



When the Usual Treatment Doesn't Satisfy

Should you provide outpatient infusion when a patient's usual acute migraine therapy doesn't work?

By Ira M. Turner, MD



Most practitioners would agree that not all migraine attacks, even in the same person, are always identical. Some migraines may come on gradually and respond rapidly to early acute therapy. Other attacks may already be full blown if they occur in the early morning, awakening the patient from sleep. If there

is associated nausea and vomiting, oral medication may be minimally or totally ineffective.

This raises the important issue of what can be done for patients when the medication that is usually effective for them fails, or when they are still disabled by a headache and other migraine-associated symptoms 3 to 4 days after onset.

▶▶▶ Case Study

Presentation

Lina is 32, and she has had a history of migraine without aura since she was 16. Her attacks typically start with a unilateral throbbing headache that worsens with movement. Some of her migraine attacks are associated with mild nausea and most are associated with sensitivity to light and noise. Left untreated, Lina's migraines usually last all day, resolving upon awakening the next morning. Treatment with oral 100 mg sumatriptan is usually effective, although Lina sometimes needs rescue treatment with a subcutaneous injection of 6 mg sumatriptan.

Lina has called after a sleepless night, saying she has had a migraine for 3 days despite receiving treatment with antiemetics and intramuscular opiates in the emergency department the day before (after a 2-hour wait). In the emergency department, Lina also had a brain CT that reportedly had no findings. She had been discharged and returned home after mild improvement, but her headache worsened 2 hours later, and she had severe nausea and vomiting.

Options Offered

Physician: "Do you want to wait for it to go away?"

Lina: "That's NOT an option!"

Physician: "We could give you more sumatriptan."

Lina: "That didn't work."

Physician: "Well, you could go back to the ER."

Lina: "I hate the ER."

Physician: "Do you want to come into the office and see if an infusion or nerve block will do the trick?"

Lina: "I'm on my way."

Treatment

In the infusion suite, over a 90-minute period, Lina was treated with:

- 30 mg ketorolac IV push
- 25 mg diphenhydramine IV push
- 10 mg metoclopramide slow IV push
- 1 g MgSO₄ in 250 mL normal saline IV over 30 minutes
- 20 mg dexamethasone in 100 mL normal saline IV over 30 minutes

Resolution

After this therapy, Lina was headache-free with no nausea, vomiting, or light and sound sensitivity. She was not drowsy and had no abdominal pain or other gastrointestinal symptoms. Lina drove herself home and returned for follow-up the next morning symptom free and on her way to work.



Typical Emergency Department Experience

Unfortunately, the case presented is not unusual. Although there is ample evidence that opiates are not the most appropriate emergency treatment for migraine, opiates still seem to be the primary option used when this is where patients present.¹⁻⁴ This is 1 of the reasons patients with migraine hate going to the emergency department (Box).

Evidence-Based Rescue Treatment for Migraine

Effective treatments from a review of available evidence and expert experience are provided in Table 1.^{5,6} Opioids are less effective, can decrease the effectiveness of other medications, and may contribute to transformation to chronic migraine and development of medication-overuse headaches.

Outpatient Infusion-Suite Therapy

In our practice, we have routinely collectively and retrospectively reviewed 3 years of data before and after treatment in our infusion suite, which we presented at the American Headache Society Annual Scientific Meeting in 2016. We use a 4-point (0-3) rating scale for headache pain (as we do in most acute migraine trials) and for nausea, photophobia, and phonophobia. We also ask our patients to complete a Patient Global Impression of Change (PGIC), also a 4-point scale (Table 2).

After treatment in our infusion suite, our patients (n = 554) had a reduction in migraine pain severity from an average of 2.6 to 1.0 (Figure). Similar reductions in nausea, photophobia, and phonophobia were also seen. Similarly, patients' average PGIC scores improved by 2.1 (3.0 maximum improvement) and 526 (95%) of patients felt significantly improved after treatment. Only 28 patients had no improvement (27; 4.9%) or felt worse (1; < 0.1%).

TABLE 1. EFFECTIVE TREATMENTS FOR PATIENTS WITH REFRACTORY MIGRAINE

Treatment	Formulation/Dose	Efficacy and Evidence
Triptans	Subcutaneous sumatriptan	Most useful; level A evidence
	Nasal sumatriptan or zolmatriptan	May be useful
Nonsteroidal anti-inflammatories (NSAIDs)	Ketorolac intravenous (IV) push	Very useful; level B evidence
	Aspirin IV	Very useful (unavailable in US)
Antiemetics	Metoclopramide 10 mg IV push	Level B evidence
	Prochlorperazine 10 mg IV push	Level B evidence
	Ondansetron 4 mg IV push	
Magnesium sulfate (MgSO ₄)	1 g IV	Useful; level B evidence
Na Valproate	500 mg IV	May be useful; level C evidence
Corticosteroids	Dexamethasone 16-24 mg IV	May be useful for reducing recurrence; level C evidence
Hydration	IV	Under appreciated and often critically important
Acetaminophen	1,000 mg IV	
Antidopaminergics		Very useful
Caffeine Na benzoate	250-500 mg IV	
Dihydroergotamine (DHE)	1 mg IV	Very useful
Diphenhydramine	25 mg IV push	

▶▶▶ Box. Patients With Headache and the Emergency Department

What Patients Say About the Emergency Department

- “Long wait”
- “Too bright, noisy, and smelly while waiting to be seen”
- “The treat me like a drug seeker”
- “Then they give me narcotics”
- “As soon as I feel a little better, they send me home and just say that I should follow-up with my doctor”
- “A few hours later the pain is back, often worse than before”

When Is the Emergency Department Appropriate?

-  New explosive headache that is different from prior headaches
-  Fever with headache
-  Focal neurologic deficits that are different or longer than patient's typical aura
-  Impaired consciousness
-  Any uncertainty that this is migraine



TABLE 2. AVERAGE MEASURES PRE- AND POSTTREATMENT

	Pretreatment	Posttreatment
Pain	2.6	1.0
Nausea	2.1	0.3
Photophobia	2.3	0.9
Phonophobia	2.2	0.6
PGIC		2.1

Abbreviation: PGIC, patient global impression of change.

TABLE 3. TREATMENT-EMERGENT ADVERSE EVENTS

Drowsiness	54%
Akithesias	7.2%
Insomnia	1.4%

Treatment-emergent adverse events are summarized in Table 3. There were no cases of gastrointestinal bleeding or abdominal pain.

Advantages of infusion-suite rescue therapy over emergency department care include: rapid evaluation and treatment, controlled sensory environment (light, sound, and odors), patient comfort (reclining chair), readily available medical records, ability to customize therapy, and lower cost.

Disadvantages include rare but unexpected medication reactions for which the practice must be prepared, the need for a well-trained nursing staff, a plan for contacting care providers or ride services if patient ability to drive home is impaired, and the investment of time and money to obtain and stock these medications. It should also be noted that this is not meant for unknown or “walk-in” patients and there is little evidence-base for these treatments. They are predominantly experience based.

Infusion-suite treatment may also be limited or even inappropriate in patients with comorbid conditions. For these

patients, other options may be considered, including occipital and trigeminal nerve branch blocks. Although the evidence base for these is also limited, most headache specialists find them useful and well tolerated. Sphenopalatine ganglion blocks are straightforward and can also be done in the office. Noninvasive vagal nerve stimulation and noninvasive supraorbital nerve stimulation are also potentially useful treatments that need further evaluation in this context. Transcranial magnetic stimulation may also be useful in selected patients.

Summary

Outpatient infusion-suite therapy for a refractory migraine attack is a realistic option for selected practices that is well accepted by patients with migraine. Avoidance of opioids is essential except in the rare instances when they may be the only option. There are also clear cost savings and increased patient satisfaction compared to emergency department care. ■

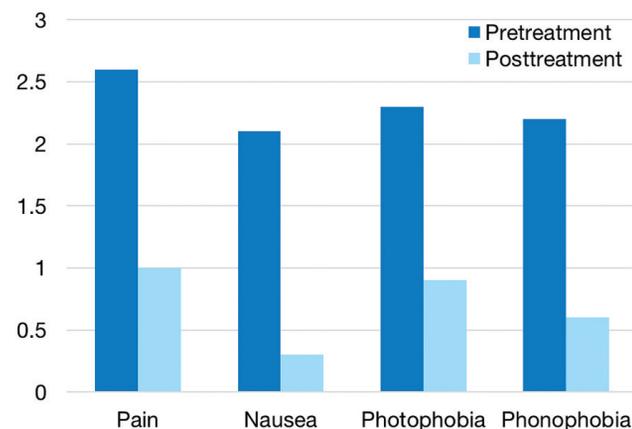


Figure. Change in average ratings of migraine pain and related symptoms after treatment (all measured on a scale of 0-3).

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