less than one month

Tension-type Headache

- Infrequent
- At least ten episodes occurring fewer than one day per month on average (fewer than 12 days per year) and fulfilling the following criteria:
  - headache lasts 30 minutes - seven days;
  - headache has at least two of the following features: bilateral location, pressing or tightening (non-pulsating) quality, mild or moderate intensity, not aggravated by routine physical activity such as walking or climbing stairs; and/or
  - both of the following: no nausea or vomiting (anorexia may occur), either photophobia or phonophobia.
- Frequent
  - At least ten episodes occurring on more than one but fewer than 15 days per month for at least three months and fulfilling all the criteria for infrequent episodic tension-type headache.

(Straube & Andreou, 2019)

