

Cochrane for Clinicians

Putting Evidence into Practice

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The clinical content by Drs. Ewald and Kiesel is available for evidence-based continuing medical education (EB CME) credit. See CME Quiz on page 23.

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Screening for Developmental Dysplasia of the Hip in Newborns

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Clinical Question

Does ultrasound screening for developmental dysplasia of the hip (DDH) improve long-term clinical outcomes?

Evidence-Based Answer

Although screening increases the proportion of newborns who are treated for DDH, there is insufficient evidence that targeted or universal ultrasound screening improves long-term orthopedic outcomes. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

DDH is a range of abnormalities of the immature hip in which the femoral head and acetabulum are in improper alignment, grow abnormally, or both. Approximately one in 1,000 children is born with hip dislocation, and 10 in 1,000 children are born with hip subluxation.¹ If left untreated, DDH may lead to long-term hip dysplasia and arthritis, requiring hip replacement. Treatment usually includes closed reduction and immobilization. However, abduction splinting has been associated with avascular necrosis of the femoral head, femoral nerve palsy, pressure sores, and parental anxiety. Ultrasonography may be used to screen newborns for DDH. However, the U.S. Preventive Services Task Force has found insufficient evidence to recommend routine screening for DDH to prevent adverse outcomes, noting that spontaneous resolution occurred in 60 to 80 percent of newborn hip abnormalities identified by physical examination and in more than 90 percent of newborn hips identified by ultrasonography as abnormal or suspicious for DDH.²

The authors searched for randomized or quasi-randomized trials evaluating the effects of screening for DDH on the incidence of late presentation of congenital hip dislocation. Two studies compared clinical examination alone, targeted ultrasonography, or universal ultrasonography as an initial screening method for DDH. No statistically significant differences were noted in the rates of late diagnosis of DDH or surgery among these three groups. However, there was a statistically significant increase in the rate of nonsurgical treatment with universal ultrasonography compared with clinical examination alone (relative risk = 1.88; 95% confidence interval, 1.41 to 2.51) or targeted ultrasonography, with one additional child requiring treatment of uncertain benefit for every 100 screened.

A meta-analysis of two studies involving a total of 708 infants found no notable differences in the rates of late diagnosis of DDH, but a marked reduction in treatment rates when using delayed clinical examination and hip ultrasonography with targeted splinting versus early splinting in infants who had clinically unstable hips. Another study compared delayed hip ultrasonography and targeted splinting with immediate splinting in 128 infants with mild hip dysplasia identified on early ultrasonography and found no notable difference in late diagnosis of DDH, but a marked decrease in treatment. No studies compared screening programs with no screening at all.

Thus, the limited evidence in this review suggests that less intensive screening for DDH and delayed treatment of hip abnormalities identified through screening are not associated with worse outcomes than more intensive screening and immediate treatment.

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Source: Shorter D, Hong T, Osborn DA. Screening programmes for developmental dysplasia of the hip in newborn infants. *Cochrane Database Syst Rev.* 2011;(9):CD004595.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD004595>.

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Caffeine as an Analgesic Adjuvant for Acute Pain in Adults

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Clinical Question

Does adding caffeine to analgesic medications provide additional pain relief?

Evidence-Based Answer

Overall, there appears to be a small but clinically significant benefit to adding caffeine to analgesic therapy for various types of acute pain. More research is needed to determine the optimal dosing. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

Caffeine is used throughout the world for its psychoactive stimulant properties. Although caffeine was likely first added to analgesics to offset their sedating properties, it has more recently been thought to have a synergistic effect on pain relief when used with analgesics.¹

This Cochrane review included 19 randomized, controlled, double-blind studies with a total of 7,238 participants, and examined the effectiveness of caffeine as an adjuvant drug for the treatment of pain. The review addressed oral caffeine in the setting of different types of acute pain, with different types of medications, and at various doses.

Most of the studies examined the effectiveness of adding caffeine to analgesic medications for postpartum pain after episiotomy, postoperative dental pain, headache, and dysmenorrhea. For all conditions, the outcome of interest was the number of participants achieving at least 50 percent of the maximum possible pain relief during the study. In the four studies that involved postpartum pain, the number needed to treat (NNT) for one additional patient to have pain relief by adding caffeine was 16. Among the five studies that

evaluated postoperative dental pain, the NNT was 13. In the four studies that involved headache pain, the NNT was 14. Finally, in a single study of dysmenorrhea pain, investigators saw an absolute difference of 4 percent with an NNT of 25 in favor of adjuvant caffeine therapy.

All of the studies examined the effectiveness of caffeine when added to acetaminophen or various non-steroidal anti-inflammatory drugs, regardless of the patient's type of pain. Eight studies that evaluated acetaminophen therapy with and without caffeine showed an NNT of 15 in favor of combining acetaminophen with caffeine. Four studies compared ibuprofen therapy with and without caffeine, resulting in an NNT of nine in favor of adding caffeine. One study that involved 91 patients showed an absolute difference of 14 percent and an NNT of seven in favor of using caffeine with diclofenac (Voltaren). Studies examining the use of caffeine with aspirin and tolafenamic acid (not available in the United States) showed no significant differences.

Studies were grouped according to doses of caffeine used: 65 mg or less, 70 to 150 mg, and more than 150 mg. Five studies, all examining postoperative pain, used 65 mg or less of caffeine and found no significant differences between treatment groups. (Most over-the-counter analgesics with caffeine that are sold in the United States contain 65 mg of caffeine or less.²) In the 12 studies that used 70- to 150-mg doses of caffeine, the NNT for adding caffeine to benefit one additional person was 14. Lastly, in the six studies that used a caffeine dose of more than 150 mg, the NNT was 10. However, because lower doses of caffeine were typically given with lower doses of analgesics, it is unclear whether higher doses of caffeine would be more effective.

The opinions and assertions contained herein are the private views of the authors and are not to be construed as official, or as reflecting the views of the U.S. Army Medical Department or the U.S. Army Service at large.

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Source: Derry CJ, Derry S, Moore RA. Caffeine as an analgesic adjuvant for acute pain in adults. *Cochrane Database Syst Rev*. 2012;(3):CD009281.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD009281>.

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