Cocktails for Kids: Coordinating Outpatient Care for the Refractory Headache

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Financial Disclosures

There are no relevant financial relationships with any commercial interests.
Objectives:

1. Identify in your healthcare system how you may assist in decreasing costs for acute headache treatments for your community as well as your facility.

2. Identify and discuss triaging and care coordinating tools to help direct patients with refractory headaches more urgently to proper care within your facility.
Why?

1. Affordable Care Act (ACA)

2. Accountable Care Organizations

3. Payment Reform
Payment Reform:

Provisions were made with the ACA to provide budget relief and send a concise message to providers to start incentives that reward the value of care. These provisions identified below are to encourage better patient care with lower healthcare costs:

a. Lowering increases in Center of Medicaid and Medicare Services (CMS) payment rates for facilities.

b. Financial penalties on hospitals with high readmission rates and hospital-acquired conditions

c. Specific to our initiatives: Hospitals will be held to higher accountability of performance by bonuses and penalties given for certain quality measures.

d. ACA is also testing bundled payments (7,000 post-acute providers signed on by 2015):
   a. One sum of reimbursement is given for the care of a patient for all services dependent on their medical condition or procedure.

The Refractory Headache Patient

➢ American Academy of Neurology states: Headache disorders are among the most costly and disabling medical conditions
  • The US annual direct and indirect economic costs of headache disorders exceed $31 billion.
  • Headache disorders are responsible for 9% of all US lost labor productivity.
  • According to a WHO analysis, migraine alone is responsible for at least 1% of the total US medical disability burden and severe migraine attacks are as disabling as quadriplegia.

➢ Headaches can be severely disabling, particularly migraine headaches
➢ Headache can be attributed to comorbid conditions which need adequate management in specialty care

Emergency Departments and Headaches

Data from National Ambulatory Medical Care Survey/National Hospital Ambulatory Medical Care Survey showed that head pain was the fifth leading cause of ED visits overall in the US and accounted for 1.2% of outpatient visits.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td>1. Provider and staff available 24/7</td>
<td>1. Different provider each time</td>
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<td></td>
<td>2. Different treatments due to having different providers each time</td>
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<td>2. Other resources available for an emergency-testing, medications, etc.</td>
<td>3. Unnecessary costs due to unnecessary testing particularly if past medical records are not available (MRI’s, CT’s)</td>
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<td>3. Prompt IV treatment can prevent medication overuse headaches</td>
<td>4. Headaches are typically triaged as not urgent</td>
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Outpatient Treatment Options for Refractory Headaches?

Infusion Centers:

- Allows the patient to receive intravenous (I.V.) treatment like in the emergency department for refractory headache

What other resources are available in your area?

"Welcome to the I.V. league."
Children’s Hospital Colorado

- Emergency Department:
  - Average costs for ED headache diagnosis code in 2015
    - $2,957
  - Medication infusion costs (includes IV start, Toradol, Benadryl, Compazine and IV Depakote)
    - $718
  - Center of Medicaid and Medicare Services (CMS) reimbursement
    - Diagnosis average: $544
    - Medication/infusion average: $507
Average Loss per Patient treated in the Emergency Department

$2,624
Outpatient Urgent Treatment Costs 2015

- Infusion Center:
  - Medication infusion costs
    - $718

- CMS reimbursement
  - Medication/infusion average: $507
Average Loss per Patient treated in the Infusion Centers

$211
Emergency Department vs. Infusion Center
Average Loss per Patient

CHCO ED Average Cost: $3,675
CHCO IC Average Cost: $718
CHCO ED CMS Reimbursement: $5
CHCO IC CMS Reimbursement: $0
CHCO ED Average Loss: $507
CHCO IC Average Loss: $2,624

CHCO IC Average Loss: $211
Infusion Center Benefits and Continuity of Care

• Patient is followed by their neurology provider
  • Staff is aware of space available (quiet areas)
  • Patient’s arrival time (less hectic and less waiting)
  • Past medical history: including prior testing to assure no duplicate testing
  • Diagnosis and prior headache treatment successes and failures
Additional Interventions

- Developing medication protocols for refractory headache treatment
- Provider and nursing training as well as educational special interest groups for headache management within the infusion centers
- Reviewed and improved our nursing telephone triage to properly direct outpatient care to infusion centers and identify red flags of headaches
CHCO Neurology Standard Infusion Plan for Status Migrainosus

**Baseline Assessment**
- Provider records last abortive medication(s) given (specifically, triptans, ketorolac)
  - Provider confirms no allergies to any of these components
  - Provider orders urine pregnancy test (females > 10 years old)

**Migraine Cocktail + Fluid Bolus**
- Start 10-20 ml/kg Normal Saline Bolus (Max 1000 ml) and run over 1 hour
  - During NS infusion, give ketorolac (Toradol) 0.5 mg/kg (Max 15 mg) over 1-5 min
  - Then give diphenhydramine (Benadryl) 0.5-1 mg/kg (Max 50 mg) over 10 min
  - Then give prochlorperazine (Compazine) 0.15 mg/kg (Max 10 mg) over 10-15 min*

*Ondansetron 4 mg ODT may be substituted in cases of allergy, sensitivity or patient/provider preference, however, there is not strong evidence to support its efficacy and it has been implicated as a migraine trigger

**STEP 1:**
- Headache ≥50% better in 60 min?
  - Yes
  - Discharge home. Call provider to revise Headache Treatment Plan
  - No

**STEP 2:**
- Sodium valproate (Depacon) 20 mg/kg (Max 1000 mg) over 5-10 min
  - Headache ≥50% better in 60 min?
    - Yes
    - Discharge home with sodium valproate (Depakote) 10mg/kg/day (Max 1000 mg/day) taper. Call provider to revise Headache Treatment Plan
    - No

**STEP 3:**
- DHE Protocol
  - Yes

**Endpoints**
- For episodic or chronic migraine (with new exacerbation), should target a 50% reduction in pain or a return to baseline severity.
- Chronic daily headache must be managed chronically with preventative medications, judicious use of acute meds, strict healthy lifestyle habits, and often psychotherapy.

Staff Education:
Nursing Telephone Triage:
The Headache Infusion Booklet
Has This Helped?

Emergency Department vs Infusion Center

- : Emergency Department
- : Infusion Center
From our experiences:

1. Family Education
   1. When is treatment urgent?
   2. Provider knowledge to educate the patient

2. Appointment availability
Decreasing emergency department visits and increasing outpatient visits has shown to be beneficial for everyone involved.

• How do we increase the outpatient visit numbers to decrease costs?
• How do we make this work for all employees and patients, accommodating everyone’s needs?
• How do we help families feel more comfortable with treatment at home?

These are on-going questions that begin with all of you as the patient’s healthcare professional.
Children’s Hospital Colorado Infusion center nursing and staff

All of neurology providers
  • Special thanks to Angelina Koehler CPNP and Scott Turner DNP

Children’s Hospital Colorado Neurology nurses

Children’s Hospital Colorado Pharmacy staff

Children’s Hospital Colorado Insurance Verification Team
  • Special thanks to Greg Fanselou
Resources


Questions?