AIMS For a better birth...

Research Roundup

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Selenium prevents pre-eclampsia

Recent research suggests that increasing selenium (a trace element) in the diet may prevent some cases of pre-eclampsia.[1]

The scientists set out to determine whether low selenium was associated with an increased risk of pre-eclampsia. They took toenail clippings from 53 women who had pre-eclampsia and 53 healthy pregnant controls. As toenails grow slowly (over 3-12 months), they could find out what the selenium levels had been before the women had symptoms.

The average level of selenium in the pre-eclampsia group was significantly lower than in the controls. Women with the lowest levels of selenium had more than four times the risk of pre-eclampsia. And those at the lower end of the selenium scale were also likely to have the most severe disease and to have their babies born earlier.

Nevertheless, there were women with low-selenium levels who did not get pre-eclampsia, and women with high-selenium levels who did - so selenium alone is not the answer. How does selenium work and why is it important? It is an antioxidant, and also an effective 'scavenger', mopping up peroxynitrite. Women with pre-eclampsia produce higher levels of peroxynitrite, which damages the vascular system. The next step is a randomised trial of low-dose selenium in pregnancy to show if it works.

AIMS comments

This is an enormously important study. Pre-eclampsia is a killer. Three babies in the study died-all with

pre-eclamptic mothers. Doctors can now save the lives of mothers and babies, but once the process has started, it cannot be stopped except by delivering the baby, which may be very immature. The mother's life is also at risk-it is still a cause of maternal death. The most important part of antenatal care is the detection of pre-eclampsia. Prevention of as many cases as possible would be a tremendous step.

This has important public health implications as selenium levels are low in the soil of Britain and Europe. Population studies show that blood levels vary according to soil levels. Its concentration in UK plants is low and has been getting lower.

Selenium levels in the soil in North America are higher. Much of our bread-a basic staple in the diet-used to be made from Canadian wheat, which has a higher selenium content. Bakers now use cheaper flours and add improvers. (For those who bake their own bread, maybe with automatic breadmakers, Canadian flour can still be bought at delis and specialist shops, though it is more expensive. Consumers could also ask other manufacturers about the selenium content of their flour.)

The importance of selenium in human diet was discovered when farmers found diseases in animals caused by too much or too little selenium in the plants they ate.[2] In the 1930s, cattle eating high-selenium plants in South Dakota suffered hair loss and staggers. Where selenium was deficient in the soil, white muscle disease in cattle and sheep was prevented by giving selenium.[3] Heart problems occur in parts of China with low soil selenium and also a type of osteoarthritis in young people. In low-selenium areas of New Zealand, muscular dystrophy in sheep responds to selenium supplements, and farmers say it helps their own aches and pains.

There are varying reports of the efficacy of selenium supplements in preventing cancer and thrombosis. However, where selenium soil levels are exceptionally high, overexposure can cause loss of hair and nails, and skin and nervous-system damage.

Until the results of a randomised trial are published, we do not recommend that women take selenium supplements before or during pregnancy. Remember, folic acid is not without risk (it increases the risk of multiple births). Selenium is toxic in larger doses, and the margin between safety and adverse effects is not great, so we do not know how it would affect the fetus.

However, increasing selenium in the diet seems safe. The best natural source is Brazil nuts (though their selenium content varies), so two or three of these a day may not be a bad idea. Otherwise, meat and fish are good sources, and kidneys (if you like them) or sardines will both add a useful extra dose.[2]

What is surprising about this study, however, is that nearly a quarter of the healthy women were vegetarians, but only a few of the pre-eclamptic women were. Since vegetarians don't eat meat and fish, and plants are a poor source, how did they do so well?

Reference

1. Rayman M et al. Low selenium status is associated with the occurrence of the pregnancy disease pre-eclampsia in women from the United Kingdom. Am J Obstet Gynaecol, 2003; 189: 1343--9
2. Food Standards Agency. McCance and Widdowson's The Composition of Foods Sixth Summary Edition. Royal Society of Chemistry and the Food Standards Agency, London, 2002
3. Mann J, Truswell AS. Essentials of Human Nutrition. Oxford University Press, 2000

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Violence in pregnancy

A large Canadian study has shown that domestic violence in pregnancy greatly increases poor outcomes.

Women attending two maternity hospitals in Vancouver were questioned by nurses who spoke their own language (including Chinese, Punjabi and Vietnamese). They were asked not only about violence during the pregnancy, but whether they were afraid of a current or former partner, so that researchers could look at the effect of threatened as well as actual abuse.

Of the 4750 women asked, 1.2 per cent reported violence during pregnancy, and l.5 per cent reported fear of their partner. Abused women tended to be younger, poorer and to have come from poorer countries, and were more likely to drink, smoke or take drugs, and to have had induced abortions, especially multiple abortions.

Pregnancy risks in women with violent partners were raised: 3.79 times greater risk of antepartum haemorrhage, 3.06 times greater risk of intrauterine growth retardation (IUGR), and 8.06 times greater risk of perinatal death. Even after adjusting risks for use of alcohol, drugs or tobacco, the extra risks of antepartum haemorrhage and perinatal death remained almost as high. However, women who reported fear alone, without physical abuse, did not appear to be at higher risk.

AIMS comments

This useful study confirms the findings of many others. It was good to see that translations were provided, the nurses were trained for the job, and the women were offered support. However, the percentage of women reporting violence in this study is lower than in a number of other studies. Only half the population was screened and, as the researchers point out, it was essential to question the women on their own, and some nurses were not assertive enough to insist that the family leave. Other studies have also shown that it is necessary question the women more than once because, by the end of pregnancy, the incidence of violence may have risen. This study asked only about violence from partners

whereas other research has shown it may also come from other family members.

Other studies have also shown that domestic violence is associated with increased tobacco, drug and alcohol use in pregnant women-this has often been identified and the women blamed for it. This calls into question many years of published research which has 'labelled' women for damaging their babies by smoking, for example, while never asking women about the abuse they might be suffering.

Our readers may recall a woman dying from an abrupted placenta after being beaten by her partner, reported in the last Confidential Enquiry. There was no mention of his prosecution or conviction for this womanslaughter.

Reference

- Janssen P et al. Intimate partner violence and adverse pregnancy outcomes. A population based study. Am J Obstet Gynecol, 2003; 188: 1341-7

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Another risk for caesarean scars

In 1996, a woman expecting her first child had a caesarean section in early labour because the baby was breech. Three years later, she was referred to hospital with a painful lump near the scar, which got worse during menstruation. She also had pain with intercourse. When the scar was opened, there was endometrial tissue (tissue lining the womb, which bleeds every month in response to the hormonal cycle) in the scar- a case of scar endometriosis. The surgeon removed the tissue and she had no more problems.

The authors comment that this problem is likely to be more common with the rising caesarean-section rate.

AIMS comments

This study confirms the findings of many others. We receive many complaints from women who have long-term pain and problems from scars, but whose problems are dismissed by their GPs and even their gynaecologists.

Reference

- Olufowobi O et al. Scar endometrioma: a cause for concern in the light of the rising caesarean section rate. J Obstet Gynecol, 2003; 23: 86

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Outpatient inductions

A report from Bedford Hospital shows how they coped with a shortage of hospital beds by encouraging women to go home after prostaglandin pessaries had been inserted for induction of labour.

Between 1994 and 1998, there was a 17-per-cent increase in births, but only eight delivery rooms. The induction rate (19 per cent) remained the same, but the numbers induced went up. So it was decided that the early part of the process could be handled by their obstetric day unit. Low-risk women who were 10 days overdue were referred to the day unit for assessment. Those with a fairly ripe cervix who were likely to go into labour soon had membranes ruptured to induce labour. If not, they came back two days later to have a prostaglandin pessary inserted and the baby's heart monitored for an hour, before being 'allowed' [my quotes] to go home. They were told what to look out for and given an explanatory leaflet. If labour did not start, the woman came back six hours later and the process was repeated. If that still didn't work, she would be admitted the following day.

Of 97 women who used this method, 91 went home and six chose to stay in hospital mostly because they lived far away. They could move around the grounds and were monitored by the day unit. After the first pessary, 11 women came back, seven had contractions, two had ruptured membranes and two became anxious.

Of the 80 who got a second pessary, 11 went into labour, three were sent to the delivery suite because the baby's heart rate was unsatisfactory and 50 went home. The remainder did not go home because they had begun to contract or for personal reasons, and there was one patient who developed CTG changes in the baby.

The 50 women who went home for the second time were told to come back the following morning, but the majority (36) came back before then. One gave birth before getting to hospital (she had stopped off on the way to visit her mother at the nursing home where she worked, and the community midwife delivered her baby there), 24 were in labour and the rest either had mild contractions or ruptured membranes.

All had live births and only one baby did not have a high Apgar score at five minutes. Of 97 women, 66 had vaginal deliveries, 10 had caesareans and 24 had forceps or vacuum deliveries. The vaginal birth rate was the same as the unit as a whole.

On questioning, the women expressed a high level of satisfaction and were pleased to be able to go home. They valued the support of the day-unit midwives.

The hospital was able to reduce elective admissions to the delivery suite by 75 per cent.

AIMS comments

This appears to have been an imaginative and well-monitored project. However, the sample is small, it is not randomised, and a larger group is needed to show potential risks and benefits with greater confidence. The one BBA (born before arrival) baby turned out well, but it could easily have been otherwise. The authors do not mention whether there were any problems with pain relief before mothers reached hospital.

It is impossible to judge the quality of the questioning on the brief details given in this report, but a more detailed report of the mothers' views is to be published. However, the hospital seems to have been sensitive to mothers' wishes and, apparently, they could choose to stay in hospital if they wanted to.

This study does open up questions for consumers. Many women are so unhappy with their care in hospital that they say to us afterwards "Why didn't I just walk out?" We are constantly telling mothers that they have a right to leave at any time. But this has dangers once the baby is born because the hospital is likely to call in Social Services. Before the birth, however, a hospital has no power to control a sane mother just because their interpretation of the baby's interests is different from hers.

If mothers are 'allowed' to leave with a prostaglandin pessary in place when a shortage of beds makes it necessary, more women might realise they could pop home for the afternoon just because they want to and feel happier there. If this can be done in Bedford, then why not Brighton or Birmingham?

It's interesting to see how changes can take place out of financial necessity where most obstetricians would fight tooth and nail against if suggested by consumers. If we had asked for it, just imagine the shroud-waving this would have prompted.

Reference

- Neale E. Outpatient cervical ripening prior to induction of labour. J Obstet Gynecol, 2002; 22 (6): 634-5

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More weekend worries

Could mothers who give birth at the weekend be at higher risk in the first place-for example, from conditions like anaemia or hypertension?

In fact, there was no difference in prior risk factors between weekday and weekend births. But if a mother already had risk factors, then some were more affected than others. For white and black mothers with one or more risk factors, weekend births did not add to their risk.

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 weekday births. Hispanic mothers may also be at greater weekend risk if they had no prenatal care, whereas other groups were not. Their low birthweight babies born at weekends also had reduced survival chances, while white and black babies did not.

The authors conclude that quality of care rather than risk factors among 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 looking at nurse/staffing ratios, characteristics of birth attendants, medication errors and accidents, and access to services such as translators and transport.

AIMS comments

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

The study does not include either stillbirths or maternal deaths.

As all 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?"

There's no surprise when it turns out to be a weekend or a bank holiday. It's a familiar story-we could almost write the script ourselves-and usually includes not just inadequate numbers of staff (which also happens during the week), but poor quality as well-temporary staff, lack of continuity, doctors (both obstetricians and neonatologists) who are too junior, intervening too late or in the wrong way, a lack of organisation and the feeling that no one is at the helm-both in midwifery and medical care.

There was, in addition, 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 at explaining and demanding care, when necessary. The suggestion that missing interpreters could be a factor may well be 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? J Obstet Gynecol Neonat Nurs, 2004; 32: 724-33

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