Thai Journal of Obstetrics and Gynaecology
July 2012, Vol. 20, pp. 87-94

SPECIAL ARTICLE

Natural Birth

Ekachai Kovavisarach, MD
Tanit Habanananda, FRCOG

1. Introduction

Nowadays, increasing numbers of people prefer to spend their lives close to Nature. Many natural products and ways of living have become popular around the world, including in Thailand. Natural birth, or active birth or mother friendly birth practice, as it is sometimes known, is the practice of birth care which encourages a mother to use her innate birthing instinct while receiving skilled, supportive care from qualified health professionals.

An interesting and important question for health professionals caring for women in labor is 'How do we view birth?' Is birth seen as a physiological or pathological process? Or for that matter, are the changes of pregnancy physiological or pathological? Before answering these questions, we would like to introduce the two model concepts of health care for birth[1].

2. Concepts of birth

The two model concepts of health care for birth[1] which some health care givers may not be aware of or familiar with are the social model and the medical model.

In the social model, the mother becomes the centre of focus, she has a central role in her care and she is encouraged to be an active participant in the birthing process. She may choose to give birth in her own home, a birth centre or a hospital that has a birth room designed so that it has a more homely and non clinical atmosphere. She can be accompanied by a person of her own choice. The attending staffs, the nurses and doctors, are trained to give emotional support and using alternative methods for pain relief. Active birth is the birthing care based on the social model.

In the medical model, a woman gives birth in a hospital or clinic with a clinical environment. She is cared by nurses who are under the directive of the obstetricians who usually view both pregnancy and birth as potentially abnormal. Consequently, the care she received will be that of an "ill" person. She will be confined to bed and given routine pre-surgery care, such as pubic hair shaving, enema, insertion of an intravenous line and nil by mouth. She will be isolated from her family and friends in a strange place with strange people and drugs are commonly used to alleviate pain.

Obstetricians who believe that as labor progresses, mother and baby may become distressed often anticipate the need for possible anesthesia and surgery. In order to reduce the risk of Mendelson's syndrome and death, nil per oral and the antacid is ordered[2,3]. However, research has shown that these procedures do not prevent complications, whereas skillful anesthesia and careful assessment are important factors in doing so[4,5].

The medical model relies upon drugs to reduce pain. These may have side effects to both the mother and the baby and can interfere with the birth process

and result in further interventions, e.g. the use of oxytocin, forceps and vacuum extractions, not to mention the increased likelihood of immobility through the use of epidural anesthesia[6-9]. The medical model hospitalizes and isolates women in labor. In modern hospital labor unit, there are not enough nurses to support women on an individual basis. Also much of their time is spent in administering enemas, giving pubic hair shaves, checking intravenous infusion lines, watching electronic fetal monitors and recording charts[10].

Finally, in the medical model, mothers and babies are often separated early; especially if there have been interventions and complications following birth. Poor support and lack of encouragement of breastfeeding in the hour following birth lead to a low rate of successful breastfeeding. "Active management of labor (AMOL) is the example of birthing care based on the medical model[11].

3. What is "Active management of labor"?

The concept of "Active management of labor" was introduced by Dr. O' Driscoll[11] in 1969, in order to prevent prolonged labor (24 hours) and make sure that the birth would take place within 24 hours (the definition of prolonged labor was changed to 12 hours in 1984[12]). Amniotomy and oxytocin infusion were used early in labor. All the mothers have one to one support by a midwife throughout the labor and birth. O'Driscoll's results were very favorable as the care-giver could anticipate the time that the birth would take place and should there be any delay (longer than 10 hours of AMOL), the labor could be terminated by cesarean delivery. The results of AMOL were very convincing as the cesarean delivery, operative vaginal delivery and perinatal mortality rates were very low[11,12].

During the late 1970's and 1980's, there were reports from those using minimal intervention, of lower cesarean delivery rates than that of O' Driscoll[13,14]. Frigoletto & colleagues[15] reported no reduction in cesarean delivery rate in nulliparous women in a large randomized trial using AMOL. According to Thornton and Lilford[16] the most important factor in the success of AMOL was not the medical interventions that were used, e.g. amniotomy and oxytocin infusions, but the continuous one to one support of a midwife throughout the labor and birth.

In current birth practice in Thailand, we, the majority of care givers, view birth as a potential medical catastrophe just waiting to happen. We have introduced all the medical interventions, but have failed to include the 'one to one' support. We think that, unless we take over and manage the birth, we will end up with complications that could have been prevented if we act earlier.

4. What is the concept of "Active birth"?

In 1983 Active birth (AB) was introduced in the U.K. by Janet Balaskas[17] who named her new concept of birth to mimic the concept of "Active management of labor". In AB, the mother is encouraged to play active role in the birthing process instead of the doctor and the nurses in AMOL. Active birth views labor and birth as a normal physiological process and helps a woman to use her instincts to give birth safety and successfully.

4.1 Aims of active birth

Active birth aims to

A. Work with normal physiology and anatomy of the birth process.
B. Protect the natural birth process by avoiding routine care or intervention unless there is a justifiable medical need.
C. Provide one to one and continuous emotional support throughout the attendance of a birth companion of the mother's choice.
D. Encourage the use of mobility and upright position for labor and birth.
E. Provide an environment that offers as much privacy as possible and supports the natural birth process.
F. Treat each woman and her baby as individuals with individual needs.
G. Encourage every woman to recognize and use her inborn birth instinct.
H. Use midwifery care.

I. Use alternative techniques instead of drugs for pain relief.

A. Working with normal physiology and anatomy of the birth process.

The most important physiological and anatomical functions that enable a woman to give birth successfully are three hormones that work together and the special design of her pelvis.

A.1) Woman's pelvis is designed by nature to facilitate the birth of a baby during labor. Apart from the shape, which is more rounded than the male's, the ligaments that support all the pelvic joints become softer during pregnancy due to the action of the hormone relaxin, thus allowing the joints to become more mobile. Russell[18] measured the antero-posterior (A-P) and transverse diameters of the pelvis in various postures. He discovered that, in a squatting or semi-squatting position with the trunk leaning slightly forward, the size of the pelvic outlet can be increased by up to 2.0 cm. in A-P diameter and up to 1 cm. in transverse diameter and thus increasing the overall area of the pelvic outlet up to 28% .

A.2) There are three main hormones that involved in the birth process.

A.2.1) Oxytocin - this hormone is released from the posterior pituitary gland and causes the uterus to contract with the eventual dilatation of the cervix. Stimulation of sensitive areas, e.g. nipples, perineum, cervix and vagina, causes the release of oxytocin. When the baby's head reaches the pelvic floor and enters the vagina, more oxytocin is released until the perineum is fully distended and the head is born. (Note that an early episiotomy interferes with oxytocin release as it reduces stimulation to the perineum). High level of oxytocin stimulates uterine contraction to enable the expulsion of the placenta and reduce the risk of excessive bleeding during the third stage of labor. At the same time oxytocin stimulates the release of colostrum and then later on the breast milk as a result of nipple stimulation during breastfeeding. Also oxytocin induces 'care-taking' behaviors in the mother towards her baby thus assuring early bonding and breastfeeding[19,20].

A.2.2) Beta endorphin: this hormone is stored mainly in the nerve endings of the brain and is released when the body is under stress or pain. Pain is an important factor of labor. A woman needs pain to tell her when her labor has begun and how far the labor has progressed. Pain is needed to enable the body to release beta endorphin. The greater the pain, the greater the amount of endorphin is released. This in turn acts as a natural analgesic which reduces the pain level, alters the perception of time, institutes withdrawal behaviors and induces forgetfulness. A high level of beta endorphin at the transition phase of labor can lead to possible loss of inhibiting behaviors, often causes the women to become fearful, aggressive, very verbal and for many, there is a fear of dying. During the second stage, endorphin helps to make the mother calm with renewed energy and feeling 'high' (feels good and positive). At the time of birth, these positive feelings and happiness increase the bonding process with her baby[21].

A.2.3) Adrenaline: we all know this hormone well. It induces a 'fight or flight' response. In laboring women, rising level of adrenaline results in a fall of oxytocin and endorphin output. Adrenaline contracts the circular muscle of the uterus thereby counteracting the actions of the oblique and longitudinal muscles which results in increase in pain and failure of the cervix to dilate[22]. This often leads to the misinterpretation that the uterus is not working well, i.e. incoordinate uterine action or even cervical dystocia. In fact, the uterus is working normally under the influence of adrenaline which has been released in response to the woman's fear and/or pain. We cannot control the release of adrenaline, but when we see its manifestation such as tachycardia, rapid and shallow breathing, staring eyes, cold hands, etc., we should recognize these as signals that we should try to find ways (other than administering drugs) to bring the adrenaline level down.

In active birth, the aim is to keep the adrenaline level low so that the actions of oxytocin and beta endorphin will not be inhibited.

B. Protecting the natural birth process by avoiding routines in care or intervention unless there is a justifiable medical need

Routine care and interventions include enemas, pubic hair shaving, nil per oral (NPO), intravenous fluid infusion (IVI), amniotomy, oxytocin use, etc. Any care or intervention used should be beneficial and without side effects. Therefore careful consideration should be given before any routine intervention is administered to a healthy mother and baby.

Routine practices that should be abandoned.

B.1 Intravenous infusion[23,24]

IV (intravenous) fluid may lead to maternal hyperglycemia and an infant with reactive hypoglycemia after birth. An IV line can restrict maternal mobility and the cannula can cause both pain and discomfort. There is also a risk of phlebitis. Receiving IV fluids gives the message to the mother that she is a 'sick' person.

B.2 NPO[5]

Some obstetricians believe that aspiration pneumonia (Mendelson's syndrome) may occur to the mothers who are allowed to eat and drink and later need to be delivered by an unplanned cesarean delivery. However, NPO can not guarantee against aspiration pneumonia as gastric secretions are continuously produced even when the stomach is empty. In aspiration pneumonia, undiluted gastric secretion of the NPO mother can damage the lungs more than the diluted secretion in non-NPO one.

B.3 Amniotomy and oxytocin infusion

Early amniotomy and oxytocin infusion are the routine practice in AMOL introduced by O' Driscoll [11], who claimed shorter labor times and reduced interventions, i.e. forceps and cesarean delivery. In the quest for a shortened and controlled labor, the increased use of epidural analgesia for pain relief was brushed aside.

B.4 Pubic hair shaving

Pubic hair shaving is a routine procedure in some countries as well as in Thailand because majority of doctors believe that it improves hygiene, makes it easier to repair the perineum or episiotomy wound and also reduces wound infection. However, several consequences attributable to shaving such as irritation, redness, multiple superficial scratches, itching of the vulva, discomfort and intense itching from the hair regrowth, as well as women suffering unnecessary shame and embarrassment. Basevi V and Lavender T [25] reported in the Cochrane review that there was no differences in terms of maternal febrile morbidity, perineal wound infection and dehiscence between perineal shaving and hair cutting group. They finally concluded that there is insufficient evidence to recommend perineal shaving for women on admission in labor.

B.5 Enema

Enemas have been routinely used for pregnant women admitted to the labor ward. There are believes that enema will reduced fecal contamination, which causes perineal wound and neonatal infection, and shortened duration of labor since there will be no fecal obstruction in the descent of the presenting part [26,27]. However, there are disadvantages, such as an enema may cause watery fecal soiling whilst giving birth and also the fact that it is a very unpleasant and embarrassing procedure. Reveiz L et al [28] reported in the Cochrane review that there were no significant differences between the women who receives enema and controls for the infection rates in puerperal women or newborn children after one month of follow up. They concluded that enemas do not have significant beneficial effect on infection rates, such as perineal wound infection or other neonatal infections and women's satisfaction. Routine use of enema during labor should be discouraged.

C. Providing one to one and continuous emotional support through the attendance of a birth companion of the mother's choice.

A birth companion helps reduce fear and anxiety to the mother. Many randomized controlled trials have

shown that this support shortens labor, reduces the use of epidural anesthesia and cesarean delivery rates and increases the success of breastfeeding and maternal bonding [29-31].

D. Encouraging use of mobility and upright positions for labor and birth

Encouraging the women to be mobile by walking and rocking and when resting, they can be shown how to use upright resting positions instead of lying down. This will help to relieve back pain, stimulate uterine contractions and aid the descent of the fetal head into the pelvis (pull of gravity) resulting in a shorter, less painful labor and use of medications. Upright positions will prevent supine hypotensive syndrome and improve oxygenation to the fetus [24-33].

E. Providing an environment that offers as much privacy as possible and supports the natural birth process[10].

The birth room is an important part of AB. The aim of a birth room is to provide a more homely environment for the mother in contrast to the majority of labor wards which resemble operating room with a total lack of privacy. Attention is paid to the color used (soft, warm, earthy tones) and the lighting which can be dimmed to have a more calming effect and reduce neo-cortex stimulation. Noise is kept to a minimum and the mother's privacy is increased by hanging curtains across the door and placing screens around her.

The room should be large enough for mother to be mobile and choose her own positions for labor. Various aids such as chairs, bean bags, and cushions (including the Thai style triangle cushion) of various sizes should be available. A bath with warm water for a mother to labor in is to an excellent way to promote pain relief . Many women choose to give birth in the water.

F. Treating each woman and her baby as individuals with individual needs

Everyone is different, even the identical twins are still not the same. We believe that labor management should be planned and 'tailor made' for each and every woman and that the mother should have a central role in the decision making regarding her care.

G. Encouraging every woman to recognize and use her 'inborn' birth instincts

The instinctive behavior to reproduce and survive is inborn and is present in the hypothalamus, known as the 'ancient brain'. Most obstetricians and nurses in Thailand instruct the mother how and when to push in the second stage of labor using the Vulsalva maneuver. This method is not effective, as much of the pressure goes through the ear canal. It can cause abnormal fetal heart rate pattern (late deceleration), fetal hypoxia and acidosis[34]. Pushing is much more effective if the mother can push when she feels the urge at her own pace, usually with the out breath and no longer than 8-10 seconds duration[34-36]. Also being in an upright position aids the descent of the fetal head and makes pushing easier and less tiring for the mother.

H. Using midwifery care

Midwifery has been a legitimate and well-established health profession in Europe for hundreds of years. The midwife is still the birth attendant at the majority of normal births in nearly every European country, Canada, Australia and New Zealand. Being 'with women' throughout their labors and births enable midwives to understand normal birth behaviors. They aim to keep labor normal and do so by assisting and supporting women in the ways that have been described as the social model and only resort to pharmacological pain relief when all else has failed. As mentioned before, Thornton & Lilford[16] in their review of active management of labor (AMOL), raised the issue of psychological support – 'the third component of AMOL' i.e. the provision of a companion qualified or unqualified throughout labor.

Meta-analysis of these trials, altogether 10 RCTs, support the idea that psychological support is effective in reducing analgesia requirement, lowers the incidence of cesarean delivery and operative vaginal birth. Hodnett[30] in the Cochrane review of studies involving

1,815 women: the trials compare "continuity of care by midwives with non - continuity of care by consultants and midwives". The women from the continuity of care by midwives were less likely to have:

- Drugs for pain relief during labor (odds ratio 0.53, 95% CI 0.44 -0.64).
- Episiotomy (odds ratio 0.75, 95% CI 0.60 - 0.94).
- But more likely to have vaginal or perineal tears (odds ratio 1.28, 95% CI 1.05-1.56).

The women were more likely to be happy with their antenatal, intrapartum and postnatal care. Sadly, in Thailand today, there are no midwives, only obstetric nurses who work in the hospital under the order of the obstetricians[37].

I. Using alternative techniques instead of drugs for pain relief

According to Leeman et al[38], most women report that labor is painful, but most physicians surprisingly have little understanding of the nature of labor pain. Many physicians believe that the main determinant of maternal satisfaction with childbirth is pain relief during labor and invariably, pharmacological pain relief such as meperidine, morphine, epidural anesthesia etc. is resorted to as the only method available to us.

However, these drugs have some side effects for both the mothers and the babies, such as drowsiness, respiratory depression and apnea[39]. Melzack and Wall's gate control theory introduced in 1965[40] helps explain the various methods used in non-pharmacological pain relief in labor. The pain modulation was divided into 3 parts : the gate control system in the dorsal horn of spinal cord, central control and action system. Nowadays, the nociceptor function in original 'gate control theory' is altered by the "inflammatory soup" that characterizes a region of tissue injury[41].

However, the original theory[40] remains a good explanation for non-pharmacological pain relief in labor. From the gate control theory, pain can be relieved in many ways related to the neurological pathways. So the following techniques are introduced, such as

1. Techniques that reduce painful stimuli
2. Techniques that activate peripheral sensory receptors
3. Techniques that enhance descending inhibitory pathway

In 2004, Dr. Tanit Habanananda[37] added the use of 'active birth' as the fourth technique.

Many active birth practices can relieve labor pain by using multimodality of the previous 3 techniques (details of active birth are written in this paper).

1. Techniques that reduce painful stimuli
   - 1.1 Maternal movement and change in position
   - 1.2 Counterpressure
2. Techniques that activate peripheral sensory receptors
   - 2.1 Touch and massage
   - 2.2 Reflexology
   - 2.3 Acupuncture
   - 2.4 Aromatherapy
   - 2.5 Transcutaneous electrical stimulation (TENS)
   - 2.6 Water immersion
   - 2.7 Intradermal injection of sterile water
3. Techniques that enhance descending inhibitory pathway
   - 3.1 Attention focusing and distraction
   - 3.2 Hypnosis
   - 3.3 Music and audio-analgesia
   - 3.4 Biofeedback

5. Active birth "Thai experience"

In Thailand, active birth was first introduced and integrated into birth practice by Dr. Tanit Habanananda at Samitivej Hospital in 1982. His interest and commitment came about through the western women he was caring for. They constantly requested a 'no intervention' policy towards their care and a way had to respect and fulfill their needs.

In 1998, he and his colleagues established a foundation for active birth and breastfeeding promotion named 'Childbirth and Breastfeeding Foundation of Thailand' (CBFT). CBFT's projects and activities include:-

A. Training doctors and nurses around the country and other countries such as the Republic of Vietnam and Laos PDR.

B. Writing articles ('natural birth' in Rak Luk magazine; 'cesarean delivery' in Modern Mom magazine); pocket book 'Klod eng dai ngai nid diew' (คลอดเองได้ ง่ายนิดเดียว)
C. Writing a chapter in the textbook 'Natural birth' in Maternal Fetal-Medicine of Royal Thai College of Obstetricians and Gynaecologists in 2001
D. Advising for a research project about natural birth by the Faculty of Nursing of Burapha University and Prince of Songkla University
E. Planning a training course for pregnant women for active birth
F. Give lecturs to introduce the active birth concept in many institutions in Thailand

Conclusion

Active birth (natural birth) is humanized care that is given to the mothers and their babies based on the following principles:

A. Working with normal physiology and anatomy of the birth process.
B. Protecting the natural birth process by avoiding routines in care or intervention unless these is a justifiable medical need
C. Providing one to one and continuous emotional support through the attendance of a birth companion of the mother's choice
D. Encouraging the use of mobility and upright positions for labor and birth
E. Providing an environment that offers as much privacy as possible and supports the natural birth process.
F. Treating each woman and her baby as individuals with individual needs
G. Encouraging every women to recognize and use her inborn birth instincts
H. Using midwifery care
I. Using alternative techniques instead of drugs for pain relief.

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