

# Pain, Pain Relief, Satisfaction and Excellence in Obstetric Anesthesia: A Surprisingly Complex Relationship

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It has been stated that “In an era that is increasingly focused on patient-centered care, clinicians seek to understand the ways in which they can effect positive change in the patient’s experiences and outcomes. This is now recognized among the key skills of ‘excellent anesthesiologists.’”<sup>1,2</sup> What makes for excellence in obstetric anesthesia? The answer lies in how we act, how we talk, how we behave, and, most importantly, how we understand the motivations, actions, feelings, and requests of our patients.

A common belief is that safe, effective pain relief contributes directly to satisfaction: the better the pain relief, the higher the satisfaction. In contrast, more pain during labor is often perceived to be a less satisfactory outcome. An oft-stated adage is something along the lines of “No one has a natural root canal, or a natural appendectomy, so why would anyone have ‘natural childbirth’?” The implication is that pain is always undesirable, including pain in labor. However, a large body of research indicates that satisfaction during labor is not necessarily directly correlated with pain or pain relief.

For some women, pain relief is essential, but others place a higher priority on other aspects of the birth experience. This point is clearly illustrated in a study by Richardson et al<sup>3</sup> in the current issue of the journal. Using a large database of a standardized postpartum survey administered to women who delivered at their hospital from 2011 to 2014, they analyzed the patterns of analgesic use, pain relief, and satisfaction.<sup>3</sup> Their large academic medical center offers both neuraxial analgesia and nitrous oxide during labor. Not surprisingly, the pain relief provided by neuraxial techniques was generally superb, and satisfaction was high. Also not surprisingly, the pain relief provided by inhaled nitrous oxide was highly variable, largely demonstrating only mild-to-moderate analgesic effectiveness. The surprising finding was that, among those who desired to use

nitrous oxide, and actually did use it throughout labor and delivery, almost all were highly satisfied, despite only minimal, or in some cases nonexistent, analgesic effectiveness. Some of the highest satisfaction scores of the entire cohort were among this latter group. It is no surprise that a patient who anticipates, asks for, and receives, high-quality, effective, neuraxial analgesia during labor is satisfied. Yet understanding why some patients who anticipate, ask for, and receive nitrous oxide analgesia—and actually receive very little analgesic effect and still are highly satisfied—is the essence of what makes for excellence in obstetric anesthesia.

Obstetric anesthesiologists have a variety of tools with which to provide pain relief during labor. The mainstay, owing to incomparable efficacy and flexibility, is neuraxial analgesia. Other modalities include parenteral opioid administration, sometimes via a patient-controlled device, and inhaled nitrous oxide. Nitrous oxide has been used for decades in the United Kingdom, Europe, Canada, Australia, and elsewhere. Although our colleagues in other countries have long incorporated nitrous oxide in the labor pain relief menu, the American maternity system is just now getting an introduction to this modality.<sup>4-7</sup> In addition, researchers are studying apace the various aspects of nitrous oxide analgesia during labor.

Hodnett,<sup>8</sup> in a review of satisfaction with care in childbirth in 2002, concluded as follows: “Four factors—personal expectations, the amount of support from caregivers, the quality of the caregiver-patient relationship, and involvement in decision making—appear to be so important that they override the influences of age, socioeconomic status, ethnicity, childbirth preparation, the physical birth environment, pain, immobility, medical interventions, and continuity of care, when women evaluate their childbirth experiences. The influences of pain, pain relief, and intrapartum medical interventions on subsequent satisfaction are neither as obvious, as direct, nor as powerful as the influences of the attitudes and behaviors of the caregivers.” In a study by Kannan et al<sup>9</sup> at Brigham & Women’s Hospital in 2001, women who entered the hospital expecting natural childbirth (ie, not planning to receive epidural analgesia) were surveyed in the postpartum period. Like the study by Richardson et al,<sup>3</sup> both pain and satisfaction were assessed. Women who wanted unmedicated childbirth and did achieve it were very satisfied, despite only moderate or sometimes no analgesics. (Nitrous oxide was not available in that study; analgesia was by nonpharmacologic methods

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or parenteral opioids.) Women who planned unmedicated childbirth, but requested and received epidural analgesia in labor, reported excellent pain relief, but only mild-to-moderate satisfaction. In a recent study by Frauenfelder et al,<sup>10</sup> from a teaching hospital in the Netherlands, epidural analgesia was compared with patient-controlled IV remifentanyl for labor analgesia. All women were healthy, primiparous, and self-selected their analgesia type. The primary outcome was specifically directed at an assessment of satisfaction using validated satisfaction instruments. Surveys were conducted at 24 hours, then again at 3 and 6 months after childbirth. Both groups reported very high levels of satisfaction, yet the epidural group reported significantly better analgesia than the remifentanyl group. The authors propose that the “self-control” feature of a patient-controlled regimen may explain the high satisfaction scores, despite lesser-quality analgesia. Interestingly, nitrous oxide is also essentially a patient-controlled technique; hence, this could, in part, explain the findings by Richardson et al.<sup>3</sup>

Perhaps a simplistic, yet accurate, way to summarize all of this is that people are generally happy when they get what they want. Likewise, people are generally happy when their requests are honored and respected. If someone wants high-quality pain relief as provided by neuraxial analgesia (as the overwhelming majority of American women in labor do), and they get it, they are happy. If someone wishes to avoid neuraxial analgesia, and they have made appropriate preparations, and they understand what labor pain entails (ie, realistic expectations), and they have skilled and supportive care during labor, then they are generally happy too—despite the pain. All of this seems to make good common sense, but what are the take-home messages for obstetric anesthesiologists? In my opinion, I believe there is much we can learn by a serious consideration of these concepts.

First, unmet expectations are an important source of dissatisfaction for all women, regardless of their analgesic choices. Unfortunately, the skills needed to provide optimal patient-centered communication are not often emphasized in the routine teachings of our specialty. Almost 13 years ago, I wrote in the newsletter of the American Society of Anesthesiologists: “Success as an obstetric anesthesiologist cannot be measured by how rapidly and effectively one can place an epidural ... but rather how effectively one can meet the interpersonal communication requirements of the labor and delivery unit.”<sup>11</sup> The importance of effective patient-centered communication was illustrated by a recent analysis of responses to open-ended questions in the “Listening to Mothers” survey.<sup>1</sup> This large nationwide survey of women delivering in American maternity hospitals did not specifically ask about analgesic services. Nevertheless, one-third of respondents commented about their anesthetic in response to several open-ended questions (eg, what was the best part of your childbirth experience? the worst part?). These were not comments about the actual degree of pain relief, but rather how they “felt” about the experience. It is reassuring that many women regarded the epidural as the “best part” of their labors. For the minority of women who spontaneously reported concerns with their labor analgesia, a common theme emerged that communication, or perceived lack thereof, often about

subtle aspects of the anesthetic, contributed to the negative experience. Among other concerns, women reported (a) bothersome side effects (eg, numb legs, itching, shivering, or nausea) that were not fully explained as part of the information/consent process, (b) delay in getting epidural analgesia, (c) changes in the dose of medication without a clear explanation for the change, (d) feelings of pressure or coercion from caregivers to receive epidural analgesia, and (e) feelings of regret or failure if an unplanned epidural was utilized, even if pain relief was excellent and no side effects were noted. Simple communication and information, properly timed and framed, both antepartum and intrapartum, could have partly or completely mitigated almost all of these negative perceptions.<sup>12</sup> Again, subtle, often underemphasized or neglected aspects of our obstetric anesthesia training and practice can make a big difference in how our patients perceive our care.

Second, obstetric anesthesiologists have a unique opportunity to frame the experience of labor by our choice of words and deeds. Something as simple as the words we use when performing our procedures can have a remarkable effect on how a patient experiences the event. For example, the “nocebo” phenomenon has recently been popularized and investigated.<sup>13</sup> Although we are all familiar with the placebo effect (expectations of a positive result owing to suggestive words), the nocebo concept is just the opposite, that is, expectations of a negative or unpleasant result owing to similarly suggestive words. A recent study investigated the use of nocebo-type words (big bee sting! lots of burning! worst part of the procedure!) when doing a skin wheal before neuraxial analgesia in pregnant women during labor, compared with placebo, or more positive words, such as “small pinch, make you numb and comfortable.”<sup>14</sup> The results showed that patients reported lower pain scores for the skin injection when positive words were used, compared with harsher, nocebo words. This concept has been validated in a variety of other studies in obstetric anesthesia and other similar settings.<sup>15–19</sup> We can indeed influence our patient’s experiences by small subtle behavioral changes!

Third, anesthesiologists can enhance women’s experience of care by advocating for changes in hospital policies and protocols that afford women greater control in birth. For the minority of women who strongly prefer to avoid neuraxial analgesia, a nitrous oxide service has the potential to enhance satisfaction. For women who deliver by cesarean, a number of options may help optimize the birth experience. For example, “family-centered cesarean” has emerged as a popular bundle of delivery techniques that includes strategies (eg, clear drapes) to allow the mother and partner to see the birth, early skin-to-skin contact with possible intraoperative breastfeeding, a quiet atmosphere in the operating room, and the use of music or other nonpharmacologic methods to relieve anxiety, and promote relaxation. Obstetric anesthesiologists have taken a leadership role in the advocacy and promotion of this very popular innovative approach to cesarean birth.<sup>20–23</sup>

“All that matters is a healthy baby.” Right? Of course, a healthy baby is a desired outcome of pregnancy, but is that really “all that matters”? Pregnancy and childbirth is one of the most momentous and joyous events in a woman’s

life. The degree of satisfaction that a woman experiences during labor and childbirth can influence and transcend many other outcomes. Labor is a highly complex, culturally based, attitude-based, subjective, individual relationship of both physiologic and psychologic factors. Pain relief is not the only concern for most women. Prelabor expectations, caregiver attitudes during labor, emotional support during labor, and other, often difficult-to-quantify factors, are also critical in determining the degree of satisfaction from the childbirth experience. ■■

#### DISCLOSURE

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#### REFERENCES

1. Attanasio L, Kozhimannil KB, Jou J, McPherson ME, Camann W. Women's experiences with neuraxial labor analgesia in the listening to mothers II survey: a content analysis of open-ended responses. *Anesth Analg*. 2015;121:974–980.
2. Larsson J, Holmström IK. How excellent anaesthetists perform in the operating theatre: a qualitative study on non-technical skills. *Br J Anaesth*. 2013;110:115–121.
3. Richardson MG, Lopez BM, Baysinger CL, Shotwell MS, Chestnut DH. Nitrous oxide during labor: maternal satisfaction does not depend on analgesic effectiveness. *Anesth Analg*. 2017;124:548–553.
4. The current place of nitrous oxide in clinical practice. An expert-based task force consensus statement of the European Society of Anaesthesiology. *Eur J Anaesthesiol*. 2015;32:1–4.
5. Likis FE, Andrews JC, Collins MR, et al. Nitrous oxide for the management of labor pain: a systematic review. *Anesth Analg*. 2014;118:153–167.
6. Likis FE, Andrews JA, Collins MR, et al. *Nitrous Oxide for the Management of Labor Pain. Comparative Effectiveness Review No. 67 (Prepared by the Vanderbilt Evidence-based Practice Center under Contract No. 290-2007-10065-1)*. Rockville, MD: Agency for Healthcare Research and Quality; 2012.
7. Barbieri RL, Camann W, McGovern C. Nitrous oxide for labor pain: should your birthing unit make nitrous oxide available for your laboring patients? *OBG Management*. 2014;26:10–14.
8. Hodnett ED. Pain and women's satisfaction with the experience of childbirth: a systematic review. *Am J Obstet Gynecol*. 2002;186:S160–S172.
9. Kannan S, Jamison RN, Datta S. Maternal satisfaction and pain control in women electing natural childbirth. *Reg Anesth Pain Med*. 2001;26:468–472.
10. Frauenfelder S, van Rijn R, Radder CM, de Vries MC, Dijkman LM, Godfried MB. Patient satisfaction between remifentanyl patient-controlled analgesia and epidural analgesia for labor pain. *Acta Obstet Gynecol Scand*. 2015;94:1014–1021.
11. Camann W. Obstetrics: never a dull moment! *American Society of Anesthesiologists Newsletter*. 2003;67:10.
12. Shafer A. Words, data, and the weave of narrative. *Anesth Analg*. 2015;121:843–845.
13. Colloca L, Finniss D. Nocebo effects, patient-clinician communication, and therapeutic outcomes. *JAMA*. 2012;307:567–568.
14. Varelmann D, Pancaro C, Cappiello EC, Camann WR. Nocebo-induced hyperalgesia during local anesthetic injection. *Anesth Analg*. 2010;110:868–870.
15. Slater P, Sellors J, Cyna AM. Communications during epidural catheter placement for labour analgesia. *Anaesthesia*. 2011;66:1006–1011.
16. Nguyen T, Slater P, Cyna AM. Open vs specific questioning during anaesthetic follow-up after Caesarean section. *Anaesthesia*. 2009;64:156–160.
17. Chooi CS, White AM, Tan SG, Dowling K, Cyna AM. Pain vs comfort scores after Caesarean section: a randomized trial. *Br J Anaesth*. 2013;110:780–787.
18. Camann W, Cyna AM. Perceived pain during neuraxial anaesthetic insertion; is this influenced by the words used? *Anaesth Intensive Care*. 2011;39:1151.
19. Lang EV, Hatsiopoulou O, Koch T, et al. Can words hurt? Patient-provider interactions during invasive procedures. *Pain*. 2005;114:303–309.
20. Smith J, Plaat F, Fisk NM. The natural caesarean: a woman-centred technique. *BJOG*. 2008;115:1037–1042.
21. Camann W, Barbieri RL. Mother, baby and family-centered cesarean delivery: it is possible. *OBG Management*. 2013; 25:12–15.
22. Posthuma S, Korteweg FJ, van der Ploeg M, de Boer HD, Butler HD, van der Ham P. Risks and benefits of the skin-to-skin cesarean section: a retrospective cohort study. *J Mat Fetal Neonatal Med*. 2016; DOI:10.3109/14767058.2016.1163683.
23. Magee SR, Battle C, Morton J, Nothnagle M. Promotion of family-centered birth with gentle cesarean delivery. *J Am Board Fam Med*. 2014;27:690–693.