ed from 900 mg per day to a maximum of 3600 mg per day during the first 4 weeks and then completed 4 more weeks at their maximum tolerated dose. Patient demographics and rates of withdrawal from the study were similar between the treatment and control groups.

Since patients had their dosage titrated according to side effects there is the potential for bias from unblinding to occur. There were significant differences in the side-effect rates between treatment and control groups, but their magnitude is clearly smaller than the treatment effect. Therefore, it seems unlikely that any bias would substantially change the overall outcome and conclusions of the study. If the authors had presented comparative information about dosages in the 2 groups it would have lessened this concern.

Outcomes measured Subjective daily pain and sleep interference was measured by an 11-point Likert-type scale that was summarized and reported weekly. Other measures using standardized questionnaires included pain scores, patient and clinician impression of change scores, a mood profile, and quality-of-life measures.

Results Daily pain severity (0 = no pain; 10 = worst possible pain) was significantly lower at the study end point in gabapentin-treated patients than in placebo-treated patients (3.9 vs 5.2; P <.001). Approximately 60% of patients receiving gabapentin had at least moderate improvement on change scores compared with 33% of patients receiving placebo (number needed to treat = 3.7). Other outcomes relating to sleep interference (P <.001) and quality of life also favored gabapentin treatment.

Adverse events were more frequent in the gabapentin group, including dizziness (24% vs 5%), somnolence (23% vs 6%), and confusion (8% vs 1.2%). A total of 8% of gabapentin-treated and 6% of placebo-treated patients withdrew because of adverse effects (number needed to harm = 50). A majority of patients (67%) in the treatment group tolerated the maximum 3600-mg per day dose.

Recommendations for clinical practice **This well-designed trial supports the use of gabapentin for painful diabetic neuropathy. Another trial published concurrently in the *Journal of the American Medical Association* used virtually the same treatment and methodology in patients with postherpetic neuralgia.[2] Outcomes were similar, endorsing the utility of gabapentin for this common cause of neuropathic pain as well.**

Neither this 8-week study nor any other study to date has investigated the long-term effectiveness of any drug in peripheral neuropathies.[1] This study also did not address the potential benefits or risks of combining gabapentin with other drugs used for peripheral neuropathy.

Similar results have been obtained when tricyclic antidepressants have been studied for the treatment of both diabetic neuropathy and postherpetic neuralgia. Since they are less expensive, they should still be considered first-line therapy. However, improvement may be slower, contraindications are common, and many patients cannot tolerate the adverse effects. In these patients, or others who do not respond to tricyclic antidepressants, gabapentin is a good alternative.

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Comparing Epidural and Parenteral Opioid Analgesia During Labor

Halpern SH, Leighton BL, Ohlsson A, Barrett JFR, Rice A. Effect of epidural vs parenteral opioid analgesia on the progress of labor: a meta-analysis. JAMA 1998; 280: 2105-10.

Clinical question **Does epidural anesthesia increase the risk of cesarean sections?**

Background The optimal management of labor discomfort remains controversial. In recent years, the use of epidural anesthesia has increased dramatically, and some reports have suggested that epidurals increase the risk of cesarean section. This meta-analysis compared the impact of epidurals with parenteral opioids on the rate of cesarean sections, as well as other maternal and neonatal outcomes.

Population studied The authors' search identified 10 randomized controlled trials enrolling 2369 total patients; all studies were done after 1980, and only 5 took place in the United States. A total of 68% of the subjects were nulliparous. Seven trials used meperidine as the opioid and 6 trials used a combination of bupivacaine and opiates for epidural anesthesia. In 4 studies, an active labor management approach including early amniotomy and oxytocin was employed, but otherwise little information was given about labor and analgesia protocols, delivery settings, or obstetric providers. The

overall cesarean section rate was less than 7%, which is dramatically lower than the contemporary rates in most US communities. Coupled with the lack of information about obstetric care and settings, this low rate makes generalization to community settings difficult.

Study design and validity This meta-analysis reviewed randomized trials comparing parenteral opioids with epidurals in labor management. The literature search was thorough and the analgesic protocols seem reasonable. Two independent readers assessed study quality. Heterogeneity was assessed by the Breslow-Day method, and meta-analysis was performed. Sensitivity analyses addressed the impact of study quality, peer review of papers, and intention-to-treat analysis.

This study has important methodologic limitations. The focus on pharmacologic interventions, by definition, excludes consideration of interventions such as support in labor, for which there is excellent evidence of effectiveness. The statistical test result for heterogeneity was positive, raising the issue of the appropriateness of combining the results of the trials. The power of the study was limited, and important obstetric potential confounding variables such as age, pregnancy risk, and provider blinding were not addressed.

Outcomes measured The primary outcome was the incidence of cesarean delivery. Secondary outcomes included pain relief, patient dissatisfaction, instrumental delivery rate, duration of the first and second stages of labor, maternal fever, Apgar scores, and infant neuroadaptive capacity scores. Overall cost, use of antibiotics, incidence of backache, and rate of breast-feeding were not addressed.

Results Epidural analgesia was not associated with a statistically significant increased incidence of cesarean delivery compared with parenteral opioids (8.2% vs 5.6%; odds ratio [OR]= 1.50; 95% confidence interval [CI], 0.81 - 2.76). Sensitivity analyses did not change this result. Epidurals provided better pain relief (-40 mm on a 100-mm scale; 95% CI, 38 - 42), less patient dissatisfaction (OR = 0.25; 95% CI, 0.20 - 0.32; number needed to treat [NNT] = 4 for patients receiving opiates to be dissatisfied) and were associated with fewer infants with 5-minute Apgar scores of <7 (OR = 0.38; 95% CI, 0.18 - 0.81; NNT = 63). Unfortunately, epidurals also prolonged first and second stages of labor an average of 42 and 14 minutes, respectively; increased fevers >38.0 (OR = 5.35; 95% CI, 3.67 - 7.80; NNT = 5.6); and increased the rate of instrumented deliveries (OR = 2.19; 95% CI, 1.32 - 7.78; NNT = 17).

Recommendations for clinical practice **This study provides good evidence that epidural anesthesia provides superior pain relief and does not depress neonates. It is reassuring that the trend toward increased cesarean section did not reach statistical significance, but the low power weakens this finding. The significant increases in duration of labor, maternal fever, and instrumental deliveries are troubling.**

For clinicians, this study suggests that if pain management is the major priority and nonpharmacologic approaches have been unsuccessful, epidural anesthesia should be offered, with appropriate informed consent about the risks of fever, duration of labor, and instrumental delivery. Narcotics, the usual alternative, provide less pain relief and depress some infants. Clinicians should keep in mind the serious limitations of this study: study subjects who seem to be different from typical US patients, exclusion of nonpharmacologic options for managing discomfort, heterogeneity of the trials, and inattention to important obstetric potential confounders, as well as key outcomes such as cost and breast-feeding rate.

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