

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

DRUGS IN PREGNANCY AND LABOUR -
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A Paper presented by Beverley A Lawrence Beech to the Midwives Alliance of North America Conference on the 12-15th November 1998

Childbirth is a normal physiological event for the majority of women and babies. As a species we have been spectacularly successful. However, since near universal hospitalisation, for the majority of women in developed countries, childbirth has become a medical event, where pregnancy and labour are processed, monitored and controlled by the protocols and policies of the medical profession from beginning to end. This came about through a system of childbirth care which was planned and controlled by medical experts. In the C17th childbirth was not considered a medical event and doctors were only involved when childbirth became complicated. Over the centuries, and with the urbanisation of the population, which enabled doctors to establish lying-in hospitals and thereby have a captive group of women on whom they could carry out research, the medical profession became more interested in controlling childbirth. This can be best achieved by having large, centralised, maternity units.

Although many women understand the benefits of a normal birth and see pregnancy and birth as a normal process, few women giving birth in large centralised medical establishments will experience a normal birth and many will find themselves and their babies subjected to a whole range of powerful drugs and medical procedures. Women, allegedly, give informed consent for their use. The reality, however, is that the majority of women have little information about drugs in labour. Drugs are often offered by the staff as a replacement for good support from a midwife who should be with the woman throughout her labour and be able to counteract the fear or anxiety she may feel as a result of being in an alien/hospital environment surrounded by strangers and where she has little real control.

The propaganda promotes the "advantages" of drug use, but little is said about the disadvantages. Particularly the long-term effects, and it is those effects that are addressed in this article.

Thalidomide

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

All drugs have unwanted effects, some more serious than others. In the 1950s and 60s thousands of babies, all over the world, were born with severe limb abnormalities; as a direct result of their mothers having been prescribed thalidomide, to reduce nausea, during their pregnancies. It took ten years for researchers to establish that thalidomide was to blame; despite the children suffering gross abnormalities of their limbs. Meanwhile, the medical profession, and the drug companies, vigorously denied any connection. How long would it have taken had the abnormalities been subtle?

Now, however, there is a suspicion - disputed by some doctors - that thalidomide has reached a second generation (Driscoll M, 1995) Of 386 babies born to the original thalidomide damaged children, eight are malformed with deformities which are suspiciously similar to the deformities suffered by their parents. Some doctors argue that the parents had been wrongly diagnosed as suffering from a thalidomide induced abnormality, they suggest the parents had a misdiagnosed congenital abnormality which the children have now inherited.

Diethylstilboestrol (DES)

During the 1940s and 50s the drug diethylstilboestrol was given to pregnant women in the belief that it could prevent miscarriage. Unfortunately, it was widely adopted, particularly in the United States, before any randomised clinical trial was conducted to show whether it was effective. When such a trial was eventually done the drug was shown not to work. Nonetheless, some doctors continued to use it. The time bomb effect came to light in 1971 with the publication of a paper which revealed that a cluster of young women in one town had developed an unusual form of cancer - clear cell carcinoma of the vagina (Herbst, 1971). Had they developed a more common cancer (squamous cell cancer of the cervix) it would have been much less likely that the link would have been made. These women also had other problems, such as abnormalities of the genital tract, some of which have led to problems giving birth. However, more subtle long-term effects were only discovered when British researchers (Vassey et al, 1983) studied the now grown-up offspring of women who had been involved in a randomised clinical trial (half had been given diethylstilboestrol when pregnant, the other half were controls and, therefore, were not given it) and found that psychiatric disease (especially depression and anxiety) was about twice that of those who had not taken the drug.

Further studies have shown that 40% to 50% of DES exposed daughters have pronounced uterine structural abnormalities; and increased risks for ectopic pregnancy, miscarriage and premature birth. Infertility has also been reported in the exposed daughters (Senekjian, 1988) and diminished fertility in the sons (Stillman, 1982)

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

More than four to eight times as many of the DES exposed children went on to have tubal pregnancies than the unexposed. A quarter of all pregnancies among the DES exposed children went on to miscarry compared with the normal 10% rate. Premature birth occurred in three times as many babies (15% of the DES exposed as those of the non-exposed) (Appleford, 1994).

For DES exposed sons, adverse effects included testicular abnormalities, undescended testes, sperm abnormalities and low sperm counts. (Stillman, 1982) Exposed children were significantly more likely to have serious mental illness and boys were less likely to have married.

We suggest that many of the non physical, but serious adverse effects, would not have been identified but for the fact that exposed girls had developed a particularly unusual cancer.

In the USA the grand-daughters of women given stilboestrol in pregnancy are now suing for injuries they suffered because of alleged stilboestrol-induced abnormalities in the genital tracts of their mothers who were exposed in the womb. This is an example of how damage may be transmitted from generation to generation. One would have expected, therefore, that the medical profession would be particularly careful about using drugs in pregnancy and labour.

Pethidine (Demerol)

One of the most common drugs used in the labour ward is pethidine. It is a synthetic, addictive, narcotic drug which is similar to Morphine. It is also known as Meperidine and, in America, Demerol. It has become the drug of first choice for the majority of midwives, mainly because it is the only pharmacological narcotic which midwives are licensed to prescribe.

Women often find it very difficult indeed to cope with the increased pain caused by fast drug induced or accelerated labours and, commonly, they will be given a dose of 150mg of pethidine, yet those midwives who use pethidine sparingly often give a much smaller dose (e.g. 25mg) and claim it is just as effective.

Researchers from Stockholm, however, found that pethidine did not relieve labour pain and commented that "*it seems unethical and medically incorrect to meet the parturient's request for analgesia by giving her heavy sedation*" (Olofsson et al, 1996)

It has been suggested that if pethidine came into the market now it would be rejected as a form of pain relief in labour because of its high rate of ineffectiveness and its serious adverse effects.

Adverse effects in babies

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

An intramuscular injection of pethidine acts on the mother within 20 minutes and readily crosses the placenta. The baby has greater sensitivity to the drug than an adult, because of the immaturity of the blood-brain barrier and the circulatory bypass of the liver (Burt, 1971). Before the birth the mother's liver processes the drug, but if any of the drug remains the baby's immature liver has to take over this processing once the baby is born.

Most midwives try to ensure that pethidine is not given if the baby is expected to be born within an hour, because of the risk that the drug will still be present in the baby's system at birth. However, research shows that pethidine is most likely to cause breathing difficulties if the drug is administered two or three hours before birth. The higher the dose to the mother the greater the effect on the fetus (Yerby, 1996). As the baby's liver is immature, it takes a great deal longer for the baby to eliminate the drug from its system (usually 18-23 hours) although 95% of the drug is excreted in 2-3 days. This can have a significant implications for breast feeding. Babies suffering the effects of pethidine are often drowsy and unresponsive and researchers have demonstrated that *'Pethidine proved to be the (drug) most inhibiting to breast feeding'* By breast feeding, the mother, often unknowingly, gives the baby a second dose of pethidine as the drug is transferred to the baby through the breastmilk (Rajan, 1994). She may not be aware that pethidine is the cause of her 'sleepy' baby and her problems getting the baby latched on.

Little research has been done into the long-term effects of pethidine. However, it has been shown that infants with high pethidine exposure were more likely to cry when handled on days 7, 21 and 42, as were those with a high cord blood concentration on day 21. Pethidine also reduced the infant's ability to quiet himself once aroused and this effect can last for up to six weeks (Belsey, 1981). The researchers only investigated this far and it is interesting that researchers consider three to six weeks to be 'long-term', when our definition would be in years.

For those babies whose breathing is depressed naloxone is given to reverse pethidine's effects, but the reversal is only temporary unless it is given in an adult dose (Weiner, 1977). We know of no research which investigates the short or long-term effects of naloxone on the baby.

Adverse Effects in the Mother

One of the criticisms AIMS' members have consistently made of obstetrically managed births, is that once the woman is deemed to be in labour there is pressure to deliver all babies as quickly as possible; yet there is no research showing a fast birth is of benefit to either the mother or the baby. We know of no study which asked women whether or not they wanted a faster but more painful labour; or of any studies showing that it was beneficial to babies to have a fast labour. Ironically, a study by Thomson and Hillier (1994) showed that

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

women who had pethidine during labour had labours which lasted four hours longer than women who did not have this drug.

It is extremely difficult to assess the level of pain a woman is experiencing because different women react to pain in different ways. Interestingly, when a woman does not experience pain relief from pethidine, or other drugs, she will often be told that she has a '*low pain threshold*'. The problem is attributed to women rather than seen as a failure of the drug to act effectively, despite the fact that pethidine is known to be an ineffective form of pain relief. In a survey of pain relief in childbirth (Chamberlain, 1993) 84% of midwives rated pethidine as very good or good, compared with only 71% of women and 72% of partners. The authors speculated that: "*perhaps the drowsiness of the woman following the administration of pethidine is associated with effective pain relief by the midwife?*" From the woman's perspective, pethidine has been described as causing a loss of control, disorientation, dizziness and as one mother described it: "*I felt that my brain had gone out to lunch. I could not put a sentence together, but it did nothing for the pain - it just shut me up*".

Women who end up with caesarean sections have often experienced induced and accelerated labours; because this type of labour is more painful, women usually need pharmacological pain relief. Pethidine will be one of the drugs they are most likely to have been given during their labour. However, pethidine delays maternal gastric emptying and, together with sedation, increases the risk of aspiration (breathing in the stomach's contents) and thus the danger to the woman of general anaesthetic if a caesarean operation is advised (Olofsson, 1997).

Chamberlain's Study *Pain and its Relief in Childbirth* (1993) found that, for the woman, pethidine came bottom of the list in terms of adequate pain relief, satisfaction with labour, feeling in control of labour and birth and being in good physical and mental health afterwards. Women who had been given pethidine were least likely to want to use it in future births.

Epidural anaesthesia

The latest research paper (revealing the inadequacy of pethidine's pain relieving effects) instead of urging non-pharmacological methods of pain relief (for example, the wider use of water pools) suggests that epidural anaesthesia should now be widely available (Olofsson, 1996). Evidently, there are few professionals who are worried about the adverse effects of this drug.

Researchers in the UK (Rosenblatt et al, 1981) published a six-week follow-up of the effects of epidural anaesthesia, which showed that immediately after birth, infants with greater exposure to bupivacaine (the drug used in epidurals) in utero were most likely to be cyanotic (suffering from a lack of oxygen) and unresponsive to their surroundings. Visual skills and alertness decreased

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

significantly particularly on the first day of life, but also throughout the next six weeks; these effects increased with greater amounts of the drug found in the baby's blood,. Adverse effects of bupivacaine levels on the infant's motor organisation, his ability to control his own state of consciousness and his physiological response to stress were also observed. Interestingly, this study considered six-week to be a "long-term", but we need to know what the long-term effects are at five, ten, twenty or fifty years? Before consenting to an epidural every woman should watch Lennard Righard's video which shows the startling difference in the behaviour of babies who have been exposed to epidurals compared with those who have not. The video was filmed to demonstrate how babies, when left to themselves, can wriggle up to latch onto the mother's breast. The video shows how the epidural exposed babies lie like beached whales on their mothers' bellies and are actually incapable of making the vigorous movements which were noticed in the undrugged babies.

Women who choose water for pain relief have been warned that a rise in the water temperature over 37°C could cause a rise in the mother's temperature and theoretically result in brain damage in the baby. There has been no research to support this suggestion. As a result, however, many UK hospitals have restricted access to water pools, although there has been not a single recorded case of such damage. However, research by Lieberman (1997) revealed that intrapartum (during labour and birth) fever greater than 100.4°F occurred in 14.5% of women receiving an epidural, and if these labours lasted longer than 18 hours the fever rates increased to 36%. As far as we are aware, not a single paediatrician has expressed concern about this risk. It is not always obvious to the distressed mothers that the unpleasant blood tests, lumbar punctures etc., that their newborns might have to endure in the Special Care Baby Unit (to rule out the possibility of an infection) or that their prolonged stay in the hospital was brought about because of their epidural induced fever in labour.

Brain development

Some parts of the brain are fairly well developed at the time a human being is born, but other parts are not. Some of them, particularly the cerebellum, are very under-developed, and the introduction of toxic substances during this period of rapid development, even for a single dose (it doesn't have to be a repeated administration) can either kill cells or cause alterations in the cells that are present. Cells proliferate in the cerebellum - and then migrate into their final position and link up with other cells. Both the rate of cell death and the patterns of migration of cells in the cerebellum have been shown to be very sensitive to the introduction of toxic substances (Brackbill Y, 1979).

In the human being, the period of vulnerability to central nervous system damage from exposure to drugs and chemicals lasts a long time. Even after birth, important areas of the brain are still developing and differentiating rapidly, because of this rapid period of growth they are most vulnerable to

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

damage and at highest risk. It has been estimated for example that the brain growth spurt in the cerebellum (the hind brain, situated above the area where the spine joins the cranium) lasts for eighteen months after birth and in the hippocampus, for about four and a half years.

Yvonne Brackbill in her submission to the Food and Drugs Authority, commented that at that time there had been at least 40 studies of neuro-behavioural changes in human infants that were observed after administration of anaesthetic and pre-anaesthetic agents to their mothers during labour and delivery. *"None has shown that drugs enhance or improve behavioural functioning in infants"* (Brackbill Y, 1979).

While the process of cell migration is not yet fully understood, present knowledge of neurobiology suggests that the normal biochemical message left along the pathway of the neuron by the preceding cell (as it travels to its proper place within the central nervous system) leaves a biochemical message along the pathway which directs the next brain cell into place.

Drug-induced biochemical alterations within the brain of the about-to-be born or new-born infant have the potential for permanently disrupting the normal link-up of the baby's brain cells by altering the biochemical markers which guide the cells into their proper places. It is somewhat similar to the unintentional spilling of a chemical over telephone wires which are being connected according to the colour code at the end of each wire. The chemical removes the colour from the wire ends. The technician must continue to connect the wires, not knowing exactly which wires to connect with which. The circuitry is completed: it functions, but imperfectly.

Desmond Bardon, (1984) a respected British psychiatrist, asked what prolonged exposure to the drugs given to a mother in labour might mean to the later neurologic development and behaviour of the offspring? Could it be that dyslexia is one of the results?

Drug addiction

When a baby is born to an undrugged mother and not whisked away to be washed, wrapped, and weighed, the baby will look around, respond to its mother's voice and seek her breast. If the mother and baby are not disturbed they will respond to each other and start the process of "bonding". Women who have drugs in labour are often unaware that the major reason their baby is unresponsive is because it is affected by the drugs which the mother had during the labour, and if the lights in the room are bright it will have its eyes tightly closed.

The effects of these drugs are not just their capacity to interfere with breast feeding or sleepy babies in the short term. In the developed world there is an

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

epidemic of behavioural problems, dyslexia and drug addiction. I suggest that one of the reasons for this - amongst others - is the over-use of powerful drugs in labour.

In the United States it appears that women who smoke or drink alcohol in pregnancy, can be publicly chastised. If they take heroin, or other street drugs, they can find themselves in jail or threatened with removal of the baby after the birth and even their other children as well. It is surprising, therefore, that so few people seem to be concerned about the powerful addictive drugs which are commonly used on the labour ward, and few appear even concerned enough to research the effects these drugs can have on the still-developing fetal brain and other long-term effects on women and babies.

There are plenty of studies examining the immediate effects of drugs in labour, but where are the studies examining the long-term effects, which can emerge, five, ten, twenty or even fifty years later.

We are a drug-centred society. The majority of the population uses prescribed drugs and a growing proportion also use illegal drugs. We could be sitting on a time bomb if we persist in ignoring the research because of the disturbing implications. No-one wants to admit that accepted practices might be creating drug addicts, for example; but that is what many childbirth activists, and some doctors and midwives, believe the over use of drugs in pregnancy and childbirth is achieving.

In a well designed case control led study at the Karolinska Institute in Stockholm researchers compared children exposed to pain relieving drugs in labour, with those who were not, and discovered an increased risk of drug addiction later in life (Jacobson B et al, 1990). In 1988 they showed that when a large dose of nitrous oxide was given to the mother the child was five and a half times more likely to become an amphetamine addict than a brother or sister born to the same parents (Jacobson B et al, 1988). In a more recent paper in the British Medical Journal they compared patients who had died from opiate addiction with brothers and sisters and found that if the mothers had had opiates or barbiturates or larger doses of nitrous oxide the risk of opiate addiction to the child in later life was increased by 4.7 times (Jacobson B et al, 1990). In a further study they discovered that the risk of drug addiction was related to the hospital in which the baby was born. In other words, the likelihood of a child becoming drug addicted in later life depended on the labour ward policies of the hospital his mother chose for the birth: "For the amphetamine addicts, hospital of birth was found to be an important risk factor even after controlling for residential area" (Nyberg K et al, 1993). Jacobson and Nyberg's research suggests that the use of opiates, barbiturates and nitrous oxide in labour causes imprinting in the babies, and we are now seeing the effects of this.

OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
HAVE TWENTY YEARS HENCE?

The US Department of Health and Human Services estimated that one out of every 9 American children is significantly learning disabled despite having normal intelligence. Seventy five percent of these children are born at full term into middle and upper class families. The National Institutes of Health, in the USA, estimate that 75% to 85% of all disabled children in the US were born within the normal range of birth weight and gestational age and had no familial or sociological predisposing factors. (Haire, 1989)

In 1984 Desmond Bardon suggested that a significant proportion of the millions of children and youths in the USA who are afflicted with significant mental and neurologic dysfunction are the victims of obstetric medications administered with the very best of intentions to the mother during labour and birth in medicalised maternity units (Bardon, 1984). Not only have his concerns not been addressed, but since that time even more women and babies have been, and continue to be, subjected to high levels of drugs in labour. Little has been done to investigate the possibility that the huge increases in drug addiction and associated crime is a direct result of the drugs used on the labour wards. As AIMS frequently points out, while various agencies work hard to pull the bodies out of the river, no-one is investigating who might be pushing them in upstream. It is time they did.

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OCCASIONAL PAPER
DRUGS IN LABOUR - WHAT EFFECTS WILL THEY
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OCCASIONAL PAPER
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HAVE TWENTY YEARS HENCE?

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