Migraine Pathway: Inpatient Management

For use in patients 6-21 years old who meet migraine diagnostic criteria

May 2024
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Children's Healthcare of Atlanta

Minimal Stimulation:
- Dimmed Lights
- Limit TV and cellphone usage
- Minimal visitation
- Keep patient door closed
- Give Migraine Education Packet on Admission

Non-Pharmacologic Techniques:
- Deep Breathing
- Guided Imagery
- Distraction Techniques
- Low Stimulation Activities to help with relaxation
- Consider Headache Diet: Low Tyramine

Consults to Consider:
- PT
- Nutrition
- Psychiatry
- Pain Service
- Child Life

Tier Description	Pharmacological Treatment	Disposition from Tier		
*Review pre-hospital and ED care, prior medications, and failed treatments. If no prior medications, administer medications per ED Migraine Clinical Practice Guideline				
Tier 1 Moderate/ Severe Pain OR Not Tolerating PO	IV Fluid Bolus IV Diphenhydramine[2] IV Prochlorperazine[3] IV Ketorolac[4] *IN Sumatriptan[1]	**If pain significantly improved** discharge home[8]	**If improving,** Continue per dosing recommen -ded in the medication table	**If NO improvement** or reach max doses with minimal improvement, progress to tier 2
Tier 2 Failure of tier 1 therapy	IV Fluid Bolus IV Diphenhydramine[2] IV Prochlorperazine[3] IV Ketorolac[4] Start IV Valproic Acid[5] Start IV Magnesium[6]	**If pain significantly improved** discharge home[8]	**If improving,** Continue per dosing recommen -ded in the medication table	**If NO improvement** or reach max doses with minimal improvement, progress to tier 3 and **consult Neurology**
Tier 3 Failure of tier 1 and 2 therapy, no Triptan use in 24 hrs or patient has previously responded to & tolerated ∞DHE[7]	IV Fluids IV Diphenhydramine[2] IV Prochlorperazine[3] IV Ketorolac[4] Stop Valproic Acid[5] Start IV ∞DHE[7]	**If pain significantly improved** discharge home[8]	**If pain still significant,** then consider consult to pain service for additional treatment	

Exclusion Criteria

- History inconsistent with primary migraine
- Abnormal physical exam or any headache red flags (see SNOOP – page 3)
- History of head trauma in the last 24 hrs
- Intracranial shunts
- Seizures in the last 24 hrs
- Known Pregnancy
- Sickle Cell Disease
- Vascular Diseases

Diagnostic Criteria
International Headache Society (2021)

Patients who meet the criteria with multiple, but less than 5 attacks can be considered "Probable Migraine Without Aura" and can be placed on the guideline.

Criteria for Pediatric Migraine Without Aura
A. ≥5 attacks fulfilling criteria B-D
B. Headache attack lasting 2-72 hrs
C. Headache has at least 2 of the following:
- Either bilateral or unilateral (frontal/temporal) location
 -pulsating quality
 -moderate to severe intensity
 -aggravated by routine physical activities

D. At least one of the following accompanies headache:
- Nausea and/or vomiting
- Photophobia & phonophobia (may be inferred from their behaviors)

Consider Migraine with Aura if the Patient has an aura consisting of any of the following, but no motor weakness:
- Fully reversible visual symptoms including positive features (EG, flickering lights, spots or lines) and/or negative features (loss of vision)
- Fully reversible sensory symptoms including positive features (pins and needles) and/or negative features (numbness)
- Fully reversible dysphasic speech disturbance
- Homonymous visual symptoms and/or unilateral sensory symptoms

The above symptoms cannot be attributed to another disorder

If NEW diagnosis of Migraine with Aura, consult Neurologist

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NAME	DOSE	MAX. DOSE	ROUTE	MISCELLANEOUS
*Sumatriptan[1]	< 30 kg: 5 mg 30-39.9 kg: 10 mg > 40 kg: 20 mg	20 mg	IN	• If no Triptans in past 2 hours; Max 2 doses in 24 hours • Contraindicated in Sickle Cell Disease • Physician discretion for females of menstruating age
Diphenhydramine[2]	1 mg/kg Q8H	50 mg	IV	• Slow IV Push over 5 min • Give before Prochlorperazine
Prochlorperazine[3]	0.1 – 0.15 mg/kg Q8H	10 mg	IV	• IV Push • Alternative: Ondansetron
Ketorolac[4]	0.5 mg/kg Q8H	30 mg	IV	• IV Push • No NSAIDS within 6 hours • Max 5 days or 20 doses in 1 month (PO, IV & Nasal)
Valproic Acid[5]	Loading dose 15 mg/kg max 1000 mg IV followed by 5 mg/kg Q8H	500 mg	IV	• Contraindicated in Pregnancy
Magnesium[6]	30 mg/kg x1	2 g	IV	• Discharge dosing per Neurology
ᵒᵒDHE[7]	Low Dose Protocol 6 – 10yo: 0.1 mg Q6H 10 – 12yo: 0.15 mg Q6H 12yo+: 0.2 mg Q6H	1 mg	IV	• Time anti-emetic to be given prior to DHE • If no improvement and dose tolerated, increase by 0.1 mg every 6 hours until pain improving. Max 10 doses per episode. • Obtain screening EKG • Continue cardiac monitor • Common Side Effects: slow infusion to 2 hours if persisted nausea/vomiting-consider antiemetic; worsening headache; restlessness or uncomfortable • Rare Side Effects: check IV site. If IV site is abnormal, STOP INFUSION for coldness, numbness, tingling in extremities; tachycardia, bradycardia, hypertension • Contraindicated in Sickle Cell Disease

Discharge[8]

DISCHARGE CRITERIA[8]

- Pain significantly improved
- Adequate oral intake
- Ambulating and tolerating environmental stimulation
- Off IV pain medications for 6-8 hours, and symptoms are stable
- Consider keeping patient for an extra dose of last effective migraine medication even if significantly improved

DISCHARGE INSTRUCTIONS[8]

All Tiers

- Rx for Ibuprofen or Ketorolac PO
- Rx for two doses PO *Rizatriptan PRN for headache <30 kg: 5 mg; ≥30 kg: 10 mg
  One dose at onset of migraine, may repeat in >2 hrs if headache not resolved or recurs. Do not exceed 2 dose/24 hrs
- Migraine Education Pack
- F/U with PCP in 2 weeks
- Consider F/U with Neurology for persistent or recurrent migraine symptoms

Tier 2 – additional orders

- Consider Rx for Valproic Acid if improved with Tier 2. 15 mg/kg/day, max 500 mg/day for 2 weeks.
  - Consider LFTs in 2 weeks with PCP if patient is currently at risk for liver disease

Tier 3 – additional orders

- Discharge Medications per Neurology
- Place referral for Neurology outpatient follow up

Special Considerations

Ketorolac[4]:

- If using oral dosing 20 mg for the first dose, followed by 10 mg doses (max of 40 mg/day) OR 0.5 mg/kg, (whichever is less)
- Max 5 days or 20 doses in 1 month (PO, IV & Nasal)

RESCUE PAIN MEDICATION:

- Re-evaluate patient for acute migraine if additional analgesic pain management is needed beyond medications listed above.

Oral Medications

- Oral medications may be considered for those with mild symptoms or patient preference

ᵒᵒDHE[7]

- If patient has been given DHE before, can start with dose they tolerated last and monitor for improvement every 6 hours
- DHE Exclusion Criteria:
  -contraindicated in patients with coronary artery disease. This includes Kawasaki patients who have resulting cardiovascular disease.
  -Use caution in patients taking Midodrine because they may be at risk for increased BP
  -peripheral vascular disease
  -impaired renal or liver function
  -migraine with brainstem aura
  -hemiplegic migraine
  -any inflammatory bowel disease
  -uncontrolled hypertension
  -triptans within 24 hours
  -stroke/history of stroke
  -pregnancy/postpartum (6 weeks)

WORRISOME HEADACHE RED FLAGS "SNOOP"

- **S**ystemic symptoms (fever, hypertension, weight changes) or **S**econdary headache risk factors (HIV, systemic cancer, recent trauma)
- **N**eurologic symptoms or abnormal signs (confusion, impaired alertness, or consciousness)
- **O**nset: sudden, abrupt, or split-second
- **O**lder/**O**ther: new onset at age >50, young age <6, atypical auras
- **P**revious headache history or headache progression: first headache or different (change in attack frequency, severity, or clinical features)

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