Editorial

Labor and delivery description is based on data that is no longer accessible

*Travail et accouchement : une description fondée sur des données inaccessibles*

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During labor, digital vaginal examination seems to be inaccurate in assessing the fetal head descent [1]. To remedy this situation, much scientific research has been carried out to prove the usefulness of ultrasound in the management of labor and delivery [2]. In this context, obstetrical mechanics dogmas can once again be questioned. Such advances in imaging technology have often led physicians to question the reliability of clinical examinations. It is noteworthy to point out here that vaginal digital examination has been gradually replaced by transvaginal ultrasound in order to predict preterm labor [3]. In order to consider the assessment of the fetal head descent in labor, we needed to compare these new ultrasound technologies with conventional clinical examinations. This led us to take a close and thorough look at the data that was being used to back up the clinical examinations. However, we could not find any available evidence. This lack of transparency in the data concerning the assessment of the fetal head descent may also be applied to many other areas of obstetrics. Today, medical evidence is recorded in hundreds of journals accessible through databases such as Medline, Embase, Pascal and the Cochrane Library. Great progress has been made recently in the research transparency in requiring compliance with reporting guidelines [4]. There is no doubt that the reporting deficiencies that occur in research studies have lead to the distortion of certain scientific facts [5]. This, in turn, can result in clinicians being unable to provide the most suitable health care and management for their patients [6]. These reporting guidelines are recorded on the EQUATOR Network (http://www.equator-network.org/). In recent years, the number of reporting guidelines has greatly increased, as seen in the catalogue of EQUATOR Network (the website lists over 90 reporting guidelines) [7]. In addition, many journals now require access to source files. The level of statistic requirements is gradually increasing in medical journals for authors and for reviewers [8,9]. However, this scientific transparency does not exist for the description of the delivery, which is found in grey literature (books or any unrecorded articles) where the initial data is no longer available. This may be all the more surprising as childbirth and labor are common events. Let us consider some obstetrical dogmas. Head engagement is defined as the descent of the fetal biparietal plane to a level below that of the pelvic inlet [10]. When the leading point of the skull reaches the plane of ischial spines, the head is assumed engaged. We then set about looking for reliable data to prove this. According to the American Congress of Obstetricians and Gynecologists (ACOG), the maternal pelvis is divided into 10 levels of 1 cm, from −5 cm to +5 cm in a coronal plane [11]. Level 0 is the plane of ischial spines, and level −5 is the plane of pelvic inlet. If the top of the head is located 1 cm beyond the plane of ischial spines, the fetal head station is +1. This classification system does not determine the exact orientation of the plane of ischial spines, which is however an important anatomical landmark to assess the fetal head descent [12]. We are uncertain about the reliability of the information, which allows us to conclude that the length of the maternal pelvis (from the pelvic inlet to the vulva) is 10 cm. We are again dubious as to whether or not this is true for the majority of women. Furthermore, we must question the reliability of this information, as the data is inaccessible. Inferring the engagement of the head from ACOG station relies on pelvic measures but also on the measures of the fetal head. If the distance between the widest circumference of the head and the vertex is 4 cm, the head has crossed the pelvic inlet, once the station ACOG −1 is reached. However, studies reporting such fetal or neonatal measures are
also unavailable. Likewise, the methodology and the variability of fetal or neonatal cephalic measures are unknown. In addition, the cephalic engagement plane is likely to vary from one situation to another (according to the flexion of the head). Therefore, the distance between this plane and the top of the head is difficult to measure. This distance varies with gestational age and fetal growth. How can we be sure of the location of a variable and poorly defined cephalic plane using a pelvic anatomical landmark that is itself ill-defined (the plane of ischial spines)? It should also be pointed out that the fetal head is deformed under the effect of pelvic constraints (uterine contractions, soft tissues, pelvic bones). If indeed studies were to be carried out on neonatal cephalic measures the results would not give us an overall clear picture of what actually happens in utero. Needless to say, our criticisms of ACOG station also apply to the signs of engagement widely used in France (Farabeuf sign or Demelin sign). No serious scientific data is available to base their use. Numerous unproven dogmas exist in the field of obstetrics. Here are some such examples: is there any evidence that full cervical dilatation is 10 cm for all women? Is there any reliable reference ranges reporting radiographic measurements of the maternal mid pelvis (transverse diameter, anteroposterior diameter, and circumference) based on a very large cohort, calculated using the methods of modern science, and reported according to the women’s size? If a woman is 150 cm, what is the percentile of an anteroposterior diameter of 100 mm? In the discussion of their article Harper et al. [13] recall the history of these radiographic measurements. One is struck by the lack of scientific reliability of this data that is nevertheless essential for the management of breech presentations. In this day and age of modern medicine, it is debatable to deal with high-risk patient (for example instrumental delivery or caesarean sections at full dilatation) using untraceable data that is based more on hearsay than on evidence. Indeed, when these situations arise they may have serious consequences on perinatal health. When an emergency delivery is necessary, for example, at full dilatation because of abnormal fetal heart rate, the obstetrician has to take into account the fetal head engagement in order to choose between a forceps delivery, a vacuum extraction or a caesarean section. It is sometimes difficult to make the right decision in these situations. Indeed, intraoperative traumas occur in 6% of caesarean sections at full dilatation [14]. Instrumental vaginal delivery is associated with neonatal mortality of 5/10,000 [15], about 1% of neonatal complications [15] and about 15% of anal sphincter injuries [16]. Practitioners believe that this information regarding cephalic engagement is reliable as it is a widely known fact (and even taught in medical universities). Given the current state of evaluation, we are under the impression that the clinical examination of the head and ischial spines does not allow us to guess the cephalic level that has passed beyond the pelvic brim. Furthermore, we are also uncertain as to the scientific validity of the pelvic measurements curves published up until now.

Childbirth should not be considered as a disease. The present day scientific backwardness could stem from such an outlook. Researchers have always given priority to issues such as screening for Down syndrome or the management of pre-eclampsia rather than studying the description of childbirth and labor for the umpteenth time. Yet, we believe that such researches would be likely to improve the health of women and their children. Knowledge of obstetrical mechanics has a longer history than evidence based medicine. However, this area of knowledge should be subjected to the basic rules governing the transparency of scientific evidence. With the development of imaging research [17], we hope that obstetrical mechanics will soon enter a new era and that medical evidence in this area will then become readily accessible.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

References


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