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Original contribution

Parturient recall of neuraxial analgesia risks: Impact of labor pain vs no labor pain☆

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ABSTRACT

Study objective: Information exchange between anesthesia providers and parturients about neuraxial analgesia risks often occurs in the presence of labor pain. This study examined whether the presence of pain impacted the level of recall of information provided to parturients regarding risks of neuraxial techniques.
Design: Single-center, nonrandomized study.
Setting: Labor and delivery suite and postpartum patient rooms in a large academic medical center.
Patients: Two hundred six primigravidas admitted to our labor and delivery suites and receiving neuraxial analgesia were included.
Interventions: Informed consent for epidural and spinal placement was obtained by an obstetric anesthesia resident as per our standard practice. At the time of consent, parturients' self-reported level of pain was recorded.
Measurements: After delivery, patients completed a questionnaire asking which risks they recalled. Also queried were patient self-reported levels of anxiety at the time of consent, patient satisfaction with the informed consent process, overall satisfaction with pain control, as well as their preferred method and timing of information exchange.
Main results: Only 20.9% of the 206 participating parturients recalled all risks and none of the distractors. There was no difference in recall between those with pain and those without pain at the time of consent. Women experiencing any pain at the time of consent were more likely to be very satisfied with the communication of risks compared with women without pain (96.2% vs 85.5%, $P = .005$). There was no difference in the preferred method ($P = .780$) or timing ($P = .779$) of discussion of risks between women in active labor compared with women with a scheduled induction of labor.
Conclusions: Although parturients' recall of neuraxial risks did not differ based on the existence of labor pain, those having pain reported greater satisfaction with the informed consent process.

1. Introduction

It has been estimated that as many as 77% of pregnant women in the United States receive a neuraxial technique for labor analgesia [1]. Although neuraxial techniques have been described as the "gold standard" for intrapartum labor analgesia, parturients have other options for pain control during childbirth, and some choose no analgesic intervention. Accordingly, the informed consent process for obstetric analgesic options has a vital role [2-5]. The labor and delivery environment presents a unique set of hurdles to patients' capacity to appreciate the risks and benefits of neuraxial analgesia [6,7]. Often, the first exchange of information between the anesthesia provider and the parturient occurs in the presence of labor pain [5,8]. In addition, the stress and anxiety that can be associated with the childbirth process, opioids for pain management, and length of laboring process all may accentuate the difficulty in effective information exchange, particularly for nulliparous women. These issues may impair parturients' ability to comprehend and recall the risks and benefits of neuraxial analgesia, and have even been suggested to result in a lack of capacity required to provide consent [9].

Previous studies evaluating the informed consent process in the obstetric population have shown that labor pain has minimal impact on

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parturients' ability to retain at least some of the information they are provided concerning neuraxial analgesia. However, the sample sizes of many of these studies were small [4,7,9-11]. In addition, many did not specifically compare the effectiveness of the consent process in parturients *with* labor pain vs *no* labor pain [4,7-9]. Furthermore, most studies have not restricted their analysis to primigravida parturients, those who would not have received information on the risks of neuraxial analgesia during past deliveries [4,7-10,12]. Therefore, the aim of this current study was to investigate any differences in the level of information recall regarding risks of neuraxial analgesia (epidural and subarachnoid block) between primigravida obstetric patients suffering labor pain vs no labor pain at the time of information exchange with their anesthesia provider. Secondary outcomes of interest included any differences among the 2 groups (those in labor pain vs not in labor pain) with regard to patient satisfaction with the neuraxial analgesia informed consent process and the preferred modes and timing of information exchange. We hypothesized that presence of labor pain would not limit the ability of parturients to recall the risks of neuraxial analgesia discussed during informed consent.

2. Methods

Following institutional review board approval, primigravid (G1P0) patients presenting to our Labor and Delivery suites (Mayo Clinic, Rochester, MN) in active labor or for a scheduled induction or cesarean delivery between March and December 2014 were approached for participation in this study. Only those patients who spoke English without the need for an interpreter were included in this study. Between 33 and 35 weeks' gestation, parturients cared for by obstetricians and Certified Nurse Midwives in the Department of Obstetrics receive a written pamphlet describing neuraxial analgesic techniques for labor including the risks, benefits, and options associated with this approach. At present, the Department of Family Medicine does not provide their patients with this written information. According to the standard informed consent process for parturients at our institution, patients were provided with verbal information on the potential risks (headache, infection, nerve damage, and bleeding) and benefits of epidural or spinal analgesia upon arrival to the labor and delivery suites. It is the practice at our institution for the anesthesiology resident to visit with the parturient immediately upon their arrival to the labor delivery suites to explore any prior reports of difficulties with anesthesia, to perform an airway examination, and to gather informed consent for neuraxial analgesic options. At the time of consent for neuraxial analgesia, parturients' self-reported level of pain (0-10, numerical rating scale) and cervical dilatation were recorded. Although parturients were asked to report their level of pain on numeric scale from 0 to 10, for study purposes, those parturients reporting no labor pain (corresponding to a numeric rating scale value of 0) alone were compared with those reporting some level of labor pain (corresponding to a numeric rating scale of 1-10) at the time of information exchange. Parturients who underwent emergency cesarean delivery without prior admission to the labor delivery suites were excluded from the study. Neuraxial placement was performed in standard fashion upon patient request. Following delivery, patients were approached by a second anesthesiology resident (different from that who performed the initial information exchange with the patient) during routine postpartum rounds (between 24 and 48 hours postpartum) asking them if they would be willing to participate in a study evaluating their neuraxial analgesia experience. If they agreed to participate, they were provided a written questionnaire (Fig. 1). This questionnaire asked parturients to indicate what information they remembered having been communicated to them during the neuraxial analgesia consent process. The options on the questionnaire included 4 actual discussed risks (headache, infection, nerve damage, and bleeding) of epidural analgesia or spinal anesthesia along with 2 distractors (slurring speech and decreased effectiveness of other pain medications following neuraxial analgesia placement) that were not discussed. Patient satisfaction with the information exchange process along with overall satisfaction with the level of comfort they experienced following epidural analgesia or spinal anesthesia placement was also queried. Patient demographic information (age, level of education, ethnicity) was also collected. The level of recall of risks associated with neuraxial analgesia among patients experiencing no labor pain (eg, scheduled induction of labor) at the time of consent was compared with the level of recall of those who were experiencing pain (eg, active labor) at the time of consent.

Data from this study were presented as a percentage of total respondents or as median (interquartile range) pain or anxiety. Exploratory analyses were performed to assess whether survey responses differ according to the presence of pain or anxiety. These analyses were performed using the χ^2 test for independence. Previous pilot data demonstrated that approximately 20% of women in pain correctly recalled all risk factors discussed during informed consent. Assuming (based on consensus) that women not experiencing pain would have improved recall, we estimated that 85 women per group (pain vs no pain) would provide 80% power to demonstrate a 50% difference in accurate recall of risk factors. In all cases, P values ≤ 0.05 were considered statistically significant.

3. Results

A total of 211 parturients were approached, with 206 consenting to participate (participation rate of 98%) in the study and included in the analysis. Cohort demographics are summarized in Table 1. Consent was obtained on 78 of 206 (37.9%) patients in active labor and 128 of 206 (62.1%) patients upon admission for induction of labor. The majority of women were white or Caucasian race (175/206; 86.2%), many were college graduates (97/206; 47.5%), and they were most likely to be managed by obstetricians (94/206; 46.1%). Most patients preferred to receive information by way of both a written pamphlet and discussion with an anesthesia provider (119/206; 57.8%). The most common preference of parturients as far as the timing of information exchange regarding risks involved with epidural or spinal placement was to have it occur 1 month prior to the expected delivery date (89/206; 43.2%) With this said, more than a third (34%) still preferred information exchange to occur on the day of arrival to the labor and delivery suite rather than earlier in the pregnancy process (Table 1). Despite the high frequency of preference in receiving information via both pamphlet and discussion, only 131 of 206 (63.6%) remember receiving the institutionally approved pamphlet describing the risks and benefits of labor analgesia during their pregnancy. Furthermore, among those women who would have received the pamphlet during their prenatal care (Obstetrics and Midwifery patients), only 114 of 164 (69.5%) patients remember receiving the pamphlet. There was no difference in the preferred method ($P = .780$) or timing ($P = .779$) of discussion of risks between women in active labor compared with women with a scheduled induction of labor.

After delivery, patients could recall the following risks being discussed at the time of consent: headache, 188 of 206 (91.3%); infection, 188 of 206 (91.3%); nerve damage, 187 of 206 (90.8%); and bleeding, 169 of 206 (82.0%). Interestingly, 41 of 206 (19.9%) and 57 of 206 (27.7%) patients recalled discussions about slurred speech and decreased drug efficacy (distractors), respectively. Only 43 of 206 (20.9%) patients recalled all discussed risks and none of the distractors.

At the time of consent for neuraxial anesthesia, the median (interquartile range) reported pain score was 6 (0-9). Accuracy of recall of any risk factor was not significantly associated with the presence of pain (Fig. 2) at the time of consent. A secondary analysis demonstrated that there was no statistical association between reported pain score at the time of consent and recall of potential complications ($P = .696$). Furthermore, there was no difference in the recall of complications according to whether patients remembered receiving written information during prenatal care prior to discussion with the anesthesia team