

## **SYSTEMATIC REVIEW**

### **Steroids to Prevent Migraine Recurrence**

#### **Objectives:**

To learn how to apply the results of papers that address issues of therapeutic interventions to clinical practice.

This includes:

1. Determining whether the results of the study are valid.
2. Understanding the magnitude and precision of the effect.
  - Calculating and interpreting RR, RRR, ARR, NNT
  - Interpreting the clinical significance of confidence intervals. Deciding on how to apply the results to your clinical practice
3. Recognize the limitations of individual RCT's and the strengths of meta-analyses.

#### **Assignment:**

1. Read the attached scenario.
2. Read the attached guidelines for reading articles concerning therapy.
3. Critically appraise the attached article using the accompanying worksheet.

#### **Clinical Scenario:**

Spring must be associated with migraine headaches. At least today's events suggest an association because you have already evaluated several cephalalgia patients and not even half your shift has expired. Nonetheless you bravely grab the next "my aching head" chart and march into the examination room where you encounter a pleasant 20-year old college female.

Approximately ten hours ago she noted the gradual onset of her typical right retro-orbital pulsating headache pattern following scotomata indicating that her migraines were back for another visit. She has no other past medical history including no malignancies, polycystic disease, prior strokes or known aneurysms. She has an unremarkable head CT at age 18, about 2-years after her migraines ensued. She notes no recent head trauma nor do you note any physical evidence of occult trauma. Your physical exam is unremarkable including no evidence of jolt accentuation of the headache.

While evaluating her electronic medical record, you note that she has had three prior ED evaluations for migraine headache. Each time she has responded to intravenous dopaminergic agents, but she reports that her headaches recurred twice before following discharge from the ED. She asks whether any prescription medication might reduce the risk of headache recurrence once she is discharged.

**PICO Question**

**Population:** Emergency Department patients with acute migraine headache exacerbation

**Intervention:** Corticosteroid administration plus routine care

**Comparison:** Routine care plus placebo

**Outcome:** Post-discharge headache recurrence, functional impairment, ED recidivism, adverse drug event

**Search Strategy:** Reviewing Rowes' Evidence Based Emergency Medicine (p 499) you note that no systematic reviews had been published, although seven clinical trials of dexamethasone were reported. Searching PUBMED Clinical Queries using the search term "migraine" for therapy (narrow, specific – 1308 citations) and combining the results with an unfiltered PUBMED search for "corticosteroids" you obtain 18 citations including several relevant RCTs. Finally, you conduct a PUBMED Clinical Query search for meta-analyses using the search "migraine" and then combine these results with "corticosteroids" at which point you identify two meta-analyses.

**Enclosed Materials:**

1. Guyatt G, Rennie D, Meade MO, Cook DJ Editors, The Users' Guides to the Medical Literature, A Manual for Evidence-Based Clinical Practice. 3rd Edition. McGraw-Hill 2015.
2. Singh A, Alter HJ, Zaia B; Does the addition of dexamethasone to standard therapy for acute migraine headache decrease the incidence of recurrent headache for patients treated in the Emergency Department? A meta-analysis and systematic review of the literature, *Acad Emerg Med* 2008; 15: 1223-1233.
3. Colman I, Friedman BW, Brown MD, et al; Parenteral dexamethasone for acute severe migraine headache: meta-analysis of randomised controlled trials for preventing recurrence, *Brit Med J* 2008; 336: 1320.
4. Carpenter CR; Review: Adding dexamethasone to standard therapy reduces short-term relapse for acute migraine in the emergency department, *ACP Journal Club* 2009; 150: JC5-11.
5. Worksheet for evaluating an article on therapy.