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Underwater delivery. Consensus of the Spanish Neonatology Society and the Perinatal Section of the Spanish Obstetrics and Gynecology Society☆

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Abstract Immersion in water during labour and delivery as an alternative to traditional delivery is a practice that has increased in many countries. This technique is effective in reducing pain and duration of labour. The American Academy of Pediatrics and The American College of Obstetricians and Gynecologists have published a clinical report which indicates the potential maternal benefits during the first stage of labour but questions the performance of this technique during delivery and birth of the newborn. In this report, the Spanish Society of Neonatology and the Spanish Society of Obstetrics and Gynecology analyse the current scientific evidence on water immersion delivery, and the impact this practice could have on the mother and especially on the wellbeing of the newborn.

PALABRAS CLAVE
Inmersión en agua;
Parto;
Expulsivo;
Recién nacido

Atención del parto en el agua. Consenso de la Sociedad Española de Neonatología y de la Sección de Medicina Perinatal de la Sociedad Española de Obstetricia y Ginecología

Resumen La atención del trabajo de parto en el agua como alternativa al parto tradicional es una práctica que se ha incrementado en muchos países. Se ha constatado que esta modalidad de parto es un método eficaz para disminuir el dolor y acortar el tiempo de dilatación. La American

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Academy of Pediatrics y The American College of Obstetricians and Gynecologists han publicado un informe clínico en el cual señalan los potenciales beneficios maternos durante la primera parte del parto pero ponen en entredicho la realización de esta técnica durante el expulsivo y el nacimiento del recién nacido. En este informe, la Sociedad Española de Neonatología y la Sociedad Española de Obstetricia y Ginecología analizan la evidencia científica disponible en la actualidad sobre la realización del parto bajo agua y el impacto que puede tener esta práctica en la madre y sobre todo en la salud del recién nacido.

Introduction

Immersion in water during labour as an alternative to traditional delivery is becoming increasingly popular in many countries and is currently in real demand among expectant mothers. It has also been observed that underwater delivery has begun to be requested occasionally.[1–5]

In 2006 the Royal College of Obstetricians and Gynaecologists and the Royal College of Midwives in the United Kingdom produced clinical guidelines for attending underwater labour and birth in healthy mothers with uncomplicated pregnancies.[6] The ''Guía de práctica clínica sobre la atención al parto normal'' (Clinical Practice Guidelines for Normal Deliveries), published in 2010,[7] includes a recommendation (strength: A) of immersion in warm water as an effective method for relieving pain during the last phase of the first stage of labour, although it makes no reference to underwater delivery. Recently the American Academy of Pediatrics (AAP) and The American College of Obstetricians and Gynecologists (ACOG)[5] published a clinical report in which they point out the potential maternal benefits during the first stage of labour but question the advisability of performing this technique during the delivery and birth of the newborn. Few prevalence studies have been carried out on this practice; it is estimated that around 1% of births in the United Kingdom include at least a period of immersion during labour and delivery.[6] In Spain, according to data from the Spanish Neonatal Resuscitation Group, currently in press,[8] 17.4% of 155 hospitals surveyed in 2012 on resuscitation practices in labour wards have a birthing pool in their delivery room and practise underwater delivery in selected cases, mostly during labour. This procedure is more common in primary and secondary than in tertiary care hospitals (25.4% vs. 10.7%; $P < 0.05$). In the United States, a survey published in 2001[9] revealed that 143 maternity units had a birthing pool, and in the United Kingdom, according to data from 2005, at least 295 maternity units are equipped with this service.[6] The object of this report is to publicise the position of the Spanish Society of Neonatology and the Spanish Society of Obstetrics and Gynaecology on underwater delivery and the possible impact of this practice on the mother and especially on the health of the newborn.

Benefits and risks for the mother and the newborn

A Cochrane review[10] was published in 2009 analysing 12 randomised controlled clinical trials (3243 women) on immersion in labour and birth. Of the 12 clinical trials, nine analysed immersion during the first stage of labour, two in the first and second stages, and only one compared the second stage of labour with controls. This Cochrane review revealed that immersion during the first stage of labour is associated with a reduction in the use of epidural, spinal or paracervical analgesia in women labouring in water compared with controls (478/1254 vs. 529/1245) (RR: 0.90; 95% CI: 0.82–0.99) and with a reduction in the duration of the first stage of labour (mean difference of −32.24 min) (95% CI: −58.7 to −6.13). No differences were observed in the frequency of vaginal deliveries, indications for caesarean section, use of oxytocin, perineal trauma or infection among the women allocated to water immersion and the controls. Of the three studies that compared underwater delivery with controls, one showed a higher level of maternal satisfaction with the experience of waterbirth (RR: 0.90; 95% CI: 0.82–0.99). As regards the effects on the health of the newborn, no differences were detected in Apgar scores (score <7 at 5 min), Neonatal Unit admissions or neonatal infection rates when waterbirths and conventional deliveries were compared, although generally neonatal pathology was not the object of these trials. The studies included in this systematic review have some limitations, such as small sample sizes in some of the trials assessed and lack of masking, factors that can produce biased results and impair the reliability of the findings. None of these 12 clinical trials in the Cochrane review[10] showed benefits for newborns from waterbirths, and Nikomen's 1999 study, with a sample of 60 deliveries for each option, reported a lower Apgar score at 5 min and one perinatal fatality among infants delivered underwater.[11]

The studies assessing the safety of underwater delivery have important limitations. Some of them do not specify whether underwater delivery refers to the first or the second stage of labour, some are retrospective and limited to a single centre, there are observational studies that compare the study population with historical controls, expert opinions and a lack of basic experimentation in animals or humans to identify the physiological mechanisms that produce the published benefits.[5] It is therefore difficult to establish the incidence of maternal or neonatal complications in underwater delivery. In the newborn, some case series or individual case reports have been published, including sepsis (also maternal), difficulties with thermoregulation, hypovolemic shock due to umbilical cord avulsion or rupture, water intoxication (hyponatraemia), respiratory distress in the newborn through water aspiration (drowning or near-drowning) and hypoxic-ischaemic

encephalopathy.[5,6,12] Cases have been reported of newborns dying of severe respiratory distress or sepsis from *Pseudomonas aeruginosa* after waterbirths.[12] Such cases are rare but potentially very serious.

In normal conditions, newborns immersed in water at birth do not aspirate it because of the immersion or diving reflex, which protects them; however, there is sufficient experimental and clinical evidence of the loss of this reflex in conditions of foetal compromise, which can induce the newborn to start breathing and experience gasping reflexes, potentially leading to aspiration of the water in which they are immersed.[5,12]

Final considerations

On current data, it can be said that in uncomplicated full-term pregnancies, conducting the first stage of labour in water is a procedure that reduces the need for pharmacological analgesia and the duration of labour, although it does not improve perinatal outcomes. However, the safety and efficacy of immersion in water during delivery has not been established, either for mothers or for newborns.

Conducting the second stage of labour with delivery under water has only shown a higher degree of maternal satisfaction,[5] with no other benefits for the mother or the newborn, and cases of complications and fatal outcome in the newborn have been published.

In light of all this, mothers who wish to have a waterbirth need to be provided with objective, detailed information based on concrete data, specifying the indications, the possible contraindications, the benefits and the risks, both for their own health and for that of their newborn child.

The clinical report from the AAP and ACOG[5] states that the practice of immersion in the second stage of labour should be considered an experimental procedure that should only be performed within the context of controlled and therefore appropriately designed clinical trials.

Respect for the mother's autonomy and freedom of choice is limited by the safety of the newborn.

At present, given the lack of scientific evidence of any benefit and the absence of safety data on the health of the newborn, as well as the existence of documented clinical cases of severe complications or fatal outcome, the Spanish Neonatology Society, through its Standards Committee and the Neonatal Resuscitation Group, endorsed by the Perinatal Section of the Spanish Obstetrics and Gynaecology Society, and in line with the position of the AAP and ACOG, recommends that this mode of delivery should only be considered in the context of a controlled clinical trial.

Conflicts of interest

The authors have no conflicts of interest to declare.

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