Short communication

Routine testing of umbilical cord blood after normal delivery should be discontinued

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ABSTRACT

On many newborns in Sweden routine samples of blood are taken from the umbilical cord after birth to measure the acid–base balance. These tests were introduced with the aim to objectively measure the well-being and stress levels of the newborn during late pregnancy and birth. The information was to be used as a measurement of quality of care, for research and as a tool to help guide decisions around the care-needs of the newborn. After 10 years of routine analysis it has become clear that the results of these tests have limited clinical value and that they are a poor measurement of quality of care.

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Each year approximately 110,000 babies are born in Sweden. On almost all of these children two routine samples of blood are taken from the umbilical cord directly after birth to measure the acid–base balance immediately after labour. These tests were introduced in Sweden at the end of the 1990s, with the aim to objectively measure the well-being and stress levels of the newborn during late pregnancy and birth. The information was to be used as a measurement of quality of care, for educational purposes and for research, but also as a tool to help guide decisions around the care-needs of the newborn.

However, after more than 10 years of routine analysis it has become clear that the results of these tests have limited clinical value and that they are a poor measurement of quality of care since the test results have a relatively large margin of error.

Healthy newborns may have abnormal results and sick babies may have normal values. Only in cases where babies are born with clinical signs of possible asphyxia or later receive a diagnosis of cerebral palsy has acid–base tested at birth been shown to have some diagnostic value. One may identify two important areas of use:

1. Acidosis, defined as pH < 7 and/or BE < −16, are two of the four A-criteria used to identify severe asphyxia, mandating hypothermia treatment of the newborn [1].
2. In the investigation of children at risk for developing, or who have, a diagnosis of cerebral palsy, the umbilical cord test can serve as a piece of the puzzle to figuring out the cause of the handicap. While both obstetricians and paediatricians feel that the test has a certain, limited, value when trying to determine the timing of the damage, the test does not affect the treatment or predict diagnosis or prognosis.

The situations named above are only applicable to infants who are distressed at birth. To ascertain that essential information remain available to the caretakers of these infants, it is important that the clinical routines assure umbilical cord testing are upheld.

However, for infants born without signs of asphyxia and with full Apgar score after normal birth, the test lacks clinical importance for the baby, mother, father and health care personnel. Therefore the existing routine of taking umbilical cord samples on healthy newborn born after normal birth should be discontinued.

Swedish care during birth aims to be medically safe and give a positive birth experience without unnecessary interventions. In other words, we should only intervene when there is cause to do so. It is important to keep the normal birth uncomplicated. One key step in doing so is avoiding medical procedures that lack clear clinical indications. From an empirical perspective, the umbilical cord testing cannot be said to have a negative medical impact on the mother.
or child, granted that the cord is not clamped early (within the first 2 minutes after birth). The testing can, however, have an effect on how the birth is perceived by both staff and parents by signalling that we have to check what is healthy. Furthermore, routine interventions easily lead to more interventions with consequences that may be hard to distinguish. Therefore we should have a clear indication for any procedures and interventions that are undertaken in the healthcare setting. Finally, the cost effectiveness of routine umbilical cord sampling on healthy newborns is questionable. Each test cost 87 SEK (just shy of 13 USD) amounting to 8.7 million SEK annually (1.26 million USD).

A common argument for sampling the umbilical cord on all newborns is that this will guarantee that the test is taken on the children where it will be of value [2]. There are fears that the test will be forgotten or that the skills to take it will be lost if it is not done routinely. We argue that the midwives are able to determine whether a birth is normal and the newborn is in good health with a full Apgar score. Further, we argue that they are able to determine which deliveries do not fall into this category, and thus determine that the umbilical cord should be sampled. It is not likely that a midwife would forget to take the test on a distressed baby if the routine is altered, so that this intervention only is performed on clinical indications. As approximately 10% of newborns need some extra support at birth, umbilical cord sampling will remain frequent enough to ascertain that the skills involved are maintained.

We suggest that the current, routine umbilical cord testing on all newborns – including clinically healthy infants – is replaced by selective testing on newborns with clinical signs of fetal distress or a low Apgar score, and that national guidelines are developed for umbilical cord testing in conjunction with birth.

References
