AIMS For a better birth...

Research Roundup

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Who checks the baby?

Specially trained nurses are better at checking newborn babies before they leave hospital than junior doctors - says a recent study from Hull.

Identifying health problems in new-born babies is not as accurate as mothers may think. More than half the cases of congenital heart disease are not detected this early. Only about a third of cataracts are picked up - yet this is important, because best results are obtained if the child is operated on before it is six weeks old. Although babies are screened for hip problems (congenital dysplasia) some cases are missed. Advanced neonatal nurse practitioners receive formal training on what to look for in newborn babies, whereas senior house officers - the junior doctors who may be doing the checks - are often not specifically taught.

Paediatricians in Hull looked at over 500 infants referred to specialist clinics in orthopaedics, ophthalmology and cardiology, to see who diagnosed the original problem and when, and whether the suspicion of abnormality was accurate, and how many had been missed at the neonatal check. Nurses were more likely to pick up problems than senior house officers. In both groups the majority of babies referred with suspected hip problems were normal. This was because breech babies were often referred simply because they are known to have a higher risk of hip dysplasia.

Why are nurses better? The authors suggest it is because their training is different. Doctors are expected to learn by reading and finding out for themselves, or they get a short demonstration. Nurses, on the

other hand, had a structured training with clear teaching on what signs to look for, and their competence at the tasks involved was evaluated. This suggests that the nursing model of training is better.

AIMS Comment

Complaints about various aspects of examination of newborn babies trickle in from time to time, with complaints from mothers about problems that were missed. We try to explain to them that this is not unusual, especially with heart problems. Mothers understand this, but they are angry when they had tried to tell staff about problems they were worried about and no-one listened. Early discharge (especially of first-time mothers) often causes great anxiety. This study, of course, tells us nothing of the parents' views, and whether they preferred doctors or nurses, whether they were more or less satisfied with communication, and whether obtaining consent to the examination (often ignored) differed between the two groups.

The better performance of neonatal nurses with extra training follows the pattern shown in earlier studies, since they have also been shown to be as effective as doctors at newborn resuscitation. The study highlights an important problem in the way doctors are trained, which has emerged in many other areas of medical care. These SHOs have a long medical career ahead, with a knowledge of examination of the newborn which could be improved by a different style of training. Why is it not changed?

Babies born at home or in midwifery units are not seen by a specially trained nurse. We need to see that midwifery training in this area is as thorough as that reported from Hull.

Reference

- Lee T, Skeltun R, Skene C, Routine neonatal examination: effectiveness of trainee paediatrician compared with advanced neonatal nurse practitioner, Arch Dis Child Fetal Neonatal Ed 2001 85 F100 F104

Having a twin sister benefits boys

We know that baby girls on average weigh less than boys at birth, although they spend a longer time in the womb. Boys can reach the same birthweight as girls after a shorter gestation. Researchers in Belgium realised that an ideal way of looking at the influence of the baby's sex on weight and the length of pregnancy, was to study non-identical twins.

Flanders has being doing a prospective study of multiple births since 1964. The authors compared birthweights and gestation for nearly 2000 pairs of non-identical twins: twin boys, twin girls, and twins of both sexes.

Twins where one, or both, were girls had similar gestation (36.8 and 36.9 weeks) which was longer than the average for boy twins (36.4 weeks).

The weight of girls was similar whether they were from mixed sex twins or one of twin girls. However, the boys who grew in the womb with a twin sister weighed 78g more than those who shared the womb with a brother. Even allowing for the shorter gestation of twins who were both boys, the difference in weight between those boys who had been one of a pair, and those who had a twin sister, was significant.

In spite of their longer period in the womb, twin girls weigh less than twin boys. But comparison with mixed-sex twins shows it is the presence of the girl that lengthens gestation. Her influence gives her brother a longer time to develop before birth and increases his birth weight.

Boys grow faster than girls, but this faster growth makes them more vulnerable to toxic influences during development. Girls catch up with growth later in the pregnancy.

AIMS comments

Does this mean that early induction/caesarean is likely to be more damaging for girl babies than their faster growing brothers - whether they are twins or singletons? This study suggests that girls may need that extra time in the womb towards the end of pregnancy more than boys do.

Reference

- Loos R, et at, Length of gestation and birthweight in dizygotic twins, Lancet, 2001; 358: 560-1

Earthquakes and stress

An interesting study from California has looked at the effects of stress at different stages of pregnancy. In 1994 there was an earthquake measuring 6.8 in strength. Researchers studied a population of pregnant women who lived 50 miles from the epicentre, to see if the effects varied according to how far advanced the pregnancy was. They were compared with women who had babies under six weeks old when the earthquake struck.

When the authors simply compared those who were pregnant with those who had already given birth when the earthquake happened, they did not get statistically significant differences in the length of the pregnancies. However, once they looked at how pregnant the woman was at the time, the effects were seen.

Hormone changes are known to damp down women's responses to stress as pregnancy advances. In this case, replies to questionnaires from the 40 women involved showed that those who were in the first third

of their pregnancy rated it as more stressful than those in the second trimester. Least stress was reported by those in the last three months.

However, mothers who already had their babies when the earthquake struck rated the stress just as high as those in early pregnancy. These reactions confirm the increasing "dampening down" effects of hormones from the placenta as pregnancy advances.

The researchers also found that the earlier in pregnancy the earthquake occurred, the more likely it was to shorten gestation (the time the baby remained in the womb). Women who were in the first three months, had babies at 38.06 weeks. Those who were in the second trimester had babies around 38.69 weeks.

Women who were in the last third of their pregnancies gave birth around 38.99 weeks. Women who experienced the earthquake after having their babies had the longest pregnancies - 39.5 weeks. Even after adjusting for other risk factors, the stage at which the baby was exposed to the earthquake still affected length of gestation.

The authors conclude that studies of stress in pregnancy should take timing into account, a simplistic study of stress and pregnancy alone may not show up significant results.

AIMS Comment

This is an interesting and ingenious study. Simply by looking at the effects of a natural event, the researchers were able to come up with useful results. However the sample is small and they do not tell us how many women were in each group. The results do however fit with what is known about changing hormone levels in pregnancy. The study suggests that early pregnancy is the worst time to suffer an acute episode of stress, and the baby's arrival a bit too early could be the result of something that happened more than six months beforehand. This could have implications for work in pregnancy as well as medical and social care of pregnant women.

Reference

- Glynn L et at, When stress happens matters: effects of earthquake timing on stress responsivity in pregnancy, Am J Ob Gyn, 2001; 184: 637-42

Vaginal birth after caesarean

Yet another paper has appeared on vaginal birth after a previous caesarean section (called VBACs for short - pronounced "veeback"). Once again it shows the dangers of inducing labour when a woman has a scarred uterus.

The latest American study comes from a community hospital in Massachusetts. From 1995 the hospital, with an overall section rate of 20 per cent, decided to promote what they call "trial of labour" after previous caesarean births, to try to reduce the repeat section rate. Another reason for doing this was:

"to provide a competitive edge for the hospital and its practitioners in the obstetric marketplace of Boston"

Note they did not describe what they were doing as "VBAC"s but "TOLAC"s - "trial of labour after previous caesarean".

The authors report on results in the ensuing four years: 727 women "elected" to undergo a repeat caesarean. 754 tried for a vaginal birth and 577 of them succeeded, 177 failed. They analysed the difference between the successes and the failures.

Those who had a vaginal birth were more likely to have given birth vaginally before (12.6 per cent of them compared with 3.9 per cent of those with a failed VBAC). The success rate for those with a previous vaginal birth was 91.3 per cent. Women who succeeded were also more likely to have a greater degree of dilatation of the cervix when they arrived at the hospital (2.7 centimetres versus 1.7 centimetres. They had slightly shorter gestation (39.5 weeks v. 39.6 weeks) and smaller babies (7.7 lbs v. 8 lbs). They were less likely to have had internal monitoring (32.9 per cent v. 50.3 per cent) and they had a shorter first stage of labour and a longer second stage. Their epidural rate was 83.7 per cent compared with the failed VBAC rate of 74 per cent. Obviously most patients had epidurals, but the women who delivered successfully were more likely to have their epidurals at a later stage - after the cervix had dilated to 4 centimetres.

Twelve women suffered uterine rupture. Only one of them had a spontaneous labour: 7 were induced and 4 had labour speeded up with oxytocin. One of the inductions was with the prostaglandin Misoprostol, which a number of reports have associated with rupture if the uterus has a scar. None of the women whose uterus ruptured had had a previous vaginal delivery. 25 per cent of them had two or more uterine scars compared with the successful VBAC group only 6.1 per cent of whom had two or more scars. All rupture cases had epidurals (these may have masked the symptoms of uterine rupture, since only 3 of them reported pain). All had internal fetal monitoring with an intrauterine pressure catheter and a fetal scalp electrode.

Two babies died, both of them when the uterus ruptured - one was the Misoprostol case and the other was the child of a woman who had also been induced. Two women had emergency hysterectomies - again induced cases. The risk of uterine rupture associated with induction was statistically significant - i.e. was unlikely to have arisen by chance.

The authors stress the importance of swift caesarean if there is a rupture; the current estimate is if serious brain injury is to be prevented, the baby must be extracted within 18 minutes.

One interesting aspect of this case was that the doctors did a manual exploration of the uterus after the birth in all the successful VBAC cases to see if the scar was still intact. They found one case where it was not - there had been separation, although the baby had been successfully born.

The authors conclude that women with a best chance of succeeding have:

1. had only one previous caesar;
2. have had a vaginal birth before;
3. don't have epidurals before they are in the active phase of labour;
4. have fetal monitoring;
5. are not induced;
6. have operating theatre staff immediately available;
7. give informed consent.

AIMS Comment

A number of the findings here replicate those of previous authors - the dangers of induction, especially with Misoprostol, and the greater success rate of women who have given birth vaginally before.

However, we wonder at the impact of telling women that they are having a "trial" of labour. It is a term many of the women who come to us strongly object to - especially when it is accompanied by the phrase being "allowed" to have one. In itself it implies a strong possibility of "failure." As for the added risk of more than one prior caesarean, although we accept the scars might make the uterus more vulnerable, when it comes to assessing the chances of success we would emphasise a careful assessment of how the previous sections came about.

So many women tell us - some with considerable bitterness - that their previous sections had been avoidable and they know that given more time, and reasonable support, and allowed to move and adopt whatever positions they wanted when they wanted, they could have given birth normally. Within the potential VBAC group there is a difference between women who could not have given birth, and those who were not enabled to do so. It seems to us that the second group are likely to have better chance of a successful VBAC, which is why we suggest women get their previous notes wherever possible.

The old phrase was "once a caesarean, always a caesarean". The new phrase - attributed to Bruce Flamm is "Once a caesarean, always a controversy".

Reference

- Blanchette H, et al Is vaginal birth after cesarean safe? Experience at a community hospital, Am J Obstet Gynecol, 2001; 184: 1478-87

Risk of rupture with a VBAC

This summer the prestigious New England Journal of Medicine published a large study from Seattle (over 2000 women) on the risk of rupture of the uterus when a woman had a vaginal birth after a previous caesarean (VBAC) from 1987-1996. This clearly shows the extra risk of induction of labour, and the hugely increased risk of induction with prostaglandins. The women included had only had one previous caesarean.

The uterine rupture rate was:

- Repeat caesarean, no labour, 1.6 per 1000
- Spontaneous onset of labour, 5.2 per 1000
- Induction without prostaglandins, 7.7 per 1000
- Induction with prostaglandins, 24.5 per 1000

The researchers did not have information on particular types and doses of prostaglandins used, but they found that the risk of induction with prostaglandins increased before the availability of Misoprostol, in 1996, which was the last year for this study.

There were no ruptures of the uterus in the 272 women who had had a vertical incision for the previous caesarean. Women who did have a rupture were more likely to have serious complications - haemorrhage leading to anaemia, major infections, bladder injuries and four of the 91 women who suffered uterine rupture had to have hysterectomies.

AIMS Comment

This is a useful and important study because it is so large - covering women in the whole state of Washington. It shows, once again, the increased risk of induction in women with a scar, and particularly the increased risk of prostaglandins even before Misoprostol came along. If it can help to prevent even a few of the tragedies that have been reported to us from women in the UK, it will be useful.

This raises the question: if prostaglandins can have such a powerful effect on the action of labour that

they triple the rate of scar rupture compared with other induction methods, what effect do they have on labour without a previous scar? What is the experience of labour like with prostaglandins compared with other methods of induction for both the mother and the baby. Are there any differences in long term effects? Where is the qualitative data on women's experiences?

This study gives us a broad sweep and gives some basic useful figures. But it tells us nothing about management of labour in any of the women. Particularly it tells us nothing about methods of induction other than prostaglandin use or non- use, or how many of the women also had augmented labours with oxytocin.

Reference

- Lydon-Rochelle M, et at. Risk of uterine rupture during labor among women with a prior cesarean delivery, N Eng J Med, 2001; 3-15: 3-8

Caesarean mothers have worst postnatal health

A large study of the health of women after giving birth to their first child comes from Seattle in the United States. 971 women answered detailed questionnaires even weeks after giving birth, and results were analysed according to whether they had had vaginal births, assisted vaginal deliveries (forceps or vacuum) or caesarean sections. They were asked questions on their general health, mental health and sexual activity.

Women who had vaginal births were likely to be younger, and have lower incomes, than those who had caesareans. They were more likely to be covered by Medicaid than paying for private care. The babies of women who had caesareans were likely to stay in hospital for longer after birth.

Seven weeks after giving birth, caesarean mothers had significantly lower scores for physical functioning, mental health, pain, social functioning, and daily activity than women with "normal" vaginal births.

Women who had had assisted vaginal births had lower scores than those with spontaneous vaginal birth for physical activity, bodily pain, social functioning, sexual functioning and bowel and urinary functioning.

Women with unassisted vaginal deliveries did significantly better than caesarean mothers in areas like vigorous activity, sports, lifting or carrying things or climbing stairs. They were less likely to have felt downhearted and blue.

When compared with women who had vacuum or forceps deliveries, women with "normal" vaginal deliveries were more likely to be able to walk more than "a mile a day", were less likely to have pain which interfered with normal activity. Only 29 per cent of them had not resumed sexual activity compared with 40 per cent of women with assisted delivery. Women who had forceps or vacuum births were the most

likely to have sexual problems.

AIMS Comment

This study comes from three of the same team in Seattle who did the study of uterine rupture published in the New England Journal of Medicine and also reported in this issue - Mona Lydon-Rochelle, Victoria Holt and Diane Martin. It does not give longer-term effects - like the even bigger study from Birmingham by MacArthur and Lewis on Health after Childbirth - but it has a large sample and used standardised questionnaires that have been used in other studies. It also allows us to compare caesarean with both assisted and unassisted vaginal birth. Unfortunately it is not able to differentiate between forceps and vacuum deliveries, which we know are likely to have different effects.

The general lesson reinforces what we already know: unnecessary interference should he avoided, and women able to give birth normally should he helped and supported to do so. It also gives a goood basic picture of different health problems after different kinds of birth, and it could be useful for women who are expected to return to work soon after they have a baby.

The study provides useful information to give to women who are asking for elective caesareans. However, we must bear in mind that that group includes those who are requesting a section because of past obstetric or sexual trauma. In our experience those women are likely to do worse if their wishes are not respected.

Reference

- Lydon-Rochelle M. et al. Delivery method and Self-reported pospartum general health status amoung primiparous women, Paed Perinatal Epidemiol, 2001: l5: 232- 40

Caesareans as a cause of low birthweight

Low birthweight is one of the most important and difficult problems in maternity care. Babies who are small are more likely to die, and more likely to have long term health problems and suffer premature death as adults. However there are two groups of small babies - those who are born too soon and those who reach term but have not grown as much as they should have done. The factors associated with them are different.

Low birthweight has actually increased in some countries - the USA, Canada and Norway. The Canadians found it was being caused by the increasing use of ultrasound estimates of the length of pregnancy and elective caesareans. The Norwegians found it was caused by inductions of labour and caesareans. Brazil has also seen an increase - in S.E. Brazil there was a sharp increase from 7.2 per cent to 10.6 per cent in the rate of low-weight births between 1978 and 1994.

Brazil probably has the highest caesarean rate in the world; in 1996 it was over 36 per cent. Among better educated mothers and those using private hospitals the rate was 83 per cent. Poorer uneducated women had a rate of only 12.5 per cent. A team of doctors at the Department of Public Health in North East Brazil, which has a lower section rate than the south, studied factors associated with low Birthweight in Sao Luis - one of the poorest regions in the country.

They looked at over 2,000 births of single babies and found a low birthweight of 7.6 per cent. Around half these were caused by prematurity.

Not surprisingly, mothers more likely to have a smaller baby were shorter poorer, younger, to be without a partner, more likely to smoke and to have had a previous small baby. However, after adjusting for the usual risk factors, it was found that low birthweight babies were more likely to be born by caesarean section. The section rate in the city was 33.7 per cent - double the maximum rate recommended by the WHO and the US Department of Health. The authors say "this suggests an abusive use of this technique".

Mothers more at risk of getting a section were better educated, more likely to have the same doctor for antenatal and birth care, to give birth in private hospitals, and to have had adequate prenatal care.

The authors reviewed a number of the case notes and say "the indication for CS found in the medlical records probably did not stress the real reason for performing the surgery. It has been suggested by some that the indications found in the medical records may be a socially acceptable biological justification covering up non-medical reasons." They also point out there were some cases where the ultrasound estimation of the length of the pregnancy was wrong - leading to a too early delivery.

AIMS Comment

This is the latest in a series of reports, including one from Norway, suggesting that caesarean sections can be a cause of low birthweight. because babies are delivered too soon - either for convenience, or because of miscalculations of the date of the pregnancy. The Brazilian reports are interesting because they show the contrast between the low birthweight caused largely by poverty, and that affecting babies in richer families, who are at risk simply because their mothers have access to private maternity care.

Reference

- Silva A, ci at. Risk factors for low birthweight in north-east Brazil: the role of caesarean section, Paed Perinatal Epidemiol 2001: 15: 157-64

Fewer antenatal checks?

A large international trial of antenatal care organised by the World Health Organization has shown that basic care, with fewer antenatal visits, can be just as efficient and is cheaper for countries with limited resources, than "standard" antenatal care.[1]

Nearly 25,000 women in Argentina, Cuba, Saudi Arabi and Thailand were randomly allocated to standard care or the "new model". Women with risk factors had usual care, but those with normal pregnancies in the "new group" had care based on screening and treatment that have actually been proved to work in pregnancy. They had around four antenatal clinic visits instead of the usual eight, though more of them were referred for a higher level of care (13 per cent compared with 7 per cent).

Low birthweight was similar in both groups. Pre-eclampsia was slightly higher in the new group. There were no notable differences in outcomes between the groups. On the basis of a questionnaire, most women were satisfied with their care, but more of the women in the "new" care would have liked more visits. 77.6 per cent of them thought the number of visits was ahout right compared with 87.2 per cent of the standard group.

As Aberdeen obstetrician Marion Hall points out in a leading article[2] the question is: "whether the dissatisfaction of a minority of women (especially in developed countries) with numbers of visits is sufficient for retaining programmes with more routine visits than are clinically or economically justified... Change may he difficult after decades of exhortation for compliance with traditional care."

Reference

1. Villar J et al WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care, Lancet, 2001; 357: 1551-64
2. Hall M, Rationalisation of antenatal care, Lancet, 2001; 357: 1546

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