**THE FIRST HOUR FOLLOWING BIRTH
 DON'T WAKE UP THE MOTHER!**

 The hour following birth is undoubtedly one of the most critical phases in the life of human beings. It is not by chance that all human groups have routinely disturbed the physiological processes in this short period of time, via beliefs and rituals. Our cultural milieus are to a great extent shaped at the very beginning of the mother - newborn interaction.

 The first hour following birth may be looked at from a multitude of complementary perspectives. My objective is to catalogue a dozen of such perspectives in order to demonstrate the real dimension of this enormous subject.

# Perspective one . The sudden need to breathe

 We do not need to develop this widely documented perspective. It is well understood that during the first hour following birth the baby must suddenly use its lungs. This implies, in particular, that the heart must urgently pump blood to the pulmonary circulation. The prerequisite is that the pulmonary and systemic circulations separate by closure of the connections between them (ductus arteriosus and foramen ovale).

Perspective two. The behavioral effects of hormones.

 This perspective needs to be developed, so recent are the available data.

 Today we are in a position to explain that all the different hormones released by mother and fetus during the first and second stages of labor are not yet eliminated during the hour following birth. All of them have a specific role to play in the mother – newborn interaction. Until recently the behavioral effects of these hormones had not even been suspected.

 The key hormone involved in birth physiology is undoubtedly oxytocin. Its mechanical effects have been well known for a long time (effects on uterine contractions for the birth of the baby and the delivery of the placenta; effects on the contractions of the myo-epithelial cells of the breast for the milk ejection reflex). Its behavioral effects were demonstrated for the first time in 1979 via the historical experiment by Prange and Pedersen: an injection of oxytocin directly into the brain of virgin rats induced a maternal behavior. This experiment was at the root of a new generation of studies. The results of hundreds of such studies can be summarized in one or two sentences: oxytocin is the typical altruistic hormone; it is involved whatever the facet of love one considers.

 These data appear important when one knows that, according to Swedish studies, it is after the birth of the baby and before the delivery of the placenta that women have the capacity to reach the highest possible peak of oxytocin. As in any other circumstances (for example sexual intercourse or lactation) the release of oxytocin is highly dependent on environmental factors. It is easier if the place is very warm (so that the level of hormones of the adrenaline family is as low as possible). It is also easier if the mother has nothing else to do than to look at the baby’s eyes and to feel the contact with the baby’s skin, without any distraction. The way oxytocin is released is a new avenue for research. In order to be effective, this release must be pulsatile: the higher the frequency of pulses is, the more effective is this hormone.

 Oxytocin is never released in isolation. It is always part of a complex hormonal balance. That is why love has so many facets. In the particular case of the hour following birth, in physiological conditions, the high peak of oxytocin is associated with a high level of prolactin, which is the motherhood hormone. This is the most typical situation for inducing love of babies. Oxytocin and prolactin complement each other. Furthermore estrogens activate the oxytocin and prolactin receptors. We must always think in terms of hormonal balance.

 It was also in 1979 that the maternal release of morphine-like hormones during labour and delivery was demonstrated. The release of these endorphins is now well documented. In the early 1980s we learnt that the baby also releases its own endorphins in the birth process and today, there is no doubt that, for a certain time following birth, both mother and baby are impregnated with opiates. The property of opiates to induce states of dependency is well known, so it is easy to anticipate how the beginning of a "dependency" - an attachment - will be likely to develop.

 Even hormones of the adrenaline family (often seen as hormones of aggression) obviously have a role to play in the interaction between mother and baby immediately after birth. During the very last contractions before birth the level of these hormones in the mother peaks. That is why, in physiological conditions, as soon as the "fetus ejection reflex" starts women tend to be upright, full of energy, with a sudden need to grasp something or someone. They often need to drink a glass of water, just as a speaker may do in front of a large audience. One of the effects of such adrenaline release is that the mother is alert when the baby is born. Think of mammals in the wild, and we can more clearly understand how advantageous it is for the mother to have enough energy - and aggressiveness - to protect her newborn baby if need be. Aggressiveness is an aspect of maternal love. It is also well known that the baby has its own survival mechanisms during the last strong expulsive contractions, and releases its own hormones of the adrenaline family. A rush of noradrenalin enables the fetus to adapt to the physiological oxygen deprivation specific to this stage of delivery. The visible effect of this hormonal release is that the baby is alert at birth, with eyes wide open and dilated pupils. Human mothers are fascinated and delighted by the gaze of their newborn babies. It is as if the baby was giving a signal, and it certainly seems that this human eye-to-eye contact is an important feature of the beginning of the mother and baby relationship among humans.

 The highly complex role of hormones of the adrenaline-noradrenalin family in the interaction between mother and baby has not been studied for a long time. A small number of animal experiments open the way to further research. Mice who lack a gene responsible for the production of noradrenalin leave their pups scattered, unclean and unfed - except if they are injected with a noradrenalin-producing drug when giving birth.

 From the hormonal perspective it appears clearly that sexuality is a whole. In all the different episodes of our sexual life the same hormones are released and similar scenarios are reproduced. For example, during sexual intercourse, both partners – male and female – release oxytocin and endorphins. It is the beginning of an attachment that is following the same model as the mother–baby attachment during the hour following birth.

 Our current knowledge about the behavioral effects of different hormones involved in the birth process helps us to interpret the concept of a sensitive period introduced by ethologists. It is clear that all the different hormones released by the mother and by the baby during labor and delivery are not eliminated immediately. It is also clear that all of them have a specific role to play in the later interactions between mother and baby.

# Perspective three. The perspective of ethologists

#  Ethologists observe the behaviors of animals and human beings. They often study one particular behavior in a number of unrelated species. They were the first scientists who claimed that, in terms of mother-newborn attachment among birds and mammals, there is a short yet crucial period immediately after birth that will never be repeated. Harlow studied in particular the process of attachment among primates.

#  The importance of the ethological approach is gradually emerging after the recent discovery of the behavioral effects of hormones involved in the birth process.

An ethological study of the first hour following birth among humans is difficult because the physiological processes are routinely disturbed. However it is possible in unusual circumstances. Imagine a woman who gave birth in her own bathroom while her husband was shopping. She is in a very warm and quite dark place. She does not feel observed at all. However from the crack of the door you can catch a glimpse of the scene now and then. By combining what you learnt from different stories like that, you’ll be in a position to describe a quite stereotyped behavior. First the mother looks at her newborn baby between her legs. After a while she dares to touch her with her fingertips. Then she becomes more and more audacious and wants to hold her baby in her arms. At that time most women are as if fascinated by the baby's eyes.

# Perspective four. The first hour as the beginning of lactation

#  Not long ago nobody would have considered the first hour following birth as the time when lactation is supposed to start. Imagine a baby born at home a century ago. The cord was cut right away. Then the baby was washed, dressed and shown to the mother before being put in a crib. An anecdote can help us realizing how recent is this perspective. In 1977, in Rome, at a ‘Congress of Psychosomatic, Gynaecology and Obstetrics’ I presented a paper about ‘the early expression of the rooting reflex’. I was simply describing the conditions so that the baby can find the breast during the hour following birth. None of the obstetricians and pediatricians present at this session could believe that a human baby is able to find the breast during the hour following birth.

#  Today most midwives know that the human baby is as if programmed to find the breast during the hour following birth. Moreover one can understand that, in physiological conditions, when the newborn baby is ready to find the breast, the mother is still in a particular hormonal balance. She is still “on another planet”. She is still very instinctive. She knows how to hold her baby. Among humans breastfeeding is potentially instinctive… during the hour following birth. After that there is room for education, imitation and even technique.

# Perspective five. First hour and metabolic adaptation

# As long as the baby is in the womb the nutrients – particularly the vital fuel glucose - are provided in a continuous mode via the cord. Immediately after birth the baby must adapt to a discontinuous supply. The remarkable ability of the neonate to respond to significantly low glucose value has been studied in depth by M Cornblath in the USA, and by Jane Hawdon, Laura Derooy and Suzanne Colson (a midwife writing for Midwifery Today) in the UK.

# Perspective six. The bacteriological point of view.

 At birth, a baby is germ-free. An hour later there are millions of germs covering her mucous membranes. To be born is to enter the world of microbes. The question is - which germs will be the first to colonize the baby's body? Bacteriologists know that the winners of the race will be the rulers of the territory. The germ environment of the mother is already familiar and friendly from the perspective of the newborn because mother and baby share the same antibodies (IgG). In other words, from a bacteriological point of view, the newborn human baby urgently needs to be in contact with only one person - her mother. If we add that early consumption of colostrum will help establish an ideal gut flora there is no doubt that, from a bacteriological point of view, the hour following birth is a critical period with life long consequences. Our gut flora can be presented as an aspect of our personality that cannot be easily modified later on in life.

Perspective seven. Starting up the process of thermoregulation.

# While in the womb the baby never had any opportunity to experience differences in temperature (apart from possible episodes of maternal fever). Once more, the first minutes following birth appear as an interruption of continuity. As the mechanisms of thermoregulation are not yet mature at birth there are theoretical reasons to be worried about the cases of maternal hyperthermia during labor that are induced by an epidural anesthesia or a too hot bath. Such situations might challenge in a dangerous way the thermoregulation of the baby by exaggerating the differences of temperature between the intra- and the extra-uterine environments.

# Perspective eight. Adaptation to gravity.

# During the first hour a new relationship to gravity is established. Suddenly the vestibular nerve, which serves equilibrium, is carrying to the brain an unprecedented flood of impulses from the semicircular canals, utricles and saccules.

# Perspective nine. The ethnological approach

 Ethnology has established itself as a science by publishing data bases. Today its material on pregnancy, childbirth and the first days following birth can be located rapidly.

 One way or another, all cultures disturb the purely physiological process in the period surrounding birth. Through the ethnological approach it is possible to study the main characteristics of different cultures in relation to how babies are born.

 Most cultures disturb the first contact between mother and baby during the hour following birth. The most universal and intriguing way is simply to promote a belief, such as the belief that colostrum is tainted or harmful to the baby - even a substance to be expressed and discarded. Such a belief implies that, immediately after birth, the baby must not be in her mother’s arms. This implies rituals such as the ritual of cutting immediately the cord. The first contact between mother and baby can be disturbed through many other rituals: bathing, rubbing, tight swaddling, foot binding, "smoking" the baby, piercing the ears of the little girls, opening the doors in cold countries, etc.

 It would take volumes to present a comprehensive study of the characteristics of a great number of cultures in relation to how they challenge the maternal protective instinct during the sensitive period following birth. However a simple conclusion can be drawn from a rapid overview of the data we have at our disposal: the greater the social need for aggression and an ability to destroy life, the more intrusive the rituals and beliefs are in the period surrounding birth.

 If disturbing the first contact between mother and baby and promulgating such excuses as the belief that colostrum is bad are so universal, it means that these behaviors have carried evolutionary advantages.

 After taking into account and combining all the perspectives that indicate the importance of the hour following birth, and after referring to perinatal rituals and beliefs, we are in a position to claim that the cultural milieus are to a great extent shaped during the hour following birth. Now we can consider the hour following birth in the context of our modern societies.

# Perspective ten. The obstetrical approach

#  All these considerations were necessary before looking at the hour following birth in the context of our modern societies. In our societies the cultural control of childbirth is mostly a medical control.

 From the medical literature and from the text-books it appears that, in obstetrical circles, the question is: ‘How to manage the so-called third stage?’ Medical journals periodically publish prospective randomized controlled studies comparing different ways to ‘manage’ the third stage. The only objective is to evaluate the risks of postpartum hemorrhage. These studies are conducted in the context of large obstetrical units, in an environment where most women cannot reach the right hormonal balance and often need drugs and interventions. All research protocols use a negative definition of ‘expectant management’ (e.g. no use of uterotonic drugs and no clamping of the cord). The factors that can positively facilitate the release of oxytocin are not included in the protocols. The results of such trials have lead to routinely inject oxytocic substances to all mothers at the very time of the birth of the baby. Such substances block the release of the natural hormone; furthermore they have no behavioral effects. The effects of these obstetrical routines must be considered in terms of civilization.

 I have been given an opportunity to comment on one of these studies and to analyze some of its weak points in a mainstream medical journal.

Perspective eleven. The midwifery approach.

 Certain midwives can still practice ‘authentic midwifery’. This means that they are not the prisoners of strict guidelines and protocols. They can play their role of protectors of the physiological processes. Immediately after the birth of the baby the main preoccupation of such midwives is the release by the mother of a high peak of oxytocin, which is necessary for a safe delivery of the placenta and which is the hormone of love.

 They first make sure that the room is warm enough. During the third stage women never complain that it is too hot. It they are shivering, it means that the place is not warm enough. In the case of a home birth, the only important tool to prepare is a transportable heater that can be plugged at any place and at any time, and that can be used to warm up blankets or towels. Their other goal is to make sure that the mother is not distracted at all while looking at the baby’s eyes and feeling the contact with the baby’s skin. There are countless avoidable ways of distracting mother and baby at that stage. The mother can be distracted because she feels observed, or guided; or because somebody is talking; or because the birth attendant wants to cut the cord before the delivery of the placenta; or because the telephone rings; or because a light is suddenly switched on, etc. At that stage, after a birth in physiological conditions, the mother is still in a particular state of consciousness, as if ‘on another planet’. Her neocortex is still more or less at rest. The watchword should be: ‘Don’t wake up the mother!’

# Perspective twelve. A political note

#  It makes sense that studying the third stage of labor from non medical perspectives makes many people – particularly doctors – feel uncomfortable. Any approach that might lead to reconsider our attitudes during this short period of time is shaking the very foundations of our cultures. Research can be politically incorrect. Politically incorrect research includes certain aspects of ‘Primal Health research’, particularly studies exploring the long term consequences of how we are born. The findings of important such studies about topical issues (e.g. juvenile criminality, teenager suicide, drug addiction, anorexia nervosa, autism, etc.) are shunned by the medical community and the media, despite their publication in authoritative medical or scientific journals. Politically incorrect research leads to ‘cul-de-sac epidemiology’.

 Michel Odent

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