Editorial

Transperineal ultrasound to predict vaginal deliveries

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The mechanical processes involved in the different stages of labor have been long known (1). The classic ways to access these processes, like abdominal palpation, digital evaluation of cervical dilatation and fetal head station and position, have helped millions of newborns to be delivered in a safe way. But some deliveries still challenge our capability as clinicians, trying to determine the need for an intervention and the best moment to perform it. In this scenario, the development of new tools, adequate for application in day to day use and that can identify and differentiate these patients, would be extremely important.

In the last 10 years, there has been an increasing number of publications evaluating the role and utility of intrapartum ultrasound. Multiple techniques, linear and angular, have been described to evaluate cervical dilatation, head descend and position. These ultrasonographic techniques have proven to be more reliable than digital examination (2,3) in accessing important parameters, and to some extent, distinguishing between those women destined for spontaneous vaginal delivery and those destined for operative delivery (4). Furthermore, there is now evidence that ultrasound in labor can predict to some extent the outcome of operatory vaginal delivery (5).

Studies using ultrasound during the second stage of labor have shown good results while trying to predict the mode of delivery. In the other direction, some articles have tested the measurement of head-perineum distance before the start of contractions to predict success in vaginal delivery (6). Although the results were inspiring, we still need further investigation before we can apply these as a standard evaluation in clinical care.

The measurement of the subpubic arch angle (SPA) using three-dimensional ultrasound (3DUS) as a parameter of the bony pelvis was accessed during the third trimester, between 34 and 36 weeks, to try to predict vaginal delivery and the necessity of assisted versus spontaneous vaginal delivery (7). Unfortunately, the author was not able to find an association between the SPA and mode of delivery. However, there was an association between this parameter and the duration of the second stage of labor.

The changes in bony pelvic have also been tested using 3DUS after delivery and compared to pelvic X-rays (8). The novel method described proved to be a reliable way to evaluate the width of symphysis pubis (WSP), superior pubic ligament length and pubic symphysis height.

Peng *et al.* (9) tried to combine all these techniques in a new approach. Pregnant women with 39+ weeks gestation were evaluated before going into labor, and four variables were acquired: progression distance (PD), angle of progression (AoP), SPA and WSP. The data was analyzed aiming to differentiate which group was more prone to go into labor. In the study, the authors concluded the PD and AoP were not suitable predictors of labor onset in late gestation. On the other way, SPA and WSP might have a role as possible predictors of labor, and help in diagnostic accuracy for the start of active labor.

But why should we worry about that? Eventually the majority of then will go into labor. A recent multicenter trial compared labor induction versus expectant management in low risk pregnancies, and opposite to what we classically would expect, found that induction resulted in a lower frequency of cesarean delivery, without significantly altering

adverse perinatal outcome (10). But making all these women go into labor is not cost free. A cost analysis sought to examine the cost-effectiveness of applying induction to all nulliparous term gestations in the United States (11). The authors came to an estimate of additional 2 billion dollars per year in healthcare costs if that was to be done. So, after all it seems that it is important to know if women are prone to go into labor or not after 39 weeks.

So, going back to Peng *et al.* (9), the paper is not conclusive about its results. The methodology still needs some improvement and, as the authors state in the discussion, the sample was small and the groups of patients should be better distributed to clear any bias. But considering the cost impact we could have if we knew which patients are going into labor soon and which are not, the study opens new ground to be evaluated by other studies, so that we can better understand the application of these novel methods in addressing the onset of labor.

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Footnote

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