AIMS For a better birth...

Research Roundup

By Jean Robinson

AIMS Journal, Autumn 2002, Vol 14 No 3

- Size of baby and mother's weight
- Induction at 41 weeks?
- 'Born before arrival': bad for baby, but better for perineum?
- Effects of PTSD on birth
- Magnesium and preeclampsia: a success story
- Unacceptable failure rate with ventouse

Size of baby and mother's weight

The change in a woman's weight in early pregnancy has a greater influence on the size of her baby than changes in the last six months. This is the conclusion of a large study from Minnesota[1].

The importance of this study is that women were recruited before they became pregnant, so the findings are more accurate than in previous studies, which were based on women recalling their pre-pregnancy weight. In an earlier study when women were asked to recall their weight before getting pregnant, they underestimated their weight by around 2 kg (4.3 lb). The new study has found that women gained an average of 2.2 kg (4.9 lb) in the first three months of pregnancy. So, if a woman says she weighed 59 kg (130 lb) before she got pregnant, but she actually weighed 61 kg (134 lb), midwives will think she has gained more weight than she actually has.

The women weighed themselves every week and, on average, gained 15.6 kg (34 lb) during pregnancy. Each kilogram gained by the mother in the first three months predicted a 31 g increase in the weight of the baby at birth. Each kilogram in the second trimester indicated a 26 g increase. The amount women gained in the last third of pregnancy did not predict the newborn weight. All these calculations were made after allowing for other influences such as smoking, diabetes or nausea, which might affect the baby's size.

There were too few overweight women in the study to come to any firm conclusions, but they did not find such an effect in that group of women. There is a suggestion that an increased weight gain for such women in the last trimester may slightly reduce the baby's size. However, for thin women, there seems to be, if anything, an increased effect of early weight gain on the baby's size.

The women in the study were mostly white, middleincome women, with reliable healthcare. However, the results suggest that extra-nutrition programmes for poor women in later pregnancy may come too late to have any benefits.

AIMS comments

This is an important study because low birth weight is a major cause of death and damage to babies, and low-income women are most at risk. It is going to be difficult to apply measurement of early weight gain in practice because most women will not know (or perhaps not accurately report) their pre-pregnancy weight. Weight gain may depend not just on the food eaten, but on the time allowed to prepare it when the needs of others in the family come first, and whether there is any care from someone else when the woman feels nauseous. Increasingly, meal and coffee breaks in the workplace are not allowed for. Stress, travel to and from work, and a lack of family and social support may also contribute. Barbara Ehrenreich's terrific new book on low pay shows that both time to eat and money for food are in short supply.[2]

References

1. Brown J et al. Variation in newborn size according to pregnancy weight change by trimester. Am J Clin Nutr, 2002; 76: 205-9
2. Ehrenreich B. Nickel and Dimed - Undercover in Low Wage USA, Granta Books, 2002

Return to top

Induction at 41 weeks?

In Canada, the Society of Obstetricians recommends "counselling women" who reach 41 weeks of the "higher risks of expectant management". Two Canadian obstetricians from the University of Manitoba have written a swingeing article published in the British Journal of Obstetrics and Gynaecology criticising this policy[1]

From an analysis of data from five countries, published before "induction at 41 weeks" was recommended, the authors conclude that the risk of stillbirth between 41 and 42 weeks is 0.1 per cent. They conclude that, in Canada, 1000 inductions would have to be done at 41 weeks to prevent one stillbirth in the following week.

They criticise the meta-analysis on the Cochrane Database, which concluded that "routine induction after [our emphasis] 41 weeks reduces perinatal death", and found seven deaths among 3002 women randomised to expectant management compared with one out of 3071 women who were induced. However, as they point out, two of the seven deaths occurred in the 1960s, before modern fetal testing

was available. When they looked at causes of each death in the non-induced group, they found that only two happened in women who had the kind of fetal testing available now, before 43 weeks, from a cause possibly related to the length of the pregnancy - compared with one death in the induced group.

They conclude: "The higher risk that routine induction at 41 weeks aims to reduce is dubious, if it exists at all."

Most women who have not given birth by 41 weeks will have gone into labour by 42 weeks. One study showed that 19 per cent had not had their babies by 41 weeks, but only 3.5 per cent were still pregnant at 42 weeks.

Following the Canadian policy, in a hospital with 4000 births a year, about 1000 inductions would be done solely because the mother had reached 41 weeks. The authors point out that the extra attention given to those being unnecessarily induced could reduce the care available for inductions carried out for urgent medical reasons. They cite the case of a woman with severe hypertension whose induction was delayed because the labour floor was filled with 41-week inductions. The mother died of intracranial haemorrhage.

They also point out that, in the Canadian randomised trial of induction, one of the women induced with prostaglandins had a precipitate labour, severe fetal heart problems and a forceps delivery. The baby is quadriplegic. This complication was not reported in the trial, published in the New England Journal of Medicine[2]. None of the babies in the non-induced group had such a complication.

AIMS comments

We receive a steady trickle of calls from women asking for help because they are being pressured into inductions they do not want at 41 weeks, with all the usual shroud-waving. It will be helpful to suggest that they take this article to their obstetrician. Women have a choice. Wary as we are of ultrasound, a Doppler scan can check the baby's blood supply, and this may be useful. We must point out, however, that two women who chose to continue had stillbirths. Both were older mothers, and both were expecting their first child.

References

1. Menticoglou S, Hall P. Routine induction of labour at 41 weeks gestation: nonsensus consensus. Br J Obstet Gynaecol, 2002; 109: 485-91
2. Hannah ME et al. Induction of labour as compared with serial antenatal monitoring in postterm pregnancy: A randomized controlled trial. N Engl J Med, 1992; 326: 1587-92

Return to top

'Born before arrival': bad for baby, but better for perineum?

A study from Finland, already reviewed in this Journal, found that, as small maternity units were closed, accidental out-of-hospital births are increasing. As maternity care becomes more centralised in fewer large units, what about the mothers and babies who don't get there in time?

A study in Glasgow looked at accidental out-of-hospital deliveries from 1995-1999. Of 121 babies, 90 were born at home; the others were born in ambulances, toilets, taxis, cars, a GP surgery, a hotel and a police van. These births were compared with a control group of hospital births.

The out-of-hospital babies were more likely to be premature with shorter labour, and the women were more likely to have previous children, to be unbooked or late-bookers for maternity care, to miss antenatal appointments and to have had a previous preterm labour. No social-class differences were found. As this was an inner-city population, distance was not a problem-all lived within 10 miles of the unit.

Six of the babies died compared with one in the control group. All of the deaths were due to prematurity. The surviving babies were much more likely to be of lower birthweight and to be admitted to the neonatal unit-the most common reason for admission being hypothermia.

However, the authors did say "there appeared to be a low threshold for admission to the paediatric department, even when Apgar scores were 9 and 10".

Babies born with no assistance were more likely to be sent for neonatal care than those born in the presence of a member of the emergency services.

One of the most interesting aspects of this study was that only 8.6 per cent of the women needed stitches compared with 25.2 per cent of the controls in hospital. This is a hugely significant difference, even allowing for the fact that babies were lighter and the out-of-hospital group had had more previous children. Women with hospital births had more episiotomies. The authors suggest that women giving birth on their own would be pushing spontaneously rather than to order, and this might lead to fewer injuries to the perineum.

AIMS comments

Giving birth before you get to hospital reduces the risk of needing stitches by one-third. This should give hospital staff food for thought. Could it be that the mother adopts what position she needs to rather than following the rules? Undoubtedly, these babies were at significantly greater risk, but the deaths were all caused by prematurity, which is unlikely to be prevented by antenatal care. Since babies, when there was

an attendant, did better, why don't we rethink the loss of the flying squad? Apparently, in France, the attendance of trained medical teams (including paediatricians) improves outcomes.

Distance from hospital was mentioned, but not ease of travel - access to a car, or the number of buses taken to reach the clinic.

In view of the reports we receive from women under maternity care in Glasgow, we would not be surprised if a number of women with previous experience of it do not rush to get it next time.

Reference

- Rodie V et al. Accidental out-of-hospital deliveries: an obstetric and neonatal case control study. Acta Obstet Gynecol Scand, 2002; 81: 50-4

Return to top

Effects of PTSD on birth

AIMS receives many calls from women who developed traumatic stress disorder for the first time after bad birth experiences. However, a new study looks at the effects of preexisting post-traumatic stress disorder (PTSD) on pregnancy and birth.

Studies from the USA have shown that 10-12 per cent of women may suffer PTSD, with 16-20-year-olds having the highest risk of trauma. This means that many women will suffer from this problem before they have children. PTSD may affect pregnancy either by affecting behaviour (it is known that sufferers seek relief from drink or drugs) or hormone levels (raised levels of the stress hormone cortisol). Researchers from Michigan looked at the outcomes of pregnancy in women who had previously been diagnosed with PTSD and compared them with controls.

The women with prior PTSD had a significantly increased risk of spontaneous abortion or hyperemesis (excessive vomiting). They were also more likely to have ectopic pregnancy, preterm contractions, poor fetal growth or excessive fetal growth, though these were only marginally statistically significant.

The authors concluded: "Getting mental health treatment for the mother before birth might improve the wellbeing of the infant."

AIMS comments

The group studied were poor enough to receive Medicaid. As the authors themselves point out, this study has limitations. PTSD is underdiagnosed, so some of the women in the control group may have had it too. Furthermore, many different types of trauma can cause PTSD -anything from road accidents to

rape. Clearly, sexually abused women are more likely to also have the infections that could contribute to complications in pregnancy.

I have been hearing accounts of postnatal PTSD from women since 1974, when induction of labour increased dramatically. We have no doubt from women's stories how serious a disorder it is, and we know that it is often misdiagnosed as postnatal depression.

We also know that it is difficult to get treatment, and we are having increasing doubts as to how effective any such treatment is. All this suggests that great care must be taken to avoid causing PTSD in labouring women, and those who already have it need especially supportive care.

Reference

- Seng J et al. Posttraumatic stress disorder and pregnancy complications. Obstet Gynecol, 2001; 97: 17-22

Return to top

Magnesium and preeclampsia: a success story

Preeclampsia and eclampsia probably kill more than 50,000 women a year worldwide. It has already been shown that magnesium sulphate is the most effective treatment for women with convulsions caused by eclampsia. An international randomised trial has now shown that magnesium sulphate- an inexpensive remedy-almost halves the risk of women with preeclampsia developing fits (eclampsia). It also reduces the risk of maternal death and the risk of placental abruption.

Women in 33 countries took part in the trial-around 10,000 of them. Any who had the high blood pressure and protein in the urine that are symptoms of preeclampsia were randomly allocated to receive either magnesium sulphate or a placebo.

An independent data-monitoring committee was set up to look at the findings and decide if, at any point, it was unethical to continue as results were showing either benefit or adverse effects from one or other treatment. The trial was stopped after data from 8400 women had been analysed.

Only 40 of the women receiving magnesium sulphate developed eclampsia compared with 96 of those on placebo. Maternal deaths were almost halved (11 vs 20). However, baby deaths were not reduced (576 vs 558), although there were fewer cases of abrupted placenta in the magnesium group (90 vs 141). A sample of babies is to be followed-up to see if there are any later differences.

A quarter of the woman who received the magnesium treatment had side-effects (24 vs 5 per cent). The treatment was given either by a drip into the vein or by intramuscular injection, and side-effects were more common if injection was used. Mothers receiving magnesium sulphate had more pain and burning

at the injection site, and flushing was also common; there was also more respiratory depression, thirst, headaches, hypotension, dizziness, drowsiness and itching.

The minimum effective dose is not yet known and needs further research. The results of this trial should be particularly important for poorer countries, since the medication is so inexpensive.

AIMS comments

This major trial has lifesaving implications for mothers, and its organisation across so many countries is a wonderful achievement for which everyone should be congratulated.

A very interesting story is why it has taken so long for magnesium sulphate to be used. It was in use for almost a century in the USA and in countries where American obstetricians were teaching as an anticonvulsant for eclampsia. British obstetricians, however, preferred to use standard anticonvulsants. The question of which treatment is best-first for eclampsia and second for preeclampsia- has now been answered by large clinical trials.

Editor's note: At the Cochrane Collaboration conference in Liverpool (see p 19), Professor Justus Hofmeyr outlined the problems of obtaining supplies of magnesium sulphate in South Africa. It is so cheap, he said, that drug companies do not feel they can make a profit manufacturing it.

Reference

- The Magpie Trial Collaboration Group. Do women with preeclampsia, and their babies, benefit from magnesium sulphate? The Magpie Trial: a randomised placebo- controlled trial. Lancet, 2002; 359: 1872-3; 1877-90

Return to top

Unacceptable failure rate with ventouse

A study by doctors at two Welsh hospitals (Nevill Hall Hospital at Abergavenny and the Royal Gwent Hospital at Newport) examines the problems with ventouse deliveries during 1998-1999 in one unit[1]. Past research has shown that ventouse deliveries are less likely to cause damage to the mother than forceps, so this is increasingly the first method tried[2].

The authors found that 22 per cent of attempted ventouse deliveries had failed compared with only 6.2 per cent of attempted forceps deliveries. More than half the babies were then delivered by forceps and the remainder by caesarean. (The hospital caesarean section rate was 24.3 per cent for that period.) All grades of doctors were involved. In 40 per cent, the reason documented was "equipment failure". In over

70 per cent of the failed ventouse births, the baby was occipitoanterior and, in most, successful forceps delivery followed.

The doctors felt the failure rate was unacceptable. They decided to replace the silicone suction cups and tubing, although they apparently had no defects. The following year they did another audit. The failure rate had almost halved - only 12.3 per cent of ventouse deliveries failed compared with 7.2 per cent with forceps. However, the caesarean section rate did not go down-it was now 25.1 per cent.

What went wrong with the equipment? The cup should last five years and not lose efficacy unless perished. The suction machine was serviced yearly. The authors still don't have an answer. It is possible that a loss of elasticity prevented a vacuum being achieved, or that the tubing is collapsing more readily because of age. The manufacturer's guidelines now say that the cup should be sterilised only 30 times, or thrown away after two years. This would considerably increase costs and make disposable cups more competitive.

AIMS comments

We were delighted to see this report since we receive so many accounts from mothers of failed ventouse deliveries, sometimes with numerous attempts, followed by forceps. Many mothers tell us they are concerned about what the experience of vacuum and forceps is like for the baby. The Confidential Enquiries into Stillbirths and Infant Deaths has also quoted cases of severe brain damage to babies due to ventouse.

Ventouse deliveries are now much more common than forceps, so the experience of junior obstetricians in using forceps is more limited. We think it is high time a survey of ventouse deliveries was done on a larger scale.

References

1. Bell-Thomas S, Wiener J. Evaluation of ventouse failures in a district general hospital. J Obstet Gynecol, 2002; 22: 177-8
2. Chalmers J, Chalmers I. The obstetric vacuum extractor is the instrument of first choice for operative vaginal delivery. Br J Obstet Gynecol, 1989; 96: 505-6

Return to top