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Research Roundup

by Debbie Chippington Derrick

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- Risk factors for uterine rupture and neonatal consequences of uterine rupture: a populationbased study of successive pregnancies in Sweden
- Infant and Neonatal Mortality for Primary Caesarean and Vaginal Births to Women with 'No Indicated Risk,' United States, 1998-2001 Birth Cohorts

Risk factors for uterine rupture and neonatal consequences of uterine rupture: a populationbased study of successive pregnancies in Sweden

M. Kaczmarczyk, P. Spare, P. Terry, S. Cnattingius
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www.blackwellpublishing.com/bjog

This study looked at all the birth records of women in Sweden between 1983 and 2001 which include almost 99% of all births; they took the records of all women who had two births during this period. They excluded 18,101 women whose second birth was a planned caesarean, and 9,399 women who had a caesarean for the second birth, but were unable to determine whether these were carried out before the onset of labour or not. This left a group of 300,200 women, of which 24,876 had had a previous caesarean.

This type of study is unable to control for the difference between these groups, which makes it less reliable than a Randomised Controlled Trial (RCT), but it is a good sized study and RCT of this size would not be practical, so this is likely to be the best type of study to answer these questions. Women were only included in the study if the second birth was a live birth, therefore ruptures that led to stillbirths would not have been included.

Results for ruptures occurring during a VBAC attempt (most of which will be scar ruptures) are mixed, with ruptures occurring in women without a previous caesarean (which will usually be true ruptures of the uterus, although there is no information about other uterine surgery prior which may have increased the risk for the women). This seems a huge failing of this piece of research as it makes the results much less useful for informing decision making.

Not surprisingly the study found increased rates of rupture in women who had had a previous caesarean,

1% (1 in 100) compared to 0.18% (1 in 550); both of these figures seem high in comparison with rates from other studies.

They found rupture rates were increased in the group of women:

- that were induced, with a relative risk of 2.06 (1.48-2.86).
- with babies over 4kg, with a relative risk of 1.76 (1.32-2.35) compared with babies in the range 2.5-3.99kg. The relative risk for smaller babies was less, but it was not statistically significant.
- with pregnancies over 42 weeks, with a relative risk of 1.58 (1.09-2.28), however they failed to control for induction (despite having this information) which is likely to have been higher in this group.
- over 35 years old, with a relative risk of 1.78 (1.21-2.62); again what is not known is what other factor may have affected this result, as it is likely that the care of these women will have varied in comparison to younger women (more induction, continuous monitoring, immobility, etc.).
- who were shorter ; for women under 159cm or shorter the relative risk was 2.09 (1.38-3.17), and for women between 160-164cm, the relative risk was 1.64 (1.14-2.37); again it is not know what other factor may have been different for these women.

The study failed to show any statistical difference between different BMIs, smokers and non smokers, different levels of education, those having instrumental deliveries, and different inter-pregnancy intervals.

A total of 274 ruptures occurred and 51 babies died. Although this is a high rate of death, it needs to be noted that 223 babies survived. Women are often led to believe that a rupture will necessarily lead to the loss of their baby, when this is not the case. We do not know what the rates of death were for babies when the rupture was of a caesarean scar and when it was a true uterine rupture. There were 51 babies who died and 50 ruptures occurred in an unscarred uterus; anecdotally the death rates are higher with these ruptures, but this study fails to include this crucial information.

There was also analysis of 5 minute Apgar scores which showed significantly worse outcomes for babies where there had been a rupture, which indicates that babies were less well at this point in time if a rupture occurred, which is unsurprising.

Infant and Neonatal Mortality for Primary Caesarean and Vaginal Births to Women with 'No Indicated Risk,' United States, 1998-2001 Birth Cohorts

MF MacDorman, E Declercq, F Menacker, and MH Malloy
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This American study used infant birth report and infant death records to make a comparison of outcomes for babies who were born by caesarean with those who were born vaginally when there was no recorded risk factor. The paper states that the records only include infant outcome and hence no comparison of

maternal outcome was possible. It defines no risk factors as singleton vertex presenting babies, born between 37 and 41 weeks gestation, not reported to have any medical risk factors and for whom no complications of labour or delivery were reported on the birth certificate, and they give an extensive list of medical factors which were excluded, which was reassuring.

This left a study group of 6,073,964 births and 13,009 infant deaths. Infant death rates in the whole population were 6.99 per 1000 for the period the study considered. This group of low risk cases had lower death rates; the rate for vaginally born babies being 2.06 per 1000 and the rate for caesarean born babies 3.56 per 1000.

They only had reason of death for the neonatal deaths, around a quarter of the deaths, and they seemed to happily discount the importance of the post neonatal deaths on the on the basis that 'the choice of method of delivery would be expected to be more strongly related to infant health in the period immediately following the delivery' which seems a very naive and unprofessional assumption for the researchers to make. They then stated 'For this reason, the subsequent analysis in this paper will focus on neonatal mortality' when in reality it seems this was due to lack of data.

The neonatal death rate for caesarean born babies was nearly three times higher. It could be that these increases are solely due the type of birth, however, increased death rates for congenital malformations, deformations and chromosomal anomalies were found in the caesarean born group, and although it may be possible that some of these babies may do better if born vaginally it does lead one to question how reliable the low risk assessment was in this respect, and hence the validity of the results of this paper.