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In one day's time I received two calls asking about the relationship between the administration of pitocin and neurologically compromised infants at birth and my intuitive antennas went off. Pitocin is a synthetic version of oxytocin the naturally produced hormone in the laboring woman. It is preferably administered through IV. As with all drugs, it does not come without its side effects, the most common being increased blood pressure in both the mother and child. Even the American Academy of Pediatrics agrees that no drug has been tested as safe for the baby in utero.

Pitocin is used for either labor induction or labor enhancement (what an inappropriate use of that term!) The use of pitocin does not, however, duplicate the natural progression of labor. Pit induced labors have longer, harder and more painful uterine contractions. Additional reported risks of induction are:

**For the mother:**

Higher rate of complicated labors and deliveries, greater need for analgesics and anesthetics, postpartum hemorrhage and a higher rate of placental rupture and separation life-threatening to both the mother and baby.

**For the baby:**

Induction causes fetal distress, a higher rate of jaundice, a greater chance of a prematurity, low apgar scores at 5 minutes, permanent central nervous system or brain damage and fetal death. <sup>1</sup>

In either induced or enhanced use of pitocin, the blood supply (and therefore the oxygen source) to the uterus is greatly reduced. With naturally paced contractions, there is a time interval between contractions allowing for the baby to be fully oxygenated before the next contraction. In induced or stimulated labor, the contractions are closer together and last for a longer time thus shortening the interval where the baby receives its oxygen supply. Reduced oxygen could have life-long consequences on the baby's brain.

It is the belief (not necessarily the practice) in the medical profession that induction should occur when the risk of continuing pregnancy presents a threat to the life of the mother or baby. These situations include: some severe diabetics, kidney disease, severe preclampsia, severe high blood pressure, kidney disease, and an overdue pregnancy where a danger to the fetus has been proven. If induction were carried out only when these conditions were present, at most, an estimate of 3% of births would be induced. <sup>2</sup>

In reality though, due date paranoia remains the most common reason for induction and the consequent use of pitocin. Surprisingly, studies on the due date calculations revealed frightening evidence. Firstly, the due date varies significantly between first time pregnancies and subsequent pregnancies. <sup>3</sup> Also, maternal race has been shown to be a determining factor in gestation time. <sup>4</sup> Another variable to the accuracy of the due date is the recent dependence of ultrasound as reliable criteria for infant size and gestational age.

First trimester measurements have an error bar of  $\pm 5$  days, increasing to  $\pm 8$  days in the second trimester and are as high as  $\pm 25$  days in the third trimester! 5 Bigger fetuses are assumed to be older and in studies where the ovulation date was known 70% of women who were classified as postdates were incorrectly dated. 6

Furthermore, studies on induction have shown that 30% of fetuses testing normal developed fetal distress when labor was electively induced and the cesarean rate was 15% verses 2% for spontaneous labor. 7

Using pitocin to enhance labor leads to an increase in epidurals, and therefore obstetric intervention during birth adding additional risks to both the mother and baby. (See ICPA Newsletter Jan/Feb, 1999). And finally, a controlled randomized study showed that the use of pitocin to stimulate labor was not as productive for the progression of labor as allowing mothers to change positions during labor by walking, sitting or standing. 8 Giving the mother back control of her body--what a novel idea and topic for a future newsletter.

As more and more interventions are added to the birth process, the cause of birth trauma is proportionately rising. It is our job as chiropractors to continue to educate mothers about the choices they have in birth and help reduce the devastating effects birth trauma is having on their babies' delicate nervous systems. It is a huge job ahead of us, yet I know chiropractors have the passion and the means to make it happen!

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I have read many studies that show that pitocin significantly raises the chance of c-section, the patient perception of pain, the desire for anesthesia of some kind, and the risk of uterine rupture. My own experience with pit is that I went from manageable contractions to screaming "I don't care about the baby or anything just make this stop hurting" kind of pain.

I have also known many women who have given birth without augmentation of any kind and their experiences are remarkable. A few of them said they had no pain at all, many said they had some pain but that it was easily manageable pain. I have never met anyone who was given pitocin that expressed these feelings about birth.

## **PITOCIN**

In addition to causing stronger, more painful contractions, is also an anti-diuretic, which means that it makes the body retain more fluids which means more engorgement, which can have a negative effect on breastfeeding. Pitocin use also increased the likelihood of jaundice in the baby.

### **Pitocin**

#### **Are there problems associated with the use of Pitocin? Yes!**

Oxytocin, your body's natural hormone, is secreted in bursts. However, when you are given pitocin you are placed on a regulated intravenous pump, to regulate the amount of pitocin to a steady flow. Therefore, pitocin induced contractions are entirely different from your body's natural contractions, in both strength and effect.

With pitocin, the induced force of the contraction may decrease uterine blood flow (This is also done during a natural contraction, but not for as long of a period and not as close together.). Therefore, reducing the oxygen to the baby. You will also receive continuous electronic fetal monitoring with pitocin . This is because fetal distress is more common with pitocin use and needs to be detected if it occurs.

We have also witnessed that pitocin can be the first domino in the domino effect. The IV, the infusion pump, and the continuous monitoring will confine most mothers to bed, decreasing her ability to deal with the contractions naturally. With the more painful contractions a mother is more likely to need pain medication, such as an epidural anesthesia.

Pitocin can present other hazards. For the mother these include: turbulent labor and tetanic contractions, which may cause early separation of the placenta (placenta previa), rupture of the uterus, laceration of the cervix or post birth hemorrhage. Fetal hazards include: fetal asphyxia and neonatal hypoxia from too frequent and prolonged uterine contractions, physical injury and prematurely if the due date is not accurate.

### ***Problems with Typical Management***

Obstetricians treat women laboring slowly the way Peter Pan treated the Lost Boys. He expected everyone to adapt to his ideas of the way things should be. If they didn't, Peter saw to it that they did. For example, the boys entered the Neverland underground home through hollow trees. If a boy didn't fit his tree, James Barrie writes, Peter "did

something" to the boy. So too with obstetric management. Obstetricians have inflexible ideas of how labor ought to go. If your labor doesn't conform to that pattern, typical doctors "do something" to you to make you fit. There are, as you may gather, a number of drawbacks to this myopic approach.

The first is that the standard for labor progress doesn't give you nearly enough time before you are declared over the line. Doctors base their standard on studies from the 1950s and 60s supposedly of normal labors, but many women had interventions that could shorten labor such as oxytocin (trade name: Pitocin or "Pit") or forceps delivery. A recent study evaluating healthy women who had no interventions that would affect labor length got very different results. For example, the standard says that starting from 4 centimeters cervical dilation, the average first-time mother will take 6 hours to achieve full dilation of 10 centimeters. Doctors set the cutoff defining "abnormal" progress in dilation at 12 hours for first-time mothers and 6 hours for women with previous births because, according to the standard-setting studies, only 5% of women will take longer than this. However, the new study found that average duration in first-time mothers was 7 1/2 hours, not 6, and the threshold for abnormal, fell at 19 1/2 hours, not 12, in first-time mothers and over 13 1/2 hours, not 6, in women with prior births. The standard also stipulates smooth, linear progress. More than a relatively brief halt is thought to require action. However, averaging many labors together evens out the variations. Individual labors often don't work this way.

A second drawback is that obstetric management can obstruct progress. Epidural anesthesia is a notable example of this. Confinement to bed and pushing while lying on one's back may also interfere. Refraining from these things would seem obvious, but mainstream obstetricians rarely recognize their management as the problem. Within the obstetric mindset, all labor difficulties originate in the woman or her baby. Doctors are always the "fixers," never the "breakers."

Finally, doctors have few ideas about what to do. They can rupture membranes, which is supposed to speed things up, although that is debatable (see p.250). They can strengthen contractions by giving IV oxytocin, or they can deliver the baby via vacuum extraction, forceps, or cesarean section. This limited repertoire has its own drawbacks.

To begin with, weak contractions are only one of several reasons why labor progress may be slow or come to what is in most cases a temporary halt. To cite three:

- The baby may be in the occiput posterior position, a hidden factor in as many as half of all cesareans for poor progress. In the posterior position, the back of the baby's head (occiput) is towards the mother's back. During labor with a baby in the favorable anterior position, contractions push the rounded crown of the baby's head downward against the cervix, which helps open it. However, the posterior baby can't help because the cervix lies against the broad middle of the baby's head. (Think of it like trying to pull on a tight turtleneck sweater.) In addition, most posterior babies cannot fit through their mother's pelvis without swiveling to anterior.

- Sometimes in early labor the cervix, the neck-like opening of the uterus, impedes progress. During pregnancy, the cervix's job is to keep the baby in against the pull of gravity. In preparation for labor and during early labor, the firm connective tissue in the cervix softens like a dry sponge absorbing water, the cervix shifts forward so as to be in line with the force of contractions, and it effaces, meaning it draws up into the body of the uterus (see drawing). If the cervix has not finished this process, dilation will proceed slowly if at all.
- Fear, anxiety, and other psychological issues can also hold up labor.

If weak contractions aren't the problem, oxytocin isn't the answer.

In addition, rupturing membranes, IV oxytocin, vacuum extraction, forceps delivery, and cesarean section can pose serious risks to baby or mother. These interventions should be the last, not the first -- let alone the only -- resorts, but, unlike most midwives, many doctors don't know any alternatives.

As a result of obstetric impatience and injudicious management, in 1995, about one in five U.S. women who began labor on their own had oxytocin stimulation (*augmentation*), and nearly 176,000 women had cesareans for failure to progress, prolonged labor, labor *dystocia* (dysfunctional labor), or *cephalopelvic disproportion* (the baby didn't fit). These diagnoses are all ways of saying the baby didn't come out within somebody's idea of a reasonable time, but "reasonable" is primarily a matter of philosophy, not physiology, as the enormous variation in the rates of oxytocin use and instrumental and cesarean delivery among caregivers attests. As one editorialist all too aptly put it, "Unfortunately, we have spent the last 25 years managing labour *without knowing what we do.*"

## Active Management of Labor

Doctors think they have at last found a way to make labor adhere to their pattern. In recent years active management of labor has swept the English-speaking obstetric world. From the obstetric viewpoint, it has everything to recommend it. Its rigid, precise protocol sounds reassuringly scientific. It is supposed to eliminate cesareans for poor progress even in the face of epidurals, which slow labor down. And best of all, it allows doctors to orchestrate every contraction. However, nothing about active management is as it seems except the control.

Active management of labor came out of the Dublin, Ireland National Maternity Hospital in the 1970s. According to its developers, it was intended to benefit first-time mothers by preventing prolonged labor. Obstetricians guaranteed that women would not labor for more than 12 hours, that is, 10 hours to dilate and 2 to push out the baby, this being the maximal labor length they thought women could tolerate without pain medication. (They never asked women what they thought, though; several studies have shown that women don't like oxytocin because it makes contractions hurt more. Whatever the Dublin doctors believed their reasons for active management were, their book, *Active Management of Labor*, reveals who active management really benefits: it spares obstetricians the "tedious

hours" of waiting until full cervical dilation, and it transforms the "previously haphazard approach" to planning for staffing.

Active management attracted attention outside Ireland because in an era where cesarean rates in many countries -- including the U.S. -- were skyrocketing, the National Maternity Hospital cesarean rate remained stable at about 5% without any apparent disadvantage in maternal and newborn outcomes. Active management was not responsible, however. The cesarean rate was even lower before its introduction.

The cornerstone of active management is to rupture membranes once labor is established and give any first-time mother who fails to dilate at 1 centimeter or more per hour IV oxytocin. It begins at dosages considerably above blood levels produced naturally and ends with dosages that are twice the amount that are permitted in protocols that mimic normal oxytocin levels. The active management oxytocin regimen may seem scientifically precise, but it was not based on any experimental data, and its rationales had nothing to do with science. For example, the Dublin doctors linked the drip rate strictly to contraction frequency to prevent soft-hearted midwives from turning down the drip rate when women complained of the pain. Indeed, the doctors of the National Maternity Hospital state in their book that the laboring woman's job in this scheme of "military efficiency" with a "human face" is to take orders and not to disturb the labor unit by making "the degrading scenes that occasionally result from the failure of a woman to fulfill her part of the contract."

Does active management work? Yes and no. It does tend to shorten labor compared with lower-dose oxytocin regimens, and a few studies have shown it reduces the cesarean rate, although others do not. All this means, though, is that if more women can be forced to fit their doctors unrealistic expectations of labor duration -- forced to "fit their Neverland tree", so to speak -- their doctors may operate less often.

Also, some of the components that almost certainly contribute to reducing the odds of cesarean for poor progress didn't make the trans-Atlantic crossing. The Dublin protocol mandates a trained woman who never leaves the laboring woman's side. A body of research attests to the benefits of this practice. According to the protocol, women will not be admitted to the labor unit unless they are in progressive labor with effaced cervixes. By contrast, U.S. hospitals frequently admit women in very early labor or who are having prelabor contractions. \* Because progress is normally slow in early labor and nil if the mother isn't in labor, early admission plus impatience often equals unnecessary intervention. As originally conceived, active management assumed a minimal use of epidurals. The Dublin obstetricians believed that the promise of a 12-hour or less labor length would enable women to get through labor without pain medication, another thing they surely didn't consult women about. Epidurals increase the cesarean rate for poor progress even when doctors practice active management.

Active management also has serious drawbacks. First-time mothers are given oxytocin if they don't steadily progress at the **average** rate -- a rate that is probably an underestimate. At one stroke, deviation from the average has been defined as abnormal. Studies have

shown that with active management, 40% or more of first-time mothers will receive oxytocin. Telling nearly half of laboring first-time mothers their bodies are incapable of birthing a baby without help could have significant psychological consequences. For example, the use of labor interventions, not surprisingly, links to postpartum depression. And high-dose oxytocin increases the chances of overly long, overly strong contractions, which, by depriving the baby of oxygen, can cause fetal distress and worse. Setting arbitrary time limits on the pushing phase of labor can also lead to unnecessary and potentially risky procedures. In a study of 13,000 labors at the Dublin National Maternity Hospital, the authors reported that three babies delivered by forceps for prolonged pushing phase died of forceps injuries. In this country, doctors generally don't use forceps unless the head is low enough to make forceps relatively safe. However, faced with a "time's up" situation, they would do a cesarean instead -- not exactly an improvement!

The sad thing about these disadvantages is that active management isn't necessary. Numerous studies have demonstrated that other, less aggressive, regimens work just as well. This, however, begs the real question, which is, "Do you need universal amniotomy and liberal use of oxytocin at all?" All studies have compared active management with standard management. This is like comparing the frying pan to the fire. If active management does better -- and it doesn't always -- it's still the frying pan. Midwives, especially those attending births in free-standing birth centers and homes, have achieved equally low cesarean rates and equally good, if not better, maternal and newborn outcomes with much less use of oxytocin, instrumental delivery, or c-section. In fact, active management makes a good litmus test of whether a practitioner works from the obstetric or midwifery model. If your doctor or midwife thinks its great, head for the door.

## **Procedures**

*rupturing membranes* (amniotomy): See p.103.

*oxytocin IV*: For details of the procedure, see p.60. There are several schools of thought behind the various oxytocin regimens for strengthening (*augmenting*) labor. Doctors began using IV oxytocin years before researchers had the technology to study its metabolic properties. Older regimens were based on uterine response: start the drip slowly; turn it up every 15 minutes or so until the mother had what seemed to be three adequate contractions in 10 minutes (the average rate in normal, progressive labor); and turn the drip down if contractions got too strong, long, or close together. This is probably still the most common method used in the U.S. today. Low-dose regimens evolved out of research that determined blood levels during functional labor, how long oxytocin took to metabolize, what dosage rate maintained a steady blood level of oxytocin, and how long it took to produce a maximal response when the dose was increased. Low-dose regimens attempt to imitate the natural process, the goal being to reduce the frequency of adverse effects by minimizing the amount of oxytocin used to bring contractions up to par. Proponents of high-dose regimens such as active management think that giving more oxytocin faster will reduce the number of augmentation failures. High-dose regimens start where low-dose regimens typically end. In addition the interval for judging response

and deciding whether to turn up the drip is much shorter than the time actually required for uterine muscle to fully respond.

*vacuum extraction:* The apparatus consists of a flexible, plastic cap attached to a handle, tubing, and a vacuum source. The doctor uses vacuum to hold the cap to the baby's head. The doctor then pulls when mother pushes. Vacuum extraction can be used as well to swivel the baby from facing the mother's stomach (posterior) or side (transverse), which is unfavorable for birth, to facing her back (anterior).

*forceps delivery:* To be used safely, the head must be at least partially through the mother's pelvis. The doctor inserts the curved blades on either side of the baby's head, locks them together, and pulls. Forceps can also be used to turn the baby from posterior or transverse to anterior.

*cesarean section:* See p.21.

Penny Simkin, noted educator and author, uses "prelabor contractions" instead of "false labor" because there is nothing false about these very real and sometimes painful contractions, and they do eventually lead to progressive labor.

## ***The Bottom Line***

### **Benefits and Risks of Techniques for Coping with Poor Progress**

#### **Non-Medical Techniques**

These include activities such as pelvic rocking or walking, assuming positions such as all-fours or squatting, eating and drinking, massage and acupressure, warm tub baths or showers, and talking.

*benefits:* Studies suggest that activity and positioning can intensify contractions, bring the baby down, expand the pelvis, \* and turn the baby to the favorable anterior position. Eating and drinking can avoid fatigue and dehydration, which may slow labor. Massage, acupressure, and warm tub baths or showers can ease pain and induce relaxation, which may enhance progress. Warm water immersion has been called the "midwives' epidural." Talk can provide comfort, reassurance, encouragement, relieve anxiety, and explore what psychological or emotional issues or adverse environmental elements might be affecting labor. Using these strategies as the primary approach avoids unnecessary use of oxytocin, instrumental delivery, and c-section along with their attendant risks.

*risks:* A full squat may be inadvisable in women with varicose veins or knee joint problems. Women may develop a fever if submerged too deeply for too long in warm water, but this can be alleviated by lifting more of the body out of the water or getting out of the tub, and infection is **not** a risk with ruptured membranes. As an experiment using a starch-impregnated tampon and iodine in the water proved, bath water does not enter the vagina. Exploration of possible underlying psychological factors may lead a woman to think that slow progress results from not thinking the "right" thoughts, which could lead

to self-blame. Contrary to common obstetric belief, eating and drinking in labor pose **no** risks.

### **Nipple Stimulation**

*benefits:* Causes secretion of additional oxytocin. Unlike intravenous oxytocin, oxytocin naturally secreted within the brain elevates mood and has amnesiac properties. IV oxytocin cannot cross the blood-brain barrier. Avoids unnecessary use of oxytocin, instrumental delivery, and c-section along with their attendant risks.

*risks:* May produce overly long, overly strong contractions. Stopping or reducing the stimulation will rapidly normalize contractions.