

# Estimating date of delivery and gestational age – technology, biology or both?

A national standard for estimating date of delivery and gestational age must include both technological and biological information. Ultrasound-based methods such as Terminhjulet or eSnurra will, when used together with a good clinical assessment of menstrual history, provide pregnant women with a better prediction of date of delivery than either approach used alone.

As a paediatrician and neonatologist, I have been following with interest for several years the debate surrounding the use of early ultrasound to determine the estimated date of delivery (EDD), and the professional disagreement between the academic communities behind the two most commonly used models in Norway, «Terminhjulet» and «eSnurra». What has interested me especially is the conviction that early ultrasound examination is the only suitable approach, and that the debate is therefore primarily about which ultrasound method is best (1–6).

## Ultrasound-based EDDs are always wrong

It is very surprising that no-one in the two academic communities has highlighted the importance and clinical relevance of the individual woman's menstrual history in this matter. While Naegele's rule may for various reasons generate EDDs that are both unreliable and incorrect, the quality of an ultrasound examination may also vary, depending on the skill of the examiner and the type of ultrasound equipment used (7).

Moreover, an ultrasound-based EDD will always be wrong because it relies on the impossible assumption that all fetuses are the same size at the time of the ultrasound examination (2). This means that women whose fetuses are larger or smaller than average will receive erroneous over- or underestimates of fetal age. When a fetus is slightly smaller than average, the ultrasound examination will interpret the pregnancy as less advanced than is actually the case, and the EDD will be pushed further into the future. Similarly, if the fetus is larger than average, the pregnancy will be considered more advanced than it really is, and an earlier EDD will be indicated. The consequences of this source of error are undoubtedly greatest when ultrasound examination leads to prolongation of the pregnancy, with the result that the pregnancy may become post-term – with all the associated risks – if labour does not begin spontaneously. This methodological error may also have consequences for the choice of treatment strategy in the event of a preterm birth.

## Bureaucratic interests over medical

I was therefore surprised to see that the Norwegian Directorate of Health recently intervened in the matter by recommending that

eSnurra be introduced as a national standard for determining EDD and gestational age (8). The Directorate justifies its recommendation on the grounds that the use of a single national standard will ensure equality before the law for women seeking abortion, consistency of approach with respect to preterm births and consistent assessment of post-term pregnancies. This sounds like a reasonable bureaucratic objective. However, it is far from certain that it will result in the optimal medical outcome for all pregnancies – which must surely be the priority.

In my experience, it is not uncommon for the ultrasound examination to result in the EDD indicated by the GP on the basis of the woman's menstrual history being pushed back by a week or two. Many paediatricians have found that this technological extension of a pregnancy may have dramatic consequences for the outcome, in that it may lead to a post-term pregnancy if labour does not begin spontaneously. On the other hand, an ultrasound-based EDD that is earlier than the clinical EDD could, in some cases, lead to a pregnancy being considered post-term before it has even reached full term.

There have unfortunately been cases in which women whose biological EDDs were considered accurate nevertheless felt obliged to allow labour to be induced before clinical term, given that the alternative was to shoulder the considerable responsibility for having allowed the pregnancy to continue for longer than determined by the department's ultrasound-based guidelines. Such pressure will probably only intensify if it reflects not just the guidelines of a single department, but a national standard from the Directorate of Health.

## Menstrual history must be included

For this reason, the medical community and the Directorate of Health should communicate the importance of all women of child-bearing age being aware of their menstrual history. There is no reason to believe that a woman with a reliable menstrual history and certain clinical EDD will receive a more accurate or better EDD prediction with a method based on ultrasound alone. Moreover, there has been little discussion of the fact that there are major differences between departments with respect to how they handle discrepancies between clinical and technological EDDs. Some departments consistently

show a complete disregard for the EDD entered by the GP on the health card, and often do not add this date to the ultrasound records either. Other departments attach varying degrees of importance to the biological EDD when deciding upon the final EDD. This should of course be standardised.

Ultrasound-based methods such as Terminhjulet and eSnurra will, when used together with a good clinical assessment of menstrual history, provide pregnant women with a better prediction of EDD than either approach used alone.

## Dag Brattlid

brattlid@vikenfiber.no

Dag Brattlid (born 1944) is a former professor at the Norwegian University of Science and Technology. He is a specialist in paediatrics and former senior consultant in neonatal medicine at the Department of Children and Youth, St. Olavs Hospital, and has led the special interest group for neonatal medicine in the Norwegian Paediatric Association. Brattlid is now affiliated with the Department of Health Management and Health Economics at the University of Oslo. The author has completed the ICMJE form and reports no conflicts of interest.

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