AIMS For a better birth...

Pethidine - A Little Shot Of Something Not So Nice

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Pethidine is a synthetic, addictive, narcotic drug which is similar to Morphine. It is also known as Meperidine and, in America, Demerol and was developed in Germany during the Second World War.

Since that time it became the drug of first choice for the majority of midwives, mainly because it is the only pharmacological narcotic which midwives are licensed to prescribe.*First Class Delivery the Audit Commission's Survey of Women's Views of Maternity Care* revealed that 42% of women were given pethidine or similar pain relief during their labour.

Commonly women are given a dose of 150mg, yet those midwives who use pethidine sparingly often give a much smaller dose e.g. 25mg and claim it is just as effective.

It is extremely difficult to assess the level of pain a woman is experiencing, different women react in different ways. Interestingly, when a woman fails to experience pain relief from pethidine, or other drugs, she will often be told that she has a "low pain threshold". I have yet to hear the problems described as a failure of the drug to act effectively. 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".

Length of Labour

A consistant criticism AIMS members make of obstetrically managed births is that there is pressure to deliver all babies as quickly as possible, as if this was a benefit to both mother and baby - we know of no study which asked women whether or not they wanted a faster but more painful labour.

In the rush to speed up labour, a woman's distress at the increased pain is often dealt with by giving a pethidine injection. Ironically, research by Thomson and Hillier revealed that unmedicated mothers had a first stage of labour whose mean length was 7.7 hours, compared with 11.7 hours in those mothers who received pethidine. Furthermore, an incidental finding in Rajan's research revealed that when the second stage of labour was longer than an hour there was no difference between those who received pethidine

and those who did not; but in the group of women who had second stages lasting less than an hour there were many more women who did not have pethidine (436 v 277).

Pethidine has a half-life (i.e. the length of time it takes the liver to break the drug down) of about five hours in the mother. The effect depends on the dose, the injection to delivery interval, the route of the injection, the timing, and whether the injections are repeated.

Women who end up with caesarean sections have often experienced induced and accelerated labours, and pethidine will have been one of the many drugs they will have been given during that time. However, pethidine delays maternal gastric emptying and, in concert with sedation, increases the risk of aspiration and thus the danger of general anaesthetic (Olofsson, 1997)

Effects on the Baby

Pethidine readily crosses the placenta. The baby may have greater sensitivity to the drug because of the immaturity of the blood-brain barrier and the circulatory bypass of the liver (Burt, 1971). Most midwives try to ensure that pethidine it is not given if the baby is expected to be born within an hour, because of the risk that the drug will being present in the baby. However, research shows that pethidine is most likely to have a depressant effect on the fetal respiratory system if the dose 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 to eliminate the drug from its system, 18-23 hours, although 95% of the drug is excreted in 2-3 days.

This can have a significant implications for breastfeeding. Rajan demonstrated that "pethidine proved to be the (drug) most inhibiting to breastfeeding". By breastfeeding, the mother, often unknowingly, gives the baby a second dose of pethidine as the drug is transferred to the baby through the breastmilk. She may not be aware that pethidine is the cause of her "sleepy" baby and her problems getting the baby latched on.

For those babies whose breathing is depressed at delivery, naloxone is given to reverse the 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.

Of those mothers who had no drugs in labour, 7.5% had a baby with an Apgar score (a method of measuring the fitness of a baby at delivery) of 7 or less at 1 minute, and 1% at 5 minutes. Those mothers who had pethidine 12.3% of their babies had Apgar scores of 7 or less at 1 minute, and 1.3% at 5 minutes (Chamberlain, 1997). An Apgar score of 7 or less is an indication of a depressed baby.

At a home birth conference in Sweden I spoke about midwifery practice in the UK. Midwives from Scandinavia and Belgium were horrified that UK midwives were using pethidine, it is banned at home births in their countries because of the risks of breathing problems in the babies.

Chamberlain's Pain and its Relief in Childbirth Study found that Pethidine came bottom of the list associated with enjoyment of labour, being in control of labour and delivery and with physical and mental

health afterwards. It was unlikely to be wanted for future delivery, most strongly associated with problems in the baby, side effects, temperament, and feeding difficulties. It gave low satisfaction for pain in labour and especially pain during delivery, was associated with poor physical and mental health in the mother after delivery and had a fairly low rating for enjoyment of labour and control.

Little research has been done into the long-term effects of pethidine. However, 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 this was still observed at three and six weeks (Belsey, 1981). It is interesting that researchers consider three to six weeks to be "long-term", our definition would be in years and the possible long term effects (i,e. on teenagers) of drugs in labour requires urgent investigation.

See also Pethidine - Advantages and Disadvantages, below.

References

- Belsey EM et al, *The influence of maternal analgesia on neonatal behaviour: I. Pethidine*, BR J Ob Gyn, April 1981, vol 88, pp398-406.
- Burt, RAP, *The fetal and maternal pharmacology of some of the drugs used for pain relief in labour*, Br J Anaesthesia, 1971; 43: p824-836.
- Chamberlain, G, Wraight A and Steer P (Eds). *Pain and its Relief in Childbirth. The results of a national survey conducted by the National Birthday Trust*, Churchill Livingstone, 1993.
- Rajan, L, *The impact of obstetric procedures and analgesia/anaesthesia during labour and delivery on breastfeeding*, Midwifery, Vol 10, No2, Jun 1994, pp87-100.
- Reynolds, F and Crowhurst, JA, *Opioids in labour - no analgesic effect*, Lancet, Vol 349, Jan 1997, p4-5.
- Thomson AM, Hillier VF, *A re-evaluation of the effect of pethidine on the length of labour*, Journal of Advanced Nursing, Vol 19, No3, Mar 1994, pp448- 456.
- Wiener, PC, Hogg, MIJ and Rosen, M, *Effects of naloxone on pethidine- induced neonatal depression*, BMJ, 1977; ii, p228-231.
- Yerby M. *Managing pain in labour - Part 3: pharmacological methods of pain relief*, Modern Midwife, May 1996, p22-25.

Pethidine - Advantages and Disadvantages

Advantages	Disadvantages
• Only 71% women describe it as "good"	Ineffective painkiller
Can be an effective muscle relaxant if used before 5cm dilation	Can make you feel disorientated

- Delays maternal stomach emptying
- Causes nausea and vomiting in 1 in 6 women
- Drowsiness
- Dizziness
- Loss of control
- Depresses breathing mechanisms in the baby
- Depresses the baby's sucking reflex
- Passes though breastmilk
- Long term effects on the baby
- Know to be an addictive drug