AIMS For a better birth...

Computerised interpretation of fetal heart rate during labour (INFANT): a randomised controlled trial, The INFANT Collaborative Group

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Gemma McKenzie summarises the INFANT trial, 21st March 2017

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Background

Continuous electronic fetal heart rate monitoring (EFM) of the unborn baby is widely used throughout the UK during labour and birth. However recent research suggests that EFM does not lead to better outcomes for babies; in fact when EFM is used instead of intermittent auscultation (midwife listening to baby's heartbeat with a doppler), women are more likely to have caesarean sections and instrumental deliveries.

The researchers in the present study suggested that one reason why this could be the case is because health carers may have difficulty interpreting the baby's heart trace correctly during labour. They proposed using a computer, linked to the EFM, to objectively detect abnormalities in fetal heart rate patterns. Any abnormality would then be brought to the attention of health carers, who could respond accordingly.

Aims

The aims of the study were to test the hypotheses that:

i. a substantial proportion of substandard care results from failure to correctly identify abnormal fetal heart rate patterns;

ii. improved recognition of abnormality would reduce substandard care and poor outcomes;

iii. improved recognition of normality would decrease unnecessary intervention.

Method

The researchers recruited 47,062 women from 24 maternity units around the UK and Ireland. All of the women had been clinically recognised as requiring continuous EFM during labour and birth (although the reasons as to why they needed EFM were not given nor explored). All of the hospitals used a particular

EFM system called Guardian. Women were randomly allocated to one of two groups: they would either have 'decision support', i.e. additional software called INFANT linked to the EFM equipment that would assess the baby's heart rate and if necessary produce a colour coded alert, or they would have 'no decision support,' i.e. the health carer supporting the mother would interpret the EFM results and respond according to his/her own interpretation.

The researchers then looked at the outcomes of the births including, for example, any stillbirths, admissions to the neonatal unit, caesarean and instrumental births, and duration of labour. In addition, a questionnaire was sent out to parents two years after the birth to assess the child's health, development and wellbeing. Finally, the case notes of any babies who had had an adverse outcome potentially associated with asphyxia during birth, or who had died during birth, or were stillborn, were reviewed by a panel comprised of a midwife, neonatologist and senior obstetrician, to see if the baby's care was suboptimal, i.e. 'if it was possible or probable that different management would have prevented the adverse outcome.'

Results

The researchers concluded the following:

- There was no difference in adverse outcomes for the babies between the two groups. For example, in both groups 0.7% of the babies were considered to have had a 'poor outcome.'
- With regards to the cases that went to the expert panel for review, there were no differences between the two groups in the number of babies who had received 'suboptimal care.' Further, this preventable substandard care appeared to 'involve failure to take appropriate management decisions once a cardiotocographic abnormality had been recognised,' as opposed to health care providers failing to identify a pathological fetal heart rate.
- From the results of the questionnaire, no significant differences in health, wellbeing and development of the children were noted between the two groups.
- Unnecessary medical intervention was not reduced by the use of INFANT, and intervention rates were similar between both groups.

AIMS Discussion

It is interesting that the researchers decided to explore the problems of poor outcomes for newborns and unnecessary intervention for mothers by taking a very technological approach, i.e. by adding one technology, to another technology, to interpret the wellbeing of the baby. Indeed, even though the INFANT decision support software was seen as having no benefit, the researchers concluded that 'further development of decision-support software could improve the quality of feedback that the system provides to clinicians to make a difference to outcomes'. It appears therefore, that the researchers may continue to pursue this very technological approach, even though EFM and now INFANT have been proven to not lead to better outcomes for babies or mothers.

If the context in which the research takes place is considered, it can be seen that almost 60% of women

had their labour induced, around 24% of the births resulted in caesarean sections, 22% in instrumental deliveries and just over 29% of the women had episiotomies. Arguably these high intervention rates are symptomatic of a technocratic maternity system obsessed with a technological 'quick fix' and a highly medicalised approach to women's birthing bodies. The curious - and very worrying - aspect to this study is the continual insistence on more technology as the answer to poor infant and maternal outcomes, instead of perhaps an increase in midwife numbers combined with better training and support, or the reintroduction of continuity of care. A study that challenged the overreliance on technology at the expense of more traditional midwifery, may highlight that the maternity system is looking for answers in the wrong place, and that the continual quest for a technological solution may in fact prove a red herring.