been decreasing from an initial value of 200,000/μl over the preceding 24 h. The patient was moderately obese, was in early labor, and was considered to be at significant risk of dysfunctional labor and possible cesarean section. I advised the obstetricians that early placement of the epidural catheter was desirable. They requested that I do so without dosing the catheter. However, placement proved to be technically difficult because of a lack of firm resistance encountered in the ligament. I proceeded with the combined spinal–epidural technique to verify epidural placement, using free cerebrospinal fluid flow through the spinal needle (a 25-gauge sprotte) as my end point. There is some evidence that epidural placement is more reliable when a successful combined spinal–epidural technique is used.[2] The patient subsequently underwent cesarean section with adequate analgesia using the epidural. Although other means are available to test epidural placement without establishing a significant sensory level, something considered undesirable in this case because of the early stage of labor, I suggest that confirmation using combined spinal–epidural analgesia is reliable, technically easy, and of relatively low risk.

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Combined Spinal–Epidural Analgesia in Labor

To the Editor:—I read with pleasure Dr. Eisenach's concise review of a controversial topic: combined spinal–epidural (CSE) analgesia for labor.[1] Because my scientific and clinical interests are situated in obstetric anesthesia, I would like to make some comments on this excellent contribution. First, I would like to point out a typographical error: not 5–10 *mg* sufentanil and 20–35 *mg* fentanyl are used in obstetrics, but 5–10 μ*g* and 20–35 μ*g*.

Second, hypotension is a complication of CSE in labor. However, it is not limited to this technique alone. Various studies demonstrated that the incidence and severity of hypotension with CSE is comparable to that of epidural analgesia.[2]

As a result of my clinical experience, I agree that the association between spinal opioids and transient fetal bradycardia is a real problem. The problem has only been addressed in case reports and small studies, making interpretation of data difficult. Future work should provide answers to the following questions:

1. What is the clinical relevance of fetal bradycardia? Thus far it has never resulted in urgent cesarean sections or adverse neonatal outcome.
2. Was fetal distress present before the CSE was performed? All previous studies did not record fetal heart rate and uterine activity immediately before analgesia. Shouldn't we conduct randomized and blinded studies to establish whether there is an issue at all?
3. Why does CSE using local anesthetics not result in fetal bradycardia if the proposed mechanism of a β-adrenergic "break" is true?
4. Should we avoid spinal opioids in cases with fetal distress or uterine hyperactivity already present before analgesia?

Dr. Eisenach mentioned that respiratory depression occurs in up to 0.1% of patients. To my knowledge, the incidence and severity of this problem was never studied in patients undergoing CSE analgesia for labor. Undoubtedly, we should be cautious when administering intrathecal opioids. Based on dose–response studies, the usual dose of 10 μg sufentanil or 25 μg fentanyl is unnecessarily high.[3,4] Most case reports of severe respiratory depression are on small obstetric patients (< 155 cm) who had received 10 μg of sufentanil and had previously received intravenous opioids.

Although CSE is particularly suited in late labor and for ambulation during labor (and the technique of choice in my opinion), I disagree with Dr. Eisenach that this technique is reserved to these specific settings. In our teaching hospital, the majority of cases that require labor pain relief (we have a > 70% rate of neuraxial pain relief) are performed using CSE (> 90%). For several reasons, we have replaced epidural analgesia as our technique of choice. Complications are rare (as frequent as with epidurals) and usually easily treated. CSE performs better in late labor and mobile labor pain relief. However, to ascertain sufficient experience to reliably perform the technique, it should be routinely used both by residents and staff anesthetists. Recent data in the literature (and we have similar results when analyzing our anesthesia charts) suggest that epidural catheters inserted when using a CSE technique have a higher success rate then those inserted after an epidural.[5]

Therefore, I believe that the conclusion should be: CSE analgesia for labor is the technique of choice in certain specific situations and in

experienced hands can be safely and successfully used in every laboring parturient.

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In Reply:—Dr. Van de Velde raises several issues that were briefly discussed in the obligatorily short review style of the Clinical Concepts and Commentary format. First, as remarked to me in several email messages and as corrected in a published erratum, the doses of fentanyl and sufentanil are of course in micrograms, not milligrams. The issue with hypotension is not that it is more common with the combined spinal–epidural (CSE) technique than with epidural analgesia, but that it does occur and necessitates monitoring by the practitioner. With regard to fetal bradycardia after CSE, it has been associated with an increased risk of urgent cesarean section, although its cause remains obscure. My estimate of 0.1% of respiratory depression incidence comes from large series in postoperative patients as well as a series of $>$ 5,000 patients in labor at Thomas Jefferson University as reported at various national meetings by Dr. Mark Norris. Given the low incidence and few large series, the incidence could be threefold to 10-fold less or more than this. As with hypotension, the issue is that it can occur, even with small doses of spinal opioids in the absence of systemic opioids, and it necessitates monitoring. Finally, the risk/benefit ratio for routine use of CSE in all parturients requesting intraspinal analgesia is far from clear and will only be adequately addressed by large-scale randomized trials.

In response to Dr. Balestrieri, the use of CSE in the case he describes has advantages, but also disadvantages. Despite retrospective reviews and abstract presentations, there are no clear data suggesting that the incidence of unilateral, patchy, intravenous, or failed epidural catheters differs between CSE and standard epidural techniques. Given the scenario of a decreasing platelet count in a patient at high risk for cesarean section and possible difficult airway, many would prefer a standard epidural technique with early detection and replacement of an inadequate catheter rather than delaying identification of such a problem. The case described would be managed by most perinatologists by delivery within 24 h and active management of labor, and there is no convincing evidence that dosing an epidural catheter early in such cases alters the incidence of cesarean section or neonatal outcome. Thus, at our institution, we would prefer a standard epidural to CSE technique in this patient. The question Dr. Balestrieri addresses is important, and we have begun a large randomized trial of standard epidural *versus* epidural plus needle-through-needle dural puncture without intrathecal injection to examine differences in the incidence of malpositioned or failed epidural catheters.

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