

2 Causes of Childbirth Pain and Strategies for its Relief

Topics Due to be Delivered in this Chapter



- *How bad is the pain of childbirth?*
- *The origins of pain during the different stages of labor and delivery*
- *Two different approaches to pain relief: systemic versus regional*
- *Why regional pain relief is the most effective option for childbirth.*

THE SEVERITY OF THE PAIN OF CHILDBIRTH

WHEN ASKED TO rate labor pain on a scale of one to 10, women frequently score it as eleven, describing it as the worst pain imaginable. Interestingly, studies also find that memory of the pain usually recedes with the passage of time, which is probably one of the reasons that women are willing to have more babies. In order to prepare better for your labor, it is helpful to understand what causes the pain and how it can be relieved. In this chapter I will explore the basis of labor pain, which makes the rationale for choosing a regional anesthesia technique patently clear.



Pregnant Pause

- *For most women, childbirth is the worst pain that they will ever experience - but for those choosing epidurals and/or spinals, the pain can be prevented.*

THE BASIS FOR PAIN

WHAT IS THE cause of pain? Why does something hurt? The process of pain begins when we are cut, exposed to heat or extreme cold, or have our body tissues pressed or stretched. These events switch on special types of cells, known as pain receptors (receivers). The pain receptors, which are located throughout the body, take the pain message and pass it along to nerves that function as our body's wiring system. The message travels through the nerves to the spinal cord. Once the pain message reaches the spinal cord, it is routed to other nerves that transmit it up the spinal cord to the brain. When it finally arrives in the brain (all these events actually happen in less than a second), we feel pain. During childbirth, the location of origin of the pain message changes as labor progresses from the first to the second stage.

THE STAGES OF LABOR AND PERCEPTION OF PAIN

LABOR DIVIDES INTO three stages. It begins with the onset of regular uterine contractions, which progressively dilate the cervix, the outlet at the base of the uterus through which the baby passes into the vagina. The first stage of labor ends when the cervix is fully dilated to a diameter of 10 centimeters. Pain during the first stage is caused by the contractions, which switch on pain receptors that are located within the uterus. At the beginning of labor, the contractions produces a sensation that is at first uncomfortable, often likened to bad menstrual cramps, but which become progressively more intense. Women perceive this contraction pain in different areas. The most common location is in the lower abdomen, but many also feel it in their back. Some also feel the pain in their buttocks, hips, and thighs.

At about seven to eight centimeters of cervical dilation the pain becomes even more intense. During this interval, known as 'transition' – that is, the transition from the first to the second stage of labor – it is common to experience nausea and vomiting.

During the second stage, as the baby descends through the birth canal, pain is caused in two ways: by the contracting uterus, and also by the stretching – and sometimes the tearing – of tissue in the pelvis, vagina and perineum (the area between the vagina and anus). The second stage of labor, also known as the

pushing stage, culminates in the delivery of the baby. The third stage is the interval between birth and expulsion of the placenta. The third stage of labor is relatively painless since the placenta is much smaller and more pliable than the baby.

WHEN WILL LABOR PAIN START AND HOW BAD WILL IT BE?

LABOR PAIN IS tremendously variable, both in its time of onset and its intensity. Almost the only generality that one can make is that the pain of early contractions is less severe than the pain that occurs as labor progresses.

Some women have more pain earlier in labor than others; a very few never experience much pain at all. No two labor experiences are identical. Each woman has a unique experience with labor pain, and each labor experience may be different for the same woman.

There are many factors that determine when the pain begins and how it develops. For example, women having their first baby (nulliparous women) tend to have more painful labor prior to five centimeters cervical dilation than women who have previously given birth (multiparous women). Multiparous women tend to have more pain at the end of the first stage of labor, during the transition phase seven to 10.

The intensity and location of the pain may depend on the baby's position. For example, if the baby descends through the mother's pelvis in the occiput posterior position (so that its face will be born looking up towards the ceiling when the mother is lying on her back) instead of the more common occiput anterior position (face down), intense low back pain is more likely; this is because in this orientation, the back of the baby's head tends to press against nerves in the mother's pelvis.

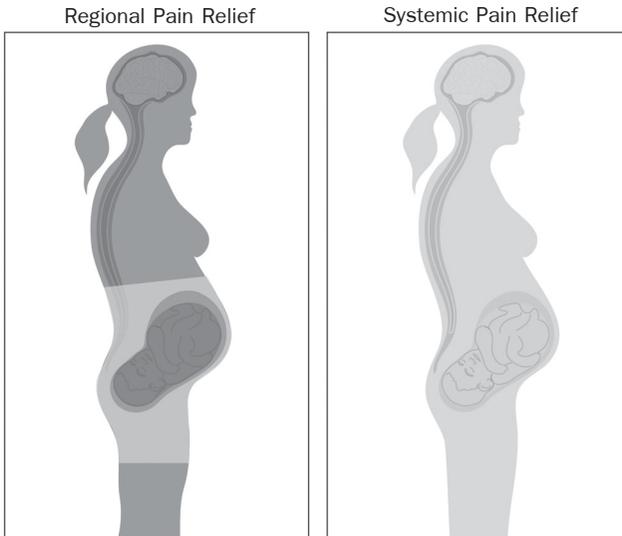


Fig 2-1 Regional versus systemic pain relief. The lighter shade indicates areas affected by the medication. With regional pain relief, a specific area of the body is numbed, and the baby is unaffected. With systemic pain, relief, the entire body is affected, including the baby.

SYSTEMIC VERSUS REGIONAL PAIN RELIEF

BASED ON OUR understanding of the cause of pain, we anesthesiologists have developed ways to stop it. There are two main pharmacological approaches used to treat the pain of childbirth: systemic or regional. With the systemic approach, we give medication that travels throughout the entire ‘system’ (body) of the mother-to-be, and a portion makes its way to the brain where it deadens the perception of pain. With the regional approach, we give a relatively small dose of anesthetics into a specific ‘region’ of the body (the epidural or spinal space) to block the pain message from being transmitted up towards the brain.



PREGNANT PAUSE

- *If our brain is anesthetized, and a pain signal arrives, we won't feel it. This is the basis for systemic pain relief: a narcotic-type medication is injected into a vein or muscle so that it can travel in the bloodstream to the brain, where it exerts its effect.*

SYSTEMIC PAIN RELIEF

THE SYSTEMIC DRUGS most commonly used in labor are narcotics such as Demerol, morphine, and Stadol, which exert their effects in the brain to diminish perception of pain. Because little technical expertise is required to administer systemic medication, their use does not require the presence of an anesthesiologist – so if one isn't available, this approach makes sense.

However, the systemic approach has many disadvantages. Patients tend to feel drowsy and 'out of sorts' after receiving systemically-administered narcotics. Nausea and vomiting are a common occurrence. Furthermore, because a relatively large dose is used, a rather significant amount of the drug may be transferred to the infant, making the baby drowsy and slowing the newborn's breathing. Studies have shown that this is most likely to occur if the drug Demerol is given one to three hours before birth. While we try to avoid this, it still may happen because it's not easy to predict the precise moment of delivery.

However, the main disadvantage of systemic narcotics is simply that they do not relieve labor pain effectively. They often cause the mother-to-be to fall asleep between contractions, only to have her wake up groaning during contractions. I see few reasons for the use of systemic narcotics in a modern, well-staffed labor and delivery suite, unless the woman is not able to receive an epidural or a spinal for a medical reason. These situations are listed in Chapter Seven.



PREGNANT PAUSE

- *If the pain message is stopped in its tracks before it is transmitted up to the brain, pain will not be perceived. This is how regional pain relief techniques - epidurals and spinals - work. The advantage a regional approach is that the mother is simultaneously awake, alert, pain-free and able to actively participate in the birth.*

REGIONAL PAIN RELIEF

THE REGIONAL APPROACH to pain relief is fundamentally different from the systemic approach. Whether your anesthesiologist administers an epidural, a spinal or a combination of both, the medication will block the pain message before it has a chance to travel up the spinal cord, preventing it from reaching the brain. With an epidural, anesthetic medications are injected into the epidural space, which is located just outside the dura, a layer of tissue that surrounds the spinal fluid. For a spinal procedure, the needle is inserted approximately one quarter-inch deeper than an epidural needle. This allows its tip to pass through the dura and come to rest within the spinal fluid, so that the medication can be injected there. Both of these techniques are described in detail, with illustrations, in Chapter Three.

For epidural and spinal techniques, the medications are injected in close proximity to the location where they exert their pain-relieving effects. For this reason, relatively small doses are needed, and thus there are minimal side effects on the rest of the body. The mother's state of mind is not altered, and the smaller doses of anesthetics used means that very little reaches the baby. This is the basis for the modern approach to labor pain relief: the use of relatively small doses of medication administered into a specific area in order to achieve maximal pain relief with a minimum of side effects for both mother and baby.

WAY TO GO

■ *State-of-the-art pain relief for labor is based on a strategy of administering small doses of anesthetics very close to the location of the nerves carrying the pain message. The result is a pain-free mother-to-be and a vigorous newborn. A regional approach is the way to go - if labor pain is severe enough to warrant treatment, why not treat it most effectively with the best means available?*

