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Discussion paper on rural obstetrical analgesia and anesthesia

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This paper was prepared by the Anesthesia Committee of the Society of Rural Physicians of Canada. It aims to promote discussion about issues that arise in the provision of obstetrical analgesia and anesthesia services in rural hospitals. It proposes the following recommendations: 1) obstetrical regional analgesia may be provided in a facility that does not provide cesarean section; 2) a physician who does obstetrics may provide regional analgesia to his or her own patient; 3) an appropriately trained physician who does not have skills to initiate an epidural may provide "top-ups" to an already established epidural; and 4) an appropriately trained physician who does not have general anesthesia skills may provide intrathecal opioids for labour analgesia.

Le présent document a été rédigé par le Comité d'anesthésie de la Société de la médecine rurale du Canada. Il vise à encourager la discussion au sujet des questions que soulève la prestation de services d'analgésie et d'anesthésie en obstétrique dans les hôpitaux ruraux. Les recommandations suivantes sont présentées : 1) une analgésie régionale obstétrique pourrait être offerte dans un établissement où on ne pratique pas de césarienne; 2) un médecin pratiquant l'obstétrique pourrait administrer l'analgésie régionale à ses propres patientes; 3) un médecin ayant reçu la formation appropriée, sans toutefois posséder les compétences spécialisées nécessaires pour amorcer une péridurale, pourrait administrer des bolus périduraux dans un cathéter déjà installé; 4) un médecin ayant reçu la formation appropriée, sans toutefois avoir des compétences spécialisées en anesthésie générale, pourrait administrer des opioïdes intrathécaux comme analgésie au cours du travail.

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The majority of rural women, if given the choice, would choose to deliver in their community hospitals, supported by family and friends. They prefer a non-interventionist approach to the management of their labour and delivery. Ideally, they want to be able to control any discomfort, using nonpharmacologic means (Alberta Medical Association. Final Report of the Ad Hoc Committee on Epidural Analgesia in Labour and Delivery: unpublished data, 1996). Rural maternity units are generally capable and experienced in supporting women who make these choices. In 1998, the Joint Working Group of the Society of Rural Physicians of Canada (SRPC), the College of Family Physicians of Canada (CFPC) Committee on Maternity Care, and the Society of Obstetricians and Gynaecologists of Canada (SOGC) published their Joint Position Paper on Rural Maternity Care.[1] It strongly supports the delivery of maternity care in rural Canada.

Women want to maintain a sense of control throughout their labour and delivery, to have a realistic idea of how much pain they may experience and to know the options available to control this pain. For some women the pain associated with labour and delivery becomes intolerable. It causes them to lose their sense of control and significantly detracts from the birthing experience. These women want to have a reliable method of analgesia available to them, should they need it. They want to maintain the right to change their minds about management options should their experience be different from what they anticipated. Since epidural analgesia is the most consistent and reliable method of analgesia for labour and delivery, it should always remain an option.

As rural women become more aware of analgesia options for labour, they are requesting access to such options, and many are receiving them. Physicians who provide these services are requesting guidance from their peers on the appropriate provision of these services.

The CAS updated its "Guidelines for obstetrical regional analgesia" in 1999.[2] The CAS also publishes annual updates to its "Guidelines to the practice of anesthesia."[3] These guidelines do not specifically address issues that arise in rural communities, where most anesthetics are provided by non-FRCPC anesthetists. Family physicians (FPs) may have skills in both obstetrics and regional analgesia and anesthesia. However, in rural areas, physician manpower is often limited; therefore, there is a need for FPs to be multi-skilled in order to support each other in providing services to their patients and communities. Finally, not all communities have cesarean section capability. This discussion paper was prepared by the Anesthesia Committee of the SRPC to promote discussion about these issues, including the training issues.

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Distinction between obstetrical analgesia and anesthesia

Analgesia

It is important to distinguish between obstetrical analgesia and anesthesia. Obstetrical analgesia includes a range of techniques for which the primary aim is to decrease the discomfort and pain associated with labour and vaginal delivery. Ideally, motor power and sensation, particularly perineal sensation, should remain intact so that the mother will feel the descent of the fetal head, get the urge to push and then be able to push effectively in the second stage. Regional techniques to provide analgesia include intrathecal opiates, epidural analgesia (including patient-controlled epidural analgesia [PCEA]), and combined spinal epidural analgesia. Once stabilized, a patient receiving epidural analgesia without large bolus injections may be monitored by an appropriately trained nurse.

Anesthesia

Anesthesia is used for operative delivery and aims to block pain, sensation and motor fibres. A dense motor block is intended, to make the delivery technically easier.[4] Regional techniques to provide anesthesia include epidural anesthesia and spinal anesthesia. Anesthetic techniques use much higher concentrations of local anesthetics than do analgesic techniques and, because of the dense block obtained, require the continuous presence of an anesthetist to monitor the patient.

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Epidural analgesia and operative delivery

There is no evidence that epidural analgesia increases the risk of cesarean section. Most importantly, a Medline search found no evidence that epidural analgesia increases the risks for urgent cesarean section. The literature suggests there is an association between epidural analgesia and cesarean delivery for dystocia or failure to progress. However, there is controversy as to whether this represents a causal relationship.[5] A recent meta-analysis concluded that it does not.[6] Women who have dystotic labour usually have more painful labour and are more likely to request epidural analgesia. Conversely, women who have rapid coordinated labour are less likely to request epidural analgesia.

Most of the literature[7] suggests that operative vaginal delivery (vacuum or forceps) is increased in women who receive epidural analgesia. However, much of this literature accumulated when higher-dose epidurals were used and when the second stage of labour was limited to 2 hours. It is suggested that using low-dose or "walking" epidurals[8] and allowing the second stage to progress slowly will decrease the rate of

operative vaginal delivery.[9]

Until these questions can be answered more definitively, it is the responsibility of the physician to provide the woman with information about epidural analgesia so that she can make an informed choice.

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Hospitals without cesarean section capability

Many rural hospitals that offer maternity care do not have cesarean section capability. These hospitals must have protocols for patient transfer to another institution should the need arise.[10] A woman's request for epidural analgesia may be a sign that labour is not progressing well and that she is at increased risk for cesarean delivery for dystocia. However, many women with normal labours request epidural analgesia; most studies suggest that if epidural analgesia is available, about 50% of women will request it.[11] Therefore, a woman's suitability for delivery in a hospital without operative delivery must be judged by obstetrical factors and not solely by her choice of analgesic technique.

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Defining the role of the attending physician

Some rural physicians have both obstetric and anesthetic skills. CAS guidelines state that during initiation of obstetrical regional analgesia, the physician should be immediately available until analgesia is established and the patient's vital signs are stable. In contrast, when continuous infusion or PCEA are used it must be possible to contact the anesthetist for advice and direction, but the continuous presence of the anesthetist is not required.[2] If a physician initiates an epidural but then obstetrical skills are required prior to the patient stabilizing, a second physician should be called in. The two physicians may decide between them who is most appropriate to provide the obstetrical intervention and who should continue providing the analgesia. The second physician should be available as per the SOGC "Attendance at labour and delivery" policy statement,[10] which states that for a community or rural hospital, a physician must be available for the labour and delivery room within approximately 30 minutes and must be prepared to respond promptly to requests from hospital staff. In contrast, once the patient is stabilized it is appropriate for the initiating physician to manage the patient's labour and delivery, as well as provide advice and

direction for the epidural.

Removal of the placenta

There has been discussion about the appropriate attendance of the physician for manual removal of the placenta and operative vaginal delivery. For manual removal of the placenta, the appropriate attendance by the physician can be determined by whether analgesia or anesthesia is being provided. If a woman is receiving epidural analgesia and a decision is made to use the epidural catheter to provide anesthesia by injection of high-dose boluses of local anesthetics, one physician must provide the anesthetic and monitor the patient. A separate physician should do the removal of the placenta.

In contrast, if the manual removal is done without topping-up the epidural, it is appropriate for the same physician to do the obstetrical procedure. In this scenario the appropriate attendance is not determined by the procedure performed but by whether analgesia or anesthesia is being provided. An analogous situation is the reduction of a dislocated shoulder, which could be done in the emergency department (ED), where the procedural physician provides appropriate systemic analgesia and reduces the shoulder. Or, it could be done in the operating room, where the procedural physician needs an anesthetist to provide the required level of unconsciousness.

Operative delivery

The decision tree with respect to operative delivery is somewhat different. First, if anesthesia is required in the form of a high-dose bolus, then a second physician is clearly needed. The reasoning is identical to that used for the manual removal of the placenta. Second, depending on the indications for the operative delivery and the degree of difficulty anticipated, it is often the case that a second physician will be required for anticipated neonatal resuscitation.

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Training and the management of complications

The SRPC supports the concept that physicians acquire skills appropriate for their practice and community. For physicians to perform a procedure, they must know how to safely manage any complications of the procedure. Management options may include seeking the assistance of other physicians in the community or in the regional referral centre or, on occasion, referring the patient to the regional centre. The physician must be able to stabilize any acute complications that occur as a result of the procedure. In some communities it may be appropriate for a physician who does not have general anesthesia skills to acquire some obstetrical analgesia skills, as discussed below.

"Top-ups"

In many obstetrical units, nurses do "top-ups" as a "transfer of function." In the section "Maintenance of regional labour analgesia" of the CAS guidelines,[2] item 3 states:

Bolus dose of local anesthetics through the epidural catheter, or through a catheter or needle presumed to be in the epidural space, can cause immediate, life threatening complications [emphasis ours]. For this reason, when a bolus dose of local anesthetic is injected through the epidural catheter (except PCEA), an anesthesiologist must be available to intervene appropriately should any complications occur. The intent of the phrase "available to intervene appropriately" is that individual Departments of Anesthesiology should establish their own policies regarding the availability of an anesthesiologist to manage any complications of regional analgesia. Each Department should consider the possible risk of bolus injection of local anesthetics and the methods of dealing with emergency situations in developing these policies.

In some rural hospitals, it may be more appropriate to train other physicians to provide the "top-ups," within the guidelines above and within the accepted protocols for transfer-of-function responsibilities.

Intrathecal opiates

With appropriate training, an FP who does not have general anesthesia skills can safely administer intrathecal opiates. The FP must have certain technical skills and the ability to monitor, recognize and treat complications of the technique.[12]

The primary technical skill required is the ability to perform a lumbar puncture. Many FPs, especially those who work in rural EDs, are able to perform lumbar punctures. Intrathecal opiates have the same side effects and complications as parenteral narcotics: nausea, sedation and respiratory depression. They frequently cause pruritis and urinary retention. Hypotension may occasionally occur.

Respiratory depression

The most worrisome of these complications is respiratory depression. The patient who has received intrathecal opiates must be monitored for respiratory depression. This must include careful monitoring of the respiratory rate. Oxygen, naloxone and a method of temporarily providing positive pressure ventilation must be available immediately should respiratory depression occur.

Clinically important respiratory depression appears to be quite rare. In a review of the literature, Tarshis[13] found 13 case reports of respiratory arrest or high sensory block in women who received intrathecal opiates for labour analgesia. In the majority of these reports, sufentanil was used. Some women were ventilated briefly but responded quickly to intravenous naloxone.[14,15] Two women required more prolonged resuscitation, but were not given naloxone.[16,17] There are 2 studies that have shown that

intrathecal narcotics have a respiratory depressant effect by demonstrating an increase in end tital carbon dioxide ($ETCO_2$). Herman and colleagues[18] demonstrated an increase in $ETCO_2$ after intrathecal fentanyl; however, there was no change in oxygen saturation or respiratory rate and no adverse clinical outcomes. Norris and coworkers[19] demonstrated an increase in $ETCO_2$ after intrathecal sufentanil; this was associated with a drop in oxygen saturation but no adverse clinical outcomes.

Although there have been reports of respiratory arrest with intrathecal morphine, these occurred in non-labouring patients and with higher doses of morphine than are commonly used today in the obstetric patient.[20]

Other side effects

Leslie[12] and Stephens and Ford[21] have reviewed the other adverse effects of intrathecal opiates, as well as their appropriate treatment. Leslie[12] states:

Hypotension has been reported anecdotally and has generally been seen with larger doses or when combined with other anesthetic drugs. It has been rare with pure narcotic techniques where the dosing has been limited. It is more likely when the patient is already dehydrated. Hypotension should be managed by placing the patient in the left lateral supine position and by administering an intravenous fluid bolus. Intravenous ephedrine may also be used as a peripheral vasoconstricter (p. 228).

Pruritis occurs in 40% to 70% of obstetrical patients and is generally well tolerated. Women who find it uncomfortable can be treated with antihistamines (e.g., diphenhydramine) or, in more severe cases, the opioid agonist/antagonist nalbuphine.

Nausea also appears to be quite common, but because it is common in all labouring women, it is difficult to know how much can be attributed to the intrathecal narcotic. It can be treated with antinauseants such as promethazine or metoclopramide, or, in more severe cases, nalbuphine intrapartum or narcotic antagonists (naloxone or naltrexone) postpartum.

Urinary retention occurs in up to 20% of women and may necessitate catheterization.

FPs have safely administered intrathecal narcotics to labouring patients. Edwards and colleagues describe a nonrandomized study where labouring women were offered the choice of intravenous butorphanol, intrathecal morphine 0.5 mg or no analgesia. Forty-nine women received intrathecal morphine. There were no cases of decreased respiratory rate, hypotension or bradycardia.[22]

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Recommendations

1. Obstetrical regional analgesia may be provided in a facility that does not provide cesarean section. The decision to transfer a patient to a centre where cesarean section is available should be based on obstetrical factors.
2. A physician who does obstetrics may provide regional analgesia to his or her own patient. It is not appropriate for a physician to provide regional anesthesia and obstetrical services simultaneously.
3. An appropriately trained physician who does not have skills to initiate an epidural may provide "top-ups" to an already established epidural. The anesthetist must be available to intervene appropriately, as determined by the participating department of anesthesia.
4. An appropriately trained physician who does not have general anesthesia skills may provide intrathecal opioids for labour analgesia.

Competing interests: None declared.

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