AIMS For a better birth...

Research Roundup

By Jean Robinson

AIMS Journal, Winter 2000/2001, Vol 12 No 4

- Breech babies - caesarean or vaginal birth?
- Drugs in labour and drug addiction
- Monitoring the baby - fetal pulse oximetry
- Home birth and lower IQ - the misleading headline

Breech babies - caesarean or vaginal birth?

A Canadian team from Toronto organised a large, international randomised trial for breech babies comparing planned caesarean section with planned vaginal birth for term babies. Over 2,000 women were involved at 121 centres in 26 countries, including the UK. Half the women were in countries with a high perinatal mortality rate, like India and Zimbabwe, and half in countries with low mortality rates, like Israel and Finland.

Just over half the women were expecting their first child. In only 20% had external cephalic version (trying to turn the baby round by pressing on the mother's abdomen) been attempted.

The obstetricians doing the vaginal "deliveries" in the study considered themselves to be skilled and experienced at this procedure. The authors said: "We confined the trial to centers that had (experienced) clinicians... since we wished to give the option of vaginal breech delivery its best, and perhaps last, chance to be proven a reasonable method of delivery."

Active management of labour was allowed. Around 15% of women had labour induced, and 48% had it speeded up with drugs. 25% had epidurals. In the event 43% of the women allocated to vaginal delivery ended up with a section - half of them because of failure to progress.

However, this percentage varied between countries with richer and poorer populations. In those countries with a low perinatal mortality rate (like the UK) more than half the "vaginal" group had a caesar, whereas in countries with higher perinatal mortality rate, around a third of the vaginal group were eventually sectioned.

Availability of high-tech care varied. Only 35% of babies were born in a hospital which was rated as having a "high" standard of care (i.e. they could do a caesarean within 10 minutes, usually had someone present to resuscitate, and had ventilation facilities)

Results

The risk of the baby dying or being seriously ill was statistically significantly lower in the planned caesarean group; 16 babies died - 14 of them in the group allocated to vaginal birth. Two of these had died in utero, probably before the women were enrolled in the study. 6 deaths were associated with difficult vaginal delivery. 5 of the 6 were in women giving birth to their first child. The other was a woman having her sixth child, which clearly had some abnormalities. In fact 10 of the 16 deaths in the trial were babies of primigravidae, though they were just over half the women in the study.

The death rate varied, as you would expect, between the developed and underdeveloped world. In those countries that already had a low perinatal mortality rate, none of the 514 babies allocated to caesarean section died, but there were 3 deaths in the 511 vaginal group. In poorer countries, 3 of 514 caesarean babies died, and 10 of the 528 vaginal babies.

When it came to injuries and complications, the caesarean babies again did better - 14 caesarean v. 39 vaginal. However, here there was a large difference in risk between more developed and less developed countries. There was a huge difference between comparative risk in areas with a low perinatal mortality rate (2 damaged caesarean babies v. 26 vaginal) and those with a high perinatal mortality rate (12 v. 13). So breech babies born vaginally in richer countries were twice as likely to be damaged as babies in poor countries. Unfortunately we do not have these figures by parity (i.e. whether or not it was the mother's first child.)

The combined risk of death or damage to babies was also looked at after excluding a number of risk factors, including prolonged labour, and induction or augmentation of labour, or absence of an experienced clinician. This reduced the total numbers dead or injured from 17 to 16 in the caesarean group and 52 to 23 in the vaginal group. Mothers attended by the most experienced clinicians - those with more than 20 years vaginal breech experience - had the lowest risk of a dead or injured baby (15 in the caesarean group - 19 in the vaginal group.)

Only one mother died - in the vaginal group - and probably from a cause unrelated to method of delivery. There was little difference in damage to mothers in the two groups, though it was somewhat higher in the caesarean group (41 women v. 33). Symptoms of psychiatric illness were not specifically sought in the trial, though 3 early depressions were reported in the caesarean group.

The conclusion is that "a policy of planned caesarean section is substantially better for the singleton fetus...breech...at term, with the benefits being greater in countries that are reported to have lower perinatal mortality rates."

AIMS Comment

This is a major study that is likely to affect the advice women expecting breech babies receive and it will never be repeated. It is therefore important to know what it shows, and what it does not.

These were obstetric births, with high levels of intervention in labour, with many women receiving oxytocic drugs (to stimulate the uterus). There has been no such study of outcomes with similar level practitioners (considering themselves confident in the procedure) of midwifery care.

We do see that almost all the deaths (5 out of 6) of babies dying because of difficult vaginal delivery occurred in women having their first child. This suggests the mortality from that cause in multips was low. Unfortunately figures for injuries to surviving babies - like cerebral haemorrhage, seizures, hypotonia, drowsiness, low Apgar scores - are not provided separately by parity, so we do not know if a breech baby being the firstborn adds to its risk of damage as well as death.

What is particularly intriguing is the much lower risk of injury to babies allocated to vaginal delivery in poorer countries compared with richer ones (5.1% v 2.5%) which could well be because clinicians there have more experience. Exactly what, if anything, are they doing differently? Could it be fewer inductions, augmentations and epidurals?

This smaller number of injuries is particularly noteworthy because only a third of their women ended up with a section, compared with more than half the women originally allocated to vaginal delivery in countries which have a low perinatal mortality rate - so countries like the UK got more injuries in a smaller number of babies.

Unfortunately the authors do not provide a separate analysis of outcomes for women with and without induction/speeding up of labour/epidurals, and it is these interventions that consumers are particularly asking questions about.

What we need to do now is:

1. Help and encourage those midwives with breech delivery experience to publish their statistics. Sadly their services and precious experience survive only outside the NHS.
2. Monitor treatment of pregnant women with breech babies to see that they have a choice and that browbeating and threats do not increase. Many obstetricians do not understand that "informed consent" does not exist unless there is a possibility of "informed refusal".
3. Ensure that advice on methods of encouraging change of fetal position, moxibustion and external cephalic version are widely available.
4. Ask Royal Colleges what they are going to do to keep vaginal breech training alive, since the highest risk of mortality (as the last CESDI report showed) is in undiagnosed breech babies, and they will continue to need care, and attendants who can cope with a vaginal delivery.
5. Persuade the RCOG and RCM to hold meetings at which experienced midwives can present their

data and describe their techniques for vaginal breech delivery.

Reference

- Hannah, M, et al, Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial, Lancet, 2000; 356: 1375-1383.

Return to top

Drugs in labour and drug addiction

Another study has confirmed the Swedish research which showed a relationship between women receiving pain relieving drugs in labour and their children having a greater risk of becoming drug addicts in later life.

In Rhode Island, USA, researchers have been following up over 4,000 children born from 1959-66. A previous study of psychiatric problems in these children had identified 69 who developed drug addiction problems. Using the same technique as had already been used in Stockholm, they compared their birth care with that of 33 of their brothers and sisters who were also in the long-term study. Using siblings as controls means that they would have similar background and social circumstances.

They found that 23% of addicts and only 6% of controls had been exposed to three or more doses of opiates or barbiturates given to the mother within 10 hours of their birth. This means a four to fivefold increase in addiction risk. The researchers checked to see whether other obstetric factors could account for the difference, and they did not.

They conclude, "These findings imply that in utero exposure to high dose medication may be an important and preventable risk factor for later substance abuse."

AIMS Comment

Ever since the Swedish research was first published in 1988 we have been badgering governments and Royal Colleges to consider the serious implications, and suggesting at the very least repeat studies should be done. Only this summer, after writing to Tony Blair. we got a response from the Department of Health saying the Swedish work was on a small sample, it was now over a decade old, other researchers had not taken it up and they would need more convincing evidence before they did further research in the UK.

Now a study on a different population shows similar results. The first author, Karin Nyberg, was one of the original Swedish team, now at Gothenberg University. The other two come from Harvard Medical School of Public Health and Brown University Department of Psychology. The work was funded by the Swedish Medical Association and the National Institute of Mental Health in the USA. This can hardly be dismissed as maverick. backwoods stuff. However, research which produces awkward findings is, as

Michel Odent has pointed out, seldom replicated or quoted.

This study has the advantage that it is based on data collected prospectively, so birth records are good. However, the sample is still small, for understandable reasons, and the addiction figures are for barbiturates (no longer used) as well as opiates. It is unfortunate that there are so few controls.

It only tells us about children of mothers who had three or more doses. We do not know what effects, if any, smaller or less frequent doses could have. This is an area where animal research might help, and the authors do quote one study on rats which gives some support to the idea that drugs given early may alter the reaction of the brain to exposure in later life.

Anyway, we continue our weary battle with the Department of Health.

Reference

- Nyberg, K, et al, Perintal medication as a potential risk factor for adult drug abuse in a North American cohort, Epidemiology, 2000: 11: 715-6

Return to top

Monitoring the baby - fetal pulse oximetry

Using a newer technique to monitor the fetus lowers the number of caesarean sections done because the baby is thought to be at risk - but the overall section rate does not go down, because obstetricians simply do more for other reasons.

Obstetricians in the USA did a large randomised trial at 9 hospitals. Women in labour whose babies developed worrying heart rate patterns were allocated to have either the usual electronic fetal heart rate monitoring or to have that and fetal pulse oximetry as well. A sensor is inserted through the vagina and placed next to the baby's cheek, and uses infrared wavelengths to measure whether the baby has enough oxygen. The idea was that if the monitor showed abnormalities, in half the babies the obstetrician would also have oximetry to check whether it was really in trouble before intervening. As the authors comment "The experience of an obstetrician who rushes to perform caesarean or operative vaginal delivery of the fetus with a concerning FHR pattern, only to deliver a vigorous healthy newborn, is all too common".

There were over 500 women in each arm of the trial. Around 95% of the women in both groups had epidurals. 56% of the study group (those with oximetry) had been induced and 49% of controls (those with fetal heart monitoring alone). 31% of the study group and 25% of controls had had prostaglandins.

The numbers and percentage receiving oxytocin are not given, but 10% of the women in the study had to have tocolytic drugs to treat hypertonic contractions (i.e. contractions which are too frequent and intense and reduce the baby's blood and oxygen supply) and more than half had to have "correction of

oxytocin administration".

The addition of fetal pulse oximetry was successful in that sections done solely because the baby appeared to be in trouble ("nonreassuring fetal status") were halved - to 5% of mothers compared with 10% of the controls who had FHM alone. However, caesareans done for dystocia (abnormal labour) alone doubled in the oximetry group - 19% compared with 9% in those who had standard continuous monitoring. Both these differences are significant and unlikely to have arisen by chance.

In the end 29% of the doubly monitored group had caesareans and 26% of controls. This is not a statistically significant difference. 47% of the study group and 51% of controls had spontaneous vaginal deliveries - again no real difference. Nearly a quarter of both groups had assisted vaginal deliveries.

Researchers went over the records (including partograms) to see if obstetricians had really done more sections because they thought the baby's heart rate was abnormal but they had simply labelled them "dystocia" instead, but this did not explain what happened. They also considered whether the device itself interfered with labour, but there was no difference in the time from being randomised to the time babies were delivered in both groups. Nor did the greater induction rate and use of prostaglandins in the oximetry group affect the result.

They then looked at the condition of the babies after birth to see if they really had needed those extra sections, and found that fewer in the oximetry group had Apgar scores of less than 7 at 5 minutes (9 v. 18) and fewer needed tracheal intubation (6 v.14), though more needed bag and mask ventilation (73 v 58). (Note: the Apgar score crudely measures the condition of the baby soon after birth and there is a maximum score of 10 for a baby in perfect condition) They suggest that the extra monitoring "provided a statistically significant improvement in appropriateness of operative delivery for the acidotic baby".

Complications for mothers were similar in each group, although it was interesting to see that 4 women had uterine rupture or scar separation (2 in each group) although only 124 women in the study had a caesarean scar.

The authors suggest that worrying fetal heart rate patterns may actually indicate an underlying risk of dystocia.

AIMS Comment

I could not help thinking we were in Alice in Wonderland logic here, and that we were wasting our time studying their fictional reduction in caesarean rate in women who were both strapped to fetal monitors and had infra-red sensors inserted into their wombs. What we should be studying is the psychology and anthropology of obstetrics. The many interventions in these mothers and babies greatly reduced the chance of normal vaginal delivery anyway.

I was not convinced by their argument that because the oximetered babies did not have a longer time to delivery, oximetry itself had not contributed to delayed labour, since the labours were cut short by more

sections for dystocia. Their ex-post facto arguments that more babies were correctly identified as being in trouble were unconvincing also. Exactly what was causing the problems? Often the most useful aspect of these reports is the data they provide on the pattern of care American women get in labour and the number of interventions, and it's horrifying.

I also can't understand why although there were fewer 5-minute Apgar scores below 7 in the oximeter group, they had lower mean Apgar scores overall. In fact the way Apgar scores are reported in trials is a constant source of worry. They vary from study to study. Researchers do not declare in advance how they intend to analyse them, and you wonder if they have chosen the cut-off points later to suit the data. In this case they give us Apgar scores below 4 at 1 minute and Apgar scores below 7 at 5 minutes. Why?

Of course there is not a word in the trial about gathering views of women on insertion or presence of the oximeters.

Obstetricians are keen to find a substitute for electronic fetal monitoring, which has not been shown to be effective, and the scalp blood sampling needed to back it up, which is increasingly dangerous with the possibility of HIV infection risk. A recent evaluation of fetal heart monitoring (Parer and King) after 40 years' use makes sobering reading. Fetal pulse oximetry is flavour of the month. If future researchers find it doesn't work well, they'll have invented yet more gadgets to attach to women, babies or both by then.

References

- Garite, T, et al, A multicenter controlled trial of fetal pulse oximetry in the intrapartum management of nonreassuring fetal heart rate patterns, Am J Ob Gyn, 2000; 183: 1049-58.
- Parer, J and King, T, Fetal heart rate monitoring: Is it salvageable?, Am J Ob Gyn, 2000; 183: 982-7

Return to top

Home birth and lower IQ - the misleading headline

Last November the Sunday Mirror carried a news story "Home birth babies suffer lower IQs - Brain may be starved of oxygen say experts."[1]

The account, based on a Danish study of tests given to conscripts to the armed forces, says that boys "born in hospitals with specialist units tended to be more intelligent. They scored 12% higher on psychological tests than those delivered at home.... One theory is that they may be more at risk of being temporarily deprived of oxygen around the time of birth. In hospital deliveries the baby's heart and other vital signs are monitored with high tech equipment. At home, these judgements are left to midwives."[2]

What the news story does not say is more interesting. Researchers also analysed results for those born in birth clinics - run entirely by midwives. Those had the highest IQ of all - much higher than those born in hospital. What a pity that a representative of the Royal College of Midwives, asked for a comment by the newspaper" did not insist on reading the study first.

Their "spokesman" (sic) simply said it was a "small scale study" (it wasn't - over 4,000 men were included) and, rather bizarrely, "they might have got different results had they studied women." Moral: don't comment on research you haven't read.

So are home birth babies more at risk? Roger Dobson, who wrote the story, leaves out another crucial fact. The researchers did not know how many of the home births were planned, and how many were unplanned, a problem which for many years bedevilled the UK statistics. Many unexpected births which take place at home (or sometimes in ambulances or taxis) were originally booked for hospital, and these are at very high risk, as the Northern Region Study showed.[3]

They often arrive precipitately, with no professional present, and there may be additional hazards from whatever caused the unexpected birth e.g. infection, injury or haemorrhage). Many more die, and it would not be unusual if survivors were less likely to be in the best possible state.

In the Danish study, the mothers who gave birth at home were twice as likely to be expecting a third or later child - which would make them more prone to rapid labours. In fact the study proves nothing about a causal effect of home birth on later mental function. Being born in a birth clinic, with a midwife, was associated with the highest average IQ.

However, we have to be more honest than Roger Dobson and point out that mothers would already be in a selected low-risk group in order to be accepted for a clinic.

References

1. Dobson, R, Home-birth babies suffer lower IQs, Sunday Mirror 17 November 2000; 40
2. Sorensen, HT, et al, Effect of home and hospital delivery on long term cognitive function, Epidemiology, 2000; 1: 706-8
3. The Northern Region Perinatal Mortality Survey Coordinating Group, Collaborative survey of perinatal loss in planned and unplanned home births, BMJ, 1996; 313: 1306-9

Return to top