

Migraine Pathway: Inpatient Management

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

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Page 1 of 3



Minimal Stimulation: <ul style="list-style-type: none"> • Dimmed Lights • Limit TV and cellphone usage • Minimal visitation • Keep patient door closed • Give Migraine Education Packet on Admission 	Non-Pharmacologic Techniques: <ul style="list-style-type: none"> • Deep Breathing • Guided Imagery • Distraction Techniques • Low Stimulation Activities to help with relaxation • Consider Headache Diet: Low Tyramine 	Consults to Consider: <ul style="list-style-type: none"> • PT • Nutrition • Psychiatry • Pain Service • Child Life 	Exclusion Criteria <ul style="list-style-type: none"> • History inconsistent with primary migraine • Abnormal physical exam or any headache red flags (see SNOOP – page 3) • Pregnancy • History of head trauma in the last 24 hrs • Intracranial shunts • Seizures in the last 24 hrs
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**

				Diagnostic Criteria International Headache Society (2021)
Tier 1	<div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto;"> Moderate/ Severe Pain OR Not Tolerating PO </div>	<div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto;"> IV Fluid Bolus IV Diphenhydramine² IV Prochlorperazine³ IV Ketorolac⁴ IN Sumatriptan¹ </div>	<p>If pain significantly improved discharge home⁸</p> <p>If improving, Continue per dosing recommended in the medication table</p> <p>If NO improvement or reach max doses with minimal improvement, progress to tier 2</p>	<p>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.</p> <p>Criteria for Pediatric Migraine Without Aura</p> <p>A. ≥5 attacks fulfilling criteria B-D</p> <p>B. Headache attack lasting 2-72 hrs</p> <p>C. Headache has at least 2 of the following:</p> <ul style="list-style-type: none"> • Either bilateral or unilateral (frontal/temporal) location -pulsating quality -moderate to severe intensity -aggravated by routine physical activities <p>D. At least one of the following accompanies headache:</p> <ul style="list-style-type: none"> • Nausea and/or vomiting • Photophobia & phonophobia (may be inferred from their behaviors) <p>Consider Migraine with Aura if the Patient has an aura consisting of any of the following, but no motor weakness:</p> <ul style="list-style-type: none"> • 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 <p style="text-align: center;">The above symptoms cannot be attributed to another disorder</p> <p>If NEW diagnosis of Migraine with Aura, consult Neurologist</p>
Tier 2	<div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto;"> Failure of tier 1 therapy </div>	<div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto;"> IV Fluid Bolus IV Diphenhydramine² IV Prochlorperazine³ IV Ketorolac⁴ </div> <div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto; margin-top: 5px;"> Start IV Valproic Acid⁵ Start IV Magnesium⁶ </div>	<p>If pain significantly improved discharge home⁸</p> <p>If improving, Continue per dosing recommended in the medication table</p> <p>If NO improvement or reach max doses with minimal improvement, progress to tier 3 and consult Neurology</p>	
Tier 3	<div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto;"> Failure of tier 1 and 2 therapy, no Triptan use in 24 hrs or patient has previously responded to & tolerated ∞DHE⁷ </div>	<div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto;"> IV Fluids IV Diphenhydramine² IV Prochlorperazine³ IV Ketorolac⁴ </div> <div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto; margin-top: 5px;"> Stop Valproic Acid⁵ </div> <div style="border: 1px solid #0056b3; padding: 5px; width: fit-content; margin: auto; margin-top: 5px;"> Start IV ∞DHE⁷ </div>	<p>If pain significantly improved discharge home⁸</p> <p>If pain still significant, then consider consult to pain service for additional treatment</p>	

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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
Diphenhydramine ²	1 mg/kg Q8H	50 mg	IV	<ul style="list-style-type: none"> Slow IV Push over 5 min Give before Prochlorperazine
Prochlorperazine ³	0.1 – 0.15 mg/kg Q8H	10 mg	IV	<ul style="list-style-type: none"> IV Push Alternative: Ondansetron
Ketorolac ⁴	0.5 mg/kg Q8H	30 mg	IV	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Contraindicated in Pregnancy
Magnesium ⁶	30 mg/kg x1	2 g	IV	<ul style="list-style-type: none"> Discharge dosing per Neurology
[∞] DHE ⁷	Low Dose Protocol 6 – 10yo: 0.1 mg Q6H 10 – 12yo: 0.15 mg Q6H 12yo+: 0.2 mg Q6H	1 mg	IV	<ul style="list-style-type: none"> 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

Discharge⁸

DISCHARGE CRITERIA⁸

- 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 INSTRUCTIONS⁸

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
- Migraine Education Pack
- Follow up with PCP in 2 weeks
- Consider Follow up with Neurology for persistent or recurrent migraine symptoms

Tier 2 – additional orders

- Consider Rx for Valproic Acid if improved with Tier 2. Usual home dose 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

Ketorolac⁴:

- 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

[∞]DHE⁷

- 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
Secondary 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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