common intrapartum analgesics. Study heterogeneity (differences in comparators, concentrations of N₂O, outcome measures, timing of administration, patient populations, and parity) precluded meta-analysis.

One of the 2 effectiveness trials was a double-blinded, placebo-controlled crossover study (N=26, 54% nulliparous) that examined the effectiveness of N₂O given for 5 contractions compared with a control (intermittent compressed air). There were no differences in the 10-point VAS score between the N₂O and control groups in early labor (VAS range, 5.3–6 vs 5–6.5, respectively; \( P=0.53 \)). Maternal oxygen saturations after contractions were lower in the control group than the N₂O group (97% vs 96%; \( P=0.007 \) but not clinically significant). The other effectiveness trial (N=24) did not provide a statistical analysis of its results.

AEs associated with N₂O mentioned in the systematic review included nausea, vomiting, dizziness, dry mouth, buzzing in the ears, and pins and needles or numbness. These AEs were observed more frequently with continuous use of N₂O than with intermittent use. Higher concentrations of N₂O were not associated with differences in nausea and vomiting, hemodynamic changes, hypoxia, or infant APGAR scores.

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Evidence-Based Answer

Procalcitonin levels have been identified as a useful marker in diagnosing severe bacterial infections. A secondary analysis of a retrospective, multicenter, hospital-based cohort study included 198 patients (aged 29 days to 18 years) who were admitted with a diagnosis of meningitis, 96 of whom had bacterial meningitis that was confirmed from cerebrospinal fluid (CSF) (gram stain, culture, latex agglutination, or polymerase chain reaction). A serum prolactin level of more than 0.5 ng/mL had a 99% sensitivity (95% CI, 97%–100%) and an 83% specificity (95% CI, 76%–90%) for distinguishing bacterial from aseptic meningitis. This yielded a likelihood ratio for a positive test (LR+) of 5.8 and a likelihood ratio of a negative test (LR–) of 0.01.

A separate single-center, retrospective cohort study included 167 patients (aged 2 months to 15 years) admitted with a diagnosis of meningitis, 21 of whom had bacterial meningitis confirmed from CSF. A serum prolactin level of 0.5 ng/mL or higher had an 89% sensitivity and 89% specificity (LR+ 8.1; LR– 0.12) for the detection of bacterial meningitis.

However, procalcitonin levels should be used with caution. There are 2 commonly used clinical decision rules for meningitis: the Meningitest (which uses procalcitonin) and the Bacterial Meningitis Score (which does not use procalcitonin).

The Meningitest recommends hospitalization and antibiotic management for children with acute meningitis who present with 1 of the following signs or symptoms: seizure, positive CSF gram stain, CSF protein ≥50 mg/dL, toxic appearance (lethargy, irritability, low capillary refill), purpura, or procalcitonin ≥0.5 ng/mL. The Bacterial Meningitis Score recommends antibiotics for any 1 of these signs or symptoms: seizure, positive CSF gram stain, CSF protein level ≥80 mg/dL, CSF neutrophil count ≥1,000 × 10⁹/L, or blood neutrophil count ≥10 × 10⁹/L.⁴

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A secondary analysis of the retrospective, multicenter, hospital-based cohort study discussed above (198 patients aged 29 days to 18 years) found that the Meningitest and the Bacterial Meningitis Score were both 100% sensitivity for the diagnosis of bacterial meningitis. However, the Meningitest had a specificity of 36% while the BMS had a specificity of 52%.

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Evidence-Based Answer

Bupropion and nortriptyline aid long-term smoking cessation. Selective serotonin reuptake inhibitors (SSRIs), monoamine oxidase inhibitors (MAOIs), and the serotonin–norepinephrine reuptake inhibitor (SNRI) venlafaxine do not. Bupropion also helps prevent relapse (SOR: A, meta-analyses).

A 2007 Cochrane review of 66 trials compared antidepressants with placebo or nicotine replacement therapy (NRT) to assess the effects of antidepressant medications on long-term smoking cessation. Only trials with a follow-up of at least 6 months were included.

The review found that bupropion (36 trials, N=11,000; risk ratio [RR] 1.7; 95% CI, 1.5–1.9) and nortriptyline (6 trials, N=975; RR 2.0; 95% CI, 1.5–2.8) significantly aided long-term smoking cessation compared with placebo. No significant difference was noted between bupropion and nortripsyline (3 trials, N=417; RR 1.3; 95% CI, 0.93–1.8) when compared directly.

Bupropion (6 trials, N=1,106; RR 1.2; 95% CI, 0.67–2.3) and nortriptyline (3 trials, N=1,219; RR 1.3; 95% CI, 0.97–1.7) did not provide any additional long-term benefit when combined with NRT and compared with NRT alone. There was no difference between NRT and bupropion (3 trials, N=657; RR 1.3; 95% CI, 0.73–2.2) when compared directly.

The SSRIs fluoxetine (4 trials, N=1,486; RR 0.92; 95% CI, 0.68–1.2), paroxetine (1 trial, N=224; RR 1.1; 95% CI, 0.64–1.8), and sertraline (1 trial, N=134; RR 0.71; 95% CI, 0.30–1.6) did not significantly aid in long-term smoking cessation compared with placebo. MAOIs (4 trials, N=338; RR 1.5; 95% CI, 0.92–2.4) and the SNRI venlafaxine (1 trial, N=147; RR 1.2; 95% CI, 0.64–2.3) were ineffective compared with placebo.

Another systematic review of 36 RCTs compared a variety of interventions, including bupropion, intended to prevent relapse to smoking. All trials included a follow-up of 6 months or longer and all participants had quit smoking on their own, undergone enforced abstinence, or were enrolled in a smoking cessation program. Bupropion significantly aided in long-term (defined by the authors as 9–12 months) smoking cessation compared with placebo (4 trials, N=843; OR 1.5; 95% CI, 1.1–2.0; NNT=11). The authors concluded that bupropion aids in preventing relapse after an initial period of abstinence or an acute treatment episode.

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Glossary

| ARR=absolute risk reduction | LOE=level of evidence |
| CDC=Centers for Disease Control and Prevention | MRI=magnetic resonance imaging |
| CI=confidence interval | NNH=number needed to harm |
| CT=computed tomography | NNT=number needed to treat |
| FDA=US Food and Drug Administration | NSAID=nonsteroidal anti-inflammatory drug |
| HR=hazard ratio | OR=odds ratio |
| RCT=randomized controlled trial | RR=relative risk |
| SOR=strength of recommendation | SSRI=selective serotonin reuptake inhibitor |