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## Single-Dose Dexamethasone Equals Three Days of Steroids in Children with Acute Asthma

### Clinical Question

In children with acute exacerbation of asthma, is a single dose of corticosteroid as effective as three days of treatment?

### Bottom Line

In addition to usual beta-agonist treatment, a single dose of oral dexamethasone is as effective as three days of prednisolone (with less vomiting) in decreasing respiratory symptoms without increasing hospitalizations, follow-up visits, and days lost from school. Additional treatment with a steroid was more common in the group receiving the single dose of dexamethasone. (Level of Evidence = 1b)

### Synopsis

These Irish investigators enrolled 226 children (for a total of 245 enrollments; some were enrolled twice) between the ages of two and 16 years with an acute exacerbation of asthma. The children were randomized (concealed allocation unknown) to receive a single dose of oral dexamethasone (0.3 mg per kg) or three days of oral prednisolone (1 mg per kg per day) in addition to usual therapy. None of the patients, their parents, or the investigators were masked to treatment assignment, although the outcome assessor was unaware

of treatment at the time of evaluation, which was four days after presentation. The Pediatric Respiratory Assessment Measure (PRAM) was used to measure symptoms. It consists of measuring suprasternal and scalene muscle contraction, air entry, wheezing, and oxygen saturation, with a maximum score of 12. After four days, PRAM scores were similar between the two groups (0.91 vs. 0.91). Hospital admission rates were also similar between the two groups, as were days lost from school and parental workdays missed. Return visits were similar between the two groups, although more children receiving the single dose required further steroid treatment within the following two weeks (13% vs. 4%). Vomiting occurred more often with prednisolone.

**Study design:** Randomized controlled trial (nonblinded)

**Funding source:** Foundation

**Allocation:** Uncertain

**Setting:** Emergency department

**Reference:** Cronin JJ, McCoy S, Kennedy U, et al. A randomized trial of single-dose oral dexamethasone versus multidose prednisolone for acute exacerbations of asthma in children who attend the emergency department. *Ann Emerg Med.* 2016;67(5):593-601.e3.

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## Knee Surgery Does Not Reduce Knee Catching or Locking in Patients with Meniscal Tear

### Clinical Question

Does partial meniscectomy fix mechanical symptoms—knee catching or locking—better than sham surgery?

### Bottom Line

Removing the torn bits of meniscus in middle-aged patients who have intermittent knee catches or locking does not decrease their likelihood of experiencing symptoms in the following year compared with diagnostic

arthroscopy (i.e., looking but not touching). In general, meniscectomy does not improve knee pain, regardless of the symptoms (*N Engl J Med.* 2013;369(26):2515-2524). (Level of Evidence = 1b-)

### Synopsis

This report is a substudy of a larger study investigating the effect of arthroscopic surgery on (relatively) young patients with meniscal tear but without signs of osteoarthritis. These Finnish investigators enrolled 146 patients, 35 to 65 years of age, who had knee pain for at least three months and evidence of a degenerative meniscal tear but did not respond to conservative treatment. They excluded patients with a verified locked knee (unable to straighten), although they included patients (n = 69) who had symptoms of catching or occasional or frequent locking. All patients underwent arthroscopic surgery, although slightly more than one-half were randomly assigned, using concealed allocation, to a group that did not have the tear addressed (sham surgery). In the surgery group, damaged and loose parts were removed; in the sham surgery group, diagnostic arthroscopy was performed, and the surgeon simulated actual surgery (because patients were awake) without removing anything. In the subsequent 12 months, 23 (72%) in the surgery group and 22 (59%) in the sham surgery group with preoperative mechanical symptoms reported symptoms at least once. Only nine of 32 patients (28%) in the surgery subgroup and 15 of 37 (41%) in the sham surgery subgroup reported complete resolution of their symptoms.

**Study design:** Randomized controlled trial (double-blinded)

**Funding source:** Foundation

**Allocation:** Concealed

**Setting:** Outpatient (specialty)

**Reference:** Sihvonen R, Englund M, Turkiewicz A, Järvinen TL; Finnish Degenerative Meniscal Lesion Study Group. Mechanical symptoms and arthroscopic partial meniscectomy in patients with degenerative meniscus tear: a secondary analysis of a randomized trial. *Ann Intern Med.* 2016;164(7):449-455.

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## Stop Using Antipsychotics to Treat or Prevent Delirium—They Are No Better Than Placebo

### Clinical Question

Are antipsychotic medications effective in preventing or treating delirium in hospitalized patients?

### Bottom Line

The available data indicate that antipsychotic medications are ineffective in preventing or treating delirium in hospitalized patients. Because there are concerns about falls and extrapyramidal effects with antipsychotics (not reported in this study), we should stop using them. (Level of Evidence = 1a-)

### Synopsis

These authors searched several databases and a clinical trials registry to identify randomized trials and cohort studies that evaluated the use of antipsychotic medications for preventing or treating delirium in hospitalized adults. Two authors independently evaluated each study for inclusion and assessed the risk of bias among the included studies. One author adjudicated disagreements and also independently assessed a random 10% subsample of all articles. The authors excluded studies that focused exclusively on patients with dementia or substance withdrawal. They ultimately included 19 studies: seven evaluated delirium prevention after surgery and 12 evaluated delirium treatment in medical and surgical patients. Six of the prevention studies and 10 of the treatment studies were randomized trials. Three of the prevention studies and three of the treatment studies were at low risk of bias. The studies were relatively small, including between 28 and 496 patients.

In the prevention studies, the rate, duration, and severity of delirium were similar between those treated with antipsychotics and those in the control group. Additionally, the authors found no difference in the hospital lengths of stay or intensive care unit lengths of stay between patients receiving antipsychotics and patients in the control group. The authors found no difference in mortality. In addition to searching a clinical trials database, the authors report their

formal evaluation detected no publication bias. Finally, the authors detected moderate to high levels of heterogeneity among the various outcomes.

**Study design:** Meta-analysis

**Funding source:** Foundation

**Setting:** Inpatient (any location)

**Reference:** Neufeld KJ, Yue J, Robinson TN, Inouye SK, Needham DM. Antipsychotic medication for prevention and treatment of delirium in hospitalized adults: a systematic review and meta-analysis. *J Am Geriatr Soc.* 2016;64(4):705-714.

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## Pioglitazone After Stroke or TIA Reduces Stroke and MI, but Also Has Significant Harms

### Clinical Question

In patients with evidence of insulin resistance and a recent stroke or transient ischemic attack (TIA), does pioglitazone (Actos) improve outcomes?

### Bottom Line

In patients with a recent stroke or TIA and evidence of insulin resistance, pioglitazone reduces the likelihood of myocardial infarction (MI) or stroke (number needed to treat [NNT] = 36 over five years) but increases the risk of significant weight gain (number needed to treat to harm [NNTH] = 14), edema (NNTH = 9), and fracture (NNTH = 53). The risk of receiving a diagnosis of diabetes mellitus is lowered, but that is predictable when you give someone a medicine that lowers blood sugar. (Level of Evidence = 1b)

### Synopsis

The researchers in this trial hypothesized that because insulin resistance is common in patients with stroke or TIA, pioglitazone

might improve vascular outcomes. They identified patients 40 years and older who had a stroke or TIA in the previous six months and who met criteria for insulin resistance (fasting glucose times fasting insulin level divided by 22.5), placing them in the top 25% among patients without diabetes. A total of 3,895 patients at 179 sites were randomized to receive pioglitazone or placebo. The initial dosage was 15 mg once daily, and it was titrated up to 45 mg once daily if tolerated. Groups were balanced at the start of the study, and analysis was by intention to treat. The mean age of participants was 63 years, 65% were men, and 88% had a history of stroke.

After a median of 4.8 years, there was a lower likelihood of the composite outcome of stroke or MI with pioglitazone (9.0% vs. 11.8%;  $P = .007$ ; NNT = 36 for 4.8 years). There was also a lower likelihood of progression to diabetes (3.8% vs. 7.7%;  $P < .001$ ; NNT = 26). Most of that benefit was among patients with nonfatal stroke or MI (2.2% absolute reduction) rather than fatal events (0.5% absolute reduction). There was no difference in all-cause mortality. The harms in the pioglitazone group included an increase in the risk of weight gain of at least 13.6 kg (30 lb; NNTH = 14), edema (NNTH = 9), shortness of breath (NNTH = 25), and fracture (NNTH = 53).

**Study design:** Randomized controlled trial (double-blinded)

**Funding source:** Government

**Allocation:** Uncertain

**Setting:** Outpatient (any)

**Reference:** Kernan WN, Viscoli CM, Furie KL, et al.; IRIS Trial Investigators. Pioglitazone after ischemic stroke or transient ischemic attack. *N Engl J Med.* 2016;374(14):1321-1331.

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