AIMS For a better birth...

Research Roundup

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AIMS Journal, Winter 2003, Vol 15 No 4

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Stress and fetal growth

A recent study does not support earlier findings that stress in pregnancy can reduce the size of the baby's head[1].

We all felt great concern 10 years ago, when a study from Denmark showed that women who reported severe stress in pregnancy were more likely to have babies with a smaller head, and reduction in the baby's size could be the equivalent of that caused by smoking[2]. This meant that stress in the mother could reduce the size of the brain, which was very worrying. We reported it to our members, and have often quoted it since. Moreover, animal studies have shown that stress in the womb can cause changes in both the brain and in behaviour.[3]

Now, a new study of over 4000 women, again from Denmark, has found no connection between stress and head size. These mothers answered questionnaires at 16 and 30 weeks about stressful events (e.g. serious family illness or bereavement, mental or physical cruelty; separation, homelessness, arrest, spouse in jail) and the degree of stress they felt. The baby's head circumference at birth is routinely measured in Denmark and other Nordic countries.

About a third of the women approached did not take part. These 2600 women were more likely to be heavy smokers, younger, and to have babies who had lower Apgar scores, were slightly smaller and born slightly sooner.

Analysis showed no association between stressful life events and the baby's head circumference. Babies of mothers who smoked did have a head circumference 0.4 cm smaller than those of non-smokers, and twice the risk of having a small head size for gestational age (this is similar to the findings of the previous study).

The authors suggest that the difference between the two findings could be because the control group in the earlier study had larger-than-expected head size, so there was, in fact, a biased set of controls.

However, the researchers point out that their findings do not exclude the possibility that stress may cause subtle impairments of brain development, as the animal studies have found.

AIMS comments

This seems to be a good-quality prospective study and the results are reassuring. As in many such studies, it seems to be the women in better social circumstances who were more likely to take part, which suggests these are women at lower risk of having a combination of stress, smoking and poorer nutrition. I'm sure we have not heard the last of this story, and we shall watch future research with interest.

References

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3. Weinstock M. Alterations induced by gestational stress in brain morphology and behaviour of the offspring. Prog Neurobiol, 2001; 65: 427-51

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Antibiotics for the baby

We often hear concerns from parents of babies taken into neonatal units after birth about the possible adverse effects of antibiotics that seem to be given routinely. They are also upset about the distress caused to the baby by injections or the insertion of needles or tubes.

As all of us know nowadays, our intestines are lined with bacteria that aid digestion, and antibiotics tend to kill off these good, helpful flora as well as killing off the baddies. And when the good guys are missing, there is more room for the bad guys to take over.

A new study from France looks at the effects of two different types of antibiotic treatment on the bacteria found in 20 babies' faeces, and compared them with a control group of 10 infants who were admitted to the unit, but not thought to need antibiotic treatment.

Babies with suspected infection from the mother are routinely treated with antibiotics. The initial treatment is usually a combination of two drugs-amoxicillin plus netilmicin. If the mother had contracted a urinary tract infection in the month before the birth, a third drug is added-cefotaxime- because the bacteria likely to cause this are often resistant to amoxicillin. The triple combination is also used in babies

with severe symptoms. Sometimes, the mother has already been started on these drugs before the birth of the baby. Babies were treated with antibiotics for 48-72 hours.

Doctors collected stool samples from the babies before antibiotics were given, and then at three, seven and 10 days. In the (untreated) control group, colonisation with the normal, different types of intestinal flora began within three days. In this group, those babies whose mothers had been treated with amoxicillin during the birth had amoxicillinresistant Escherichia coli. By the seventh day, all the babies were colonised with staphylococci, mostly Staphylococcus epidermidis, most of which were resistant to cefotaxime.

Babies in the two-drug group had colonisation similar to normal in that flora also appeared during the first three days and they grew diverse flora-but the pattern was rather different. Those whose mothers had been given antenatal antibiotics had low levels of organisms.

It was the three-drug group that had a very different pattern, which persisted for 10 days, although treatment was only for three days. Colonisation of the intestine began later and there was not a healthy range of bacteria. There was mostly one type of staphylococcus.

Three babies had high levels of Candida. The researchers say this is disturbing because cases of Candida septicaemia have been increasing. The authors think the high level and rapid growth of staphylococci is caused by the absence of other bacteria, which have been killed off by the cefotaxime.

AIMS comments

The numbers in the study are unfortunately small, but still we welcome it. We receive an increasing number of complaints from parents that their babies are admitted to neonatal units without adequate reason (this particularly seems to be an automatic, controlling, almost punitive reaction when babies are admitted after a home birth), and also reports of hostile reactions from paediatricians if the parents question any of the investigations or treatment given. Yet more reports-including this one-show that mere admission to the neonatal unit can result in the baby acquiring potentially harmful organisms (e.g. antibiotic- resistant staphylococci colonising the skin) and receiving unnecessary treatment, invasive tests or treatments that carry adverse effects, as well as interfering with breastfeeding and bonding. We have the right to ask questions-and AIMS will continue to support parents who do so.

Reference

- Bonnemaison E et al. Comparison of fecal flora following administration of two antibiotic protocols for suspected maternofetal infection. Biol Neonate, 2003; 84: 304-10

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Higher mortality with weekend births

"The baby of a teenage mother in Texas has a 42 per cent greater chance of dying within seven days if it is born at the weekend."

Babies have a greater chance of dying if born at the weekend. This is not news. Since 1978, several studies have reported higher mortality in babies born on Sunday or at weekends in England and Wales, Scotland, Arkansas and Australia. And these differences have persisted. Alison Macfarlane found that Sunday babies born in England and Wales during 1970-1976 had a 14-per-cent higher perinatal mortality. A later study looking at data from England for 1986-1996 again found higher neonatal death for babies born at the weekend.

But we don't know why. The figures tell us there's a problem, but they can't give us a reason. It has been suggested that interventions perhaps mean that lower-risk births are concentrated in the week, so higher-risk emergencies are unduly high at weekends-or, on the other hand, lower staffing levels at weekends add to the risk.

Now, a large study of nearly 112,000 births in two years to teenagers in Texas has been carried out by two nurses-a professor and a systems analyst. There were 397 neonatal deaths (i.e. deaths within seven days of birth). Infant mortality rates in the US are highest among teenage mothers. The researchers wanted to see if there was a difference in risk according to the day of the week and ethnic group, and whether babies born at weekends had more risk factors.

They found that the weekday neonatal mortality rate was 3.9 per 1000 live births vs 5.6 on the weekend.

Births were distributed unevenly throughout the week. If they were evenly spread, there would be 14.28 per cent of births on each day. In fact, Saturday had only 11.9 per cent of births, but 17.6 per cent of the neonatal mortality. The greatest difference in mortality rates was between Friday (2.6 per 1000 live births) and Saturday (5.3 per 1000). A teenage mother had a 42-per-cent greater chance of her baby dying within seven days if it was born at the weekend.

Then they looked at ethnic groups. Not only were white teenagers less likely to have weekend births in the first place, but their weekday and weekend mortality rates were the same: 3.8 and 3.7 per 1000 live births.

Neonatal mortality was highest in African-American babies: 4.9 per 1000 live births on weekdays and 6.7 at weekends. The mortality for Sunday-born black babies was 7.7 per 1000 live births, the highest for any day or any ethnic group. The odds of death were 38.5-per-cent greater for weekend births. For Hispanic teenagers, the odds were 72.8-per-cent greater. (As Hispanics were the largest group, it was easier to obtain statistically significant results on them).

Could mothers who gave birth at the weekend be teenagers at higher risk in the first place? In fact, there was no difference in prior risk factors between weekday and weekend births. But if a mother did have

previous risk factors, some were more affected by the day of birth than others. Giving birth at the weekend did not add to the risk for white or black mothers, even if they had prior risk factors.

But, in Hispanic mothers with one risk factor, the chances of neonatal death went up by 85 per cent and, with more than one risk, by 92 per cent compared with a birth in the week. When researchers looked at those who had not had antenatal care, again it was the Hispanic mothers whose risks had increased at the weekend. And if they had a low birthweight baby at the weekend, it had a lower chance of survival, whereas white and black babies did not.

The authors conclude that quality of care, rather than risk factors in the weekend birthing population, is likely to be the cause of higher mortality. Studies of other hospital admissions have shown that weekend entries have higher mortality in 23 out of 100 causes of death. They suggest that a lack of translators for Spanish-speaking women at weekends could be a cause, and recommend future studies into nurse/staffing ratios, characteristics of birth attendants, medication errors and accidents, and access to services such as translators and transport.

AIMS comments

Our grateful thanks to Professor Patti Hamilton and Dr Elizabeth Restrepo for this useful, clearly written study, to the National Institute for Child Health for funding it, and to statistician Professor Alison Macfarlane, who pioneered this work in the UK.

The study, of course, does not include either stillbirths or maternal deaths.

As AIMS Journal readers will know by now, one of the first questions we ask our helpline callers with disaster stories is: "What day of the week and time of day was the baby born?"-and there is no surprise when it turns out to be a weekend or a bank holiday.

The response is a familiar story. We could almost write the script ourselves. It usually includes not just inadequate numbers of staff (which happens throughout the week), but poor-quality temporary staff, lack of continuity, doctors (both obstetricians and neonatologists) who are too junior, intervening too late or in the wrong way, somehow a lack of organisation and the feeling that there is no one at the helm-both in midwifery and medical care.

There is an absence of senior people at the coalface and, above all, a failure to listen to the mother. Teenage mothers (and fathers) tend to be less confident and competent in explaining and demanding care, if necessary.

The suggestion that missing interpreters could be a factor may also be very relevant for our high-risk Asian population. A comparison of mothers' experiences of weekend and weekday births would be a useful start.

Reference

- Hamilton P, Restrepo E. Weekend birth and higher neonatal mortality: A problem of patient acuity or quality of care? JOGNN, 2004; 32: 724¨C33

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Vitamin K: who knows best?

British hospitals have widely differing policies for giving vitamin K to newborn babies.

A survey of paediatricians at 28 hospitals asked about policies from 1977 onwards. Twenty hospitals (71 per cent) replied. A variety of protocols emerged:

- Intramuscular (IM) injections for all babies
- IM for all, but parents could request oral vitamin K
- IM for high-risk babies only (though there were many different definitions of high risk)
- IM for high risk babies, oral for others
- High-risk criteria changed, and changed again
- Oral for all babies
- No policy
- Policy unknown.

Each of these was shown on a colour chart for each (anonymous) hospital over 25 years. The result is a kaleidoscope of colours. Three of the hospitals seem to have used IM vitamin K throughout. Others have gone through a variety of changes over time. At the end, the hospitals still had many different regimes.

The authors suggest that there is a need for investigation and a consensus regarding hospital practices, including clarification of the advice given to parents.

AIMS comments

We do not have to tell our readers that the apparent availability of oral vitamin K on demand does not mean that parents know about it, or are told they have the option. And the study does not cover different preparations or dosages, as the authors point out.

Differences between units should at least allow parents more leeway to press for the treatment, or non-treatment, of their choice (though, in our experience, neither variations in practice nor lack of sound evidence makes doctors any less confident in the treatments they insist on giving our children).

This useful little study helps us to see how patterns of care have varied at different hospitals over time,

and still vary today. It might help parents involved in disputes, and not just about vitamin K, to ring around a few other units to ask what their policy is, what the protocol is, what their high-risk categories are, and so on.

A consensus means professionals can speak with one voice, making them stronger. But why have a consensus to give the appearance that doctors know all the answers when they do not?

Reference

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Maternity care in Russia

A study of the effects of the World Health Organization (WHO) Baby Friendly Hospital Initiative in Russia provides a rather depressing picture of maternity care in that country.

The WHO policy requires units to have a written breastfeeding policy, with trained stuff, which helps mothers to start breastfeeding within half an hour, shows them how to do it, gives babies no food or drink other than breastmilk, allows rooming in and encourages breastfeeding on demand. This is, of course, markedly different from previous care, where babies were kept separate from mothers, and given to them at fixed intervals for feeding.

Mothers in Archangel and Murmansk were asked about their care at six units. One hospital had already obtained BFH (baby-friendly hospital) status and two thought they had virtually achieved that level, and these three units were compared with three others that made no such claims. The majority of mothers in the three BFH groups (67 per cent) gave their first feed within an hour after birth compared with only a third of mothers in the other units. Three-quarters of the BFH mothers had skin-to-skin contact after birth compared with only a third of the non-BFH, and 93.3 per cent of the BFH mothers fed babies on demand, compared with 49 per cent of the non-BFH mothers.

This does show progress. However, many of the mothers had problems¡ªbreast engorgement, cracked nipples, insufficient or ¡®too much¡¯ milk and higher rates of depression. Even at the BFH hospitals, nearly a quarter of mothers said their babies were given supplements of water, glucose or formula.

The pattern of birth care is at least 20 years out of date. In both groups, over 70 per cent of women had pubic shaves, over 77 per cent had enemas, around 58 per cent had artificial rupture of membranes, and a third had labour induced. And most of the intervention rates (apart from caesareans, which were only around 13 per cent) were higher at the BFHs. It is clear that the baby-friendly routines for breastfeeding do not mean mother-friendly birth care.

Mothers using the BFH units tended to be more educated and more likely to be professionals. (The authors suggest that either BFH hospitals attract such women, or that hospitals with such client¨¨le are the ones that apply for BFH status). As a fee for service has now been introduced, more of these mothers paid for private rooms and for their partner to be present. Caregivers in Russia believe women don¡¯t want their menfolk there but, in fact, half the women questioned wanted their partners to be with them in labour. And postnatal visiting is not allowed¡ªmost women said they were only allowed to wave at visitors through the windows.

AIMS comments

This study shows that change has started, but whatever the overt policy to encourage breastfeeding, changing the underlying culture takes longer, as we know only too well from our own history of maternity care. These data were collected in 1999 and we hope things have improved since then. We are doing our best at AIMS to provide women and groups in Russia and Eastern Europe with information and support. If only our resources were not so limited.

Reference

- Helsing E et al. Breastfeeding, baby friendliness and birth in transition in North Western Russia: a study of women¡¯s perceptions of the care they receive in six maternity homes. Acta Paediatr, 2002; 91: 578¨C83

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