AIMS For a better birth...

Research Roundup

By Jean Robinson

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Effects of Drug on Breastfeeding

When mothers are given fentanyl (a narcotic drug) for pain relief in labour, it reduces the chance of a baby being breast fed. And the bigger the dose, the less chance there is of the baby having breast milk.

A team of researchers in Swansea looked at hospital records for 425 women who had a healthy first baby in Singleton Hospital in the year 2000. They wanted to see if pain relieving drugs given as injections, or by epidural and spinal anaesthetics, affect the chance of the babies being breastfed when they left hospital.

More than a third of the women had oxytocin in labour (37%), presumably to intensify and speed up labour. Only 6 women in the entire group (1.4%) had no pain relief. Most women (83%) had nitrous oxide at some time (gas and oxygen) though only 15% of the whole group had this as their only means of pain relief - most had other methods as well.

Half the women had injections of opioid drugs (216 women) and 92 of those also had epidurals or spinals.

More than half the women - 55% - had an epidural or spinal anaesthetic (323 women). For 74 women this contained a local anaesthetic, but for most (158 women) it contained an opioid drug - diamorphine and morphine were particularly used for emergency sections. Ten women had a general anaesthetic.

When they left hospital 55% of women were wholly or partly breastfeeding. The chance of a baby getting breastmilk was affected by the medication the mother had had. If mothers had had only nitrous oxide and oxygen, only a third of the babies were bottle-fed. If they had an opioid injection as well, 42% were bottle fed. If they had had epidurals/spinals with local anaesthetic, 44% were bottle fed, with fentanyl 55% and with diamorphine 64%.

Three women had intravenous fentanyl; none breastfed. When these were added, there was a stronger association between that drug and failure to breastfeed, and it was the one drug where researchers could

show that the bigger the dose was, the stronger the relationship.

Of course other factors affect breast feeding - like what the mother intends to do, and her social class. But fentanyl had the most marked effect on those most likely to succeed in breast feeding - women in higher social groups wanting to breast feed. Their chance of bottle feeding went up by 63%. Failure to breast feed is not usually measured as an adverse drug reaction. None of the babies in the study had respiratory depression from drugs, and the authors suggest that in lower concentrations opioid drugs like fentanyl may have subtle effects on the central nervous system. We know drugs like fentanyl and diamorphine reach the baby in the womb very quickly and can affect behaviour, and babies are slower than adults at clearing them from the body.

The proportion of women getting opioid drugs in epidurals and spinals is increasing. Changing the drug inserted to local anaesthetic could improve breastfeeding rates. AIMS Comment: This is a very useful study. Now mothers have to think not only about whether or not they agree to an epidural, but also to ask about the drug being used, and the dose. It is ironic that as everyone tries to improve breastfeeding, drugs which could reduce it are being used more and more. Mothers who intended to breast feed - and could have done so - are left with a feeling of failure. None of the babies who were bottle fed when they went home in this study were later changed to breast. This suggests that with the right community care, an opportunity to breast feed may still be there, since the drug has worn off. But such support, as we know, is often not there.

Reference

- Jordan Sue, Emery Simon, Bradshaw Ceri et al. The impact of intrapartum analgesia on infant feeding. BJOG 2005 vol 112 927-934.

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Baby's Stress from Birth

A study of firstborn babies at Queen Charlotte's Hospital in London has shown that babies who have a vaginal birth have a higher level of stress hormones than those born by caesarean - and this difference still existed two months later when they were vaccinated.

Cortisol is a hormone produced by the body in response to stress. Studies on rats and guinea pigs have shown that producing higher cortisol levels from birth stress is not just a short-term effect: it can programme the way the body's endocrine system responds to stress in later life.

Cord blood was collected from 172 babies. One third had normal births (i.e. vaginal birth without assistance), 20% had had assisted births (forceps or ventouse) and 47% were delivered by caesarean (half emergency, half elective.) One third of the women had been induced with prostin, just over half had had

oxytocin to intensify labour, and 89.5% had had epidurals or spinals.

Samples of cord blood were taken for analysis. Seventy nine of the women agreed to come back two months later, when samples of saliva were taken before and after babies were given routine vaccinations to measure cortisol levels.

Analysis of the cord blood showed that the level of cortisol varied with the type of birth. Babies who had any kind of vaginal birth had higher cortisol than those who had elective or emergency caesareans. Babies whose mother had an epidural or spinal had lower cortisol levels than those whose mother had had no analgesia or had used Entonox. When the baby had meconium (faeces excreted before birth) in the fluid around it, cortisol levels were raised - the thicker the meconium the greater the rise.

None of the babies born by elective (i.e. pre-planned) caesareans had high cortisol levels, but some of those who had an emergency section did - and the longer the labour they had experienced before birth, the higher the cortisol. So labour itself, not just the way it entered the world, affected the baby's stress hormones. A long second stage also increased cortisol level. The researchers did not find that prostaglandin induction or syntocinon affected cortisol levels.

When the babies came back at two months there was at first no difference in their cortisol levels in their saliva. But the second samples taken after vaccination showed that those who had the highest cortisol level at birth had the greatest rise in response to the stress.

The authors comment that some stress at birth is probably beneficial, but too much might be harmful. Both the immune system and future mental health could be affected by cortisol levels.

AIMS Comment

This is the latest in a series of studies on this subject. Once again the definition of "normal" vaginal delivery (which includes induction, augmentation with oxytocin and epidurals) raises consumer hackles. The figures on intervention rates show what may be normal care in British hospitals.

This is an interesting area of research which we need to keep an eye on. Mammals were designed to emerge through the vagina, so presumably being programmed to respond to stress at birth is right for us. If that is so, elective caesarean babies might be disadvantaged in some way in later life by their lack of stress response. The apparent lack of effect found for prostaglandins and oxytocin is surprising - those intense frequent contractions certainly can affect the baby's heart rate. Perhaps the shortening of labour counteracts the effects of intensity. Or maybe the epidurals they are more likely to need for the intensity of the pain, quieten the baby down, since, as they point out, fentanyl can suppress the baby's cortisol response - as well as the mother's cortisol response.

Reference

- Miller N.M., Fisk N.M., Modi N, Glover V. Stress responses at birth: determinants of cord arterial cortisol and links with cortisol response in infancy. BJOG 2005 vol 112 pp 921-926.

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Postnatal Bladder Care - Need for Action

Not being able to pass urine is a common problem after women have had epidurals in labour. If there is a problem and it is not dealt with promptly, over-distension of the bladder can lead to long-term problems.

Doctors from Oxford and Milton Keynes wrote to 189 midwifery units in England and Wales asking for their policy for bladder care of women in labour and after birth - e.g. the frequency of use of catheters with spinals and epidurals, checks made to measure how much urine was left in the bladder after women had passed water etc. They found a wide variation.

The RCOG recommends that no woman should be left more than 6 hours without passing water or being catheterised, but less than a quarter of the units complied with this. There were not clear guidelines to implement input-output charts, measure volume and check the volume left in the bladder before women were catheterised.

Checking this volume after women have peed is the best way of checking whether something is wrong. It can be done by a scan or inserting a catheter. Unfortunately scans, while non-invasive, have only 10% accuracy, and putting in a catheter causes discomfort to the woman and can introduce infection.

Research showed that 88% of units used indwelling catheters when caesareans were done with an epidural or spinal. 18% of units used them after a forceps or vacuum delivery, 24% after repair of a third-degree tear, and 19% after manual removal of the placenta. The length of time catheters stayed in varied from 6 to 24 hours. Almost half the units did not specify conditions to be met before removal, whereas others specified no blood in urine, the patient should be mobile, or that volume of urine was satisfactory. If the patient had been catheterised, nearly half the units measured volume of the first void after it was removed, and a third of them recorded the interval beforehand. Most units did not measure the volume left after the woman had peed, and this is the best way to check if there is a problem.

After a normal birth, only a quarter of units measured the volume of urine passed, whereas 61% merely recorded whether the patient had passed urine without measuring it. 13% of units had no protocol for this.

Follow up for patients with problems was mainly referral to physiotherapists, continence advisers or specialist urogynaecologists. Only one maternity unit knew the incidence of urinary retention.

The authors stress the important of bladder care, but because of the lack of evidence-based guidelines, there is a wide variation in care. There is a need for further research

AIMS Comment

Researchers who simply collect data on the situation which exists often do a very important job, though sadly they often get less praise and kudos than those who do randomised trials. We were particularly interested in this study because women's complaints about bladder care after birth seem to be increasing in our complaints files. This may be part of the increasing number of complaints we are seeing about postnatal hospital care anyway, which sometimes amounts to scandalous neglect. Postnatal care has always been a standard subject of dissatisfaction, from the earliest surveys which were done on women's views, so the apparent worsening of the situation we are seeing is positively dangerous. The shortage of midwives and pressures on the service are probably the primary cause. In some hospitals the apparent allocation of the least satisfactory staff to the postnatal ward may be making an additional contribution.

We shall be watching this carefully.

Reference

- Zaki M, Pandit M, Jackson S. National survey for intrapartum and postpartum bladder care: assessing the need for guidelines. BJOG 2004, vol 111: pp 874-876.

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Unethical Research

At the end of two research papers from Sweden[12], two midwives and a nurse are thanked for helping the authors to carry out renal biopsies (inserting a needle and taking two tissue samples from a kidney). How could the helpers know that the research they were assisting was unethical? After all, it had been approved by the local ethics committee at the respected University Hospital of Lund. The authors were doing biopsies on healthy pregnant women solely for research purposes, to compare them with women with pre-eclampsia. But even the biopsies taken from the sick women were not going to help their treatment - though they might advance medical knowledge. The prestigious journal which published the results, the British Journal of Obstetrics and Gynaecology (now known as the BJOG) was condemned by an international group of doctors for doing so.

I must confess I had missed the papers when they appeared. Titles like "serum cystatin C reflects

glomerular endotheliosis" don't exactly grab the lay reader. But I was led back to them by a flurry of protest in the correspondence columns last year from doctors in London, Chicago, Ottawa and Australia[3] who said the studies would not in any case help women with pre-eclampsia, and that the subjects had not been fully informed about the severity and frequency of possible damage. Indeed one of the women with pre-eclampsia needed a blood transfusion, had a placental abruption, and had a haematoma which took two months to resolve. In any case, the objectors said, to use healthy pregnant women in non-therapeutic research which put them and their babies at risk was totally unethical.

The authors sent a long reply, defending what they had done and said the procedure had low risks in their unit. The editor admitted that he had been surprised the ethics committee had approved the study[4]. However, the journal relied on ethics committees to take such decisions - though in this case they had sought a second opinion from a doctor with experience in medical ethics who approved publication. But the editor said he was sorry he had not added a commentary at the time.

Can We Trust Researchers?

On the other side of the Atlantic the Editor of the American Journal of Obstetrics and Gynaecology has retracted two papers from France they published last year, because the authors have now admitted they had lied when they said they had ethical approval[5].

In themselves the papers do not seem to have serious problems which would worry an ethics committee. One, by obstetricians from the Antoine Beclere Hospital in Clamart, involved sending questionnaires to patients who had different treatment for heavy bleeding asking about urinary problems, to compare outcomes[6]. In the other the same group plus a urologist from Kremlin-Bicetre, did a randomised trial comparing two types of tape for treating stress incontinence[7]. All patients gave written informed consent.

Both papers say "ethics approval was obtained from the local Ethics committee". In fact it had not been approved by the only French committee authorised to give approval the Consultative Committee for Patients Protection in Biomedical Research. This is required by French law - which was news to us.

Can We Trust Journals?

This is an ironic contrast. The American Journal retracts what looks like perfectly reasonable research from France because the authors had not obtained proper ethics approval and had lied about it. (It is unclear whether the local hospital had set up its own ethics committee without legal standing). The British Journal defends publication of what is, by any reasonable standard, unethical research because the local Swedish ethics committee had approved it. I sat for several years on two local ethics committee, and a Multi-Centre Research Ethics Committee. I cannot imagine any of them approving the Swedish research.

Part of the defence for patients is that if researchers do unethical research, academic journals will not

publish it, so it does not see the light of day, and the results are not accepted in the medical community. It was not the doctors in Nazi Germany alone whom we blame for the experiments they did on Jews, Gypsies etc, but respectable journals which published it and the academic community which welcomed and used the results.

References

1. Strevens, H, Wide-Swensson D, Grubb A et al. Serum cystatin C reflects glomerular endotheliosis in normal, hypertensive and pre-eclamptic pregnancies. BJOG 2003 vol 110 pp 825-830
2. Strevens H, Wide-Swensson D, Hansen A et al. Glomerular endotheliosis in normal pregnancy and pre-eclampsia. BJOG 2003 vol 110 pp 831-836
3. Correspondence BJOG 2004 vol 111 pp 191-195
4. Thornton J. Editor's reply. BJOG 2004 vol 111 p 195
5. The Editors. Comment on notice of retraction. Am Journ. Obs Gyn 2005 vol 192 p. 339
6. de Tayrac R, Chevalier N, Chauveaud-Lambling A, et al. . Risk of urge and stress urinary incontinence at long-term follow-up after vaginal hysterectomy. Am Journ Obs Gyn 2004 191 pp 90-4
7. de Tayrac M, Deffieux X, Droupy S, et al. A prospective randomized trial comparing tension-free vaginal tape and transobturator suburethral tape for surgical treatment of stress urinary incontinence. Am Journ Obs Gyn 2004 vol 190 pp 602-8

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