

Commentary

Underwater Births

Abbreviations: CI, confidence interval • RCT, randomized, controlled trial • OR, odds ratio

Throughout human existence, women have typically given birth to their offspring on land. Over the last 25 years, however, underwater birth has become more popular in certain parts of the world despite a paucity of data demonstrating that it is either beneficial or safe.^{1–22} Underwater birth occurs either intentionally or accidentally after water immersion for labor, a procedure promoted primarily as a means of decreasing maternal discomfort. A review of the available literature indicates that the risks of underwater birth to the newborn seem to outweigh the benefits, and caution is urged before widespread implementation.

Although there is no suggested benefit of underwater birth to the newborn, morbidities identified in clinical reports have raised concerns that this mode of delivery may not be safe. In 1983, Odent¹ reported his experience with 100 consecutive deliveries. All mothers used water immersion during labor, but only a limited and unspecified number of births occurred under water. Two infants required positive-pressure support, but little additional data were provided. In 1995, Alderdice et al² performed a retrospective survey of 4494 underwater deliveries by midwives in England and Wales. They reported 12 stillbirths or neonatal deaths, 51 cases of neonatal morbidity (respiratory or infectious), 33 serious maternal complications (postpartum hemorrhage, perineal trauma), and 7 cases of back injuries among staff members. In a subsequent survey of 4032 underwater births in England and Wales,³ the perinatal mortality rate was 1.2 per 1000 live births (95% confidence interval [CI]: 0.4–2.9) and the rate of admission to a special care nursery was 8.4 per 1000 live births (95% CI: 5.8–11.8). The author of this survey suggested that these rates may be higher than expected for a term, low-risk, vaginally delivered population.⁴ In 1996, a retrospective review of 19000 underwater births from around the world⁵ noted that underwater birth (after water immersion for labor) was associated with a decrease in instrumented or operative delivery, a reduction in the need for pain medication, and no increased morbidity or mortality in the neonates. However, these data were largely anecdotal and compared with historical controls. A prospective observational study compared underwater birth with births using Maia-birthing stools and beds.⁶ Although underwater birth was associated with a decreased need for episiotomies and pain medication as well as higher Apgar scores and less cord blood acidosis in newborns, the birthing method was determined by maternal preference, and potential confounding variables were not analyzed. Over the last several years, numerous case reports have associated underwater birth with respiratory distress,^{3,7,8} hyponatremia,⁸ infections,^{3,8–11} hypoxic ischemic encephalopathy,^{3,7} ruptured umbilical cords,³ seizures,^{7,8} tachycardia and fever¹² (related to water temperature of the bath), and near drownings^{3,7} in newborns or fetuses.

There is only 1 report of a randomized, controlled trial (RCT) of underwater birth, but it has not been published in a peer-reviewed journal.¹³ This study showed no difference in the number of neonates admitted to a NICU; however, it was not sufficiently powered to evaluate important morbidities ($n = 120$). There have been 6 published RCTs of water immersion during labor^{14–19} (only 1 in the United States¹⁶). A Cochrane systematic review²⁰ of 3 of these trials,^{14–16} involving 988 mothers, found no benefits for pain relief, the course of labor, or perineal trauma for the mother and no differences in neonatal outcomes. The authors concluded that there were insufficient data to evaluate water immersion for labor. Subsequently, an RCT of water immersion for labor of 274 Australian women also found no benefit for pain relief, the length of labor, perineal trauma, or mode of delivery.¹⁷ However, more neonates born to mothers who labored underwater required oxygen or positive-pressure ventilation in the delivery room compared with the control group (49% vs 35%; relative risk: 1.41; 95%

CI: 1.06–1.89). A Swedish study of 1237 women found no benefit or harm to mothers or infants after water immersion for labor. [18](#) Cluett et al, [19](#) from England, reported the results of an RCT in 99 women, comparing water immersion versus augmentation (amniotomy and oxytocin) for the subset of patients with labor dystocia. There were no differences between groups in the use of epidural analgesia, operative delivery, or duration of labor. Although women in the water-immersion group were less likely to receive augmentation than the routine-care group (relative risk: 0.74; 95% CI: 0.59–0.88) and generally had lower pain scores, 12% of neonates born to mothers who labored underwater were admitted to the NICU, compared with none in the augmentation group ($P = .013$). A second Cochrane systematic review of water immersion for labor by the same authors as the first was published recently. [21](#) This report included the previously mentioned studies but also relied on unpublished data, personal communications, and data not published in peer-reviewed journals. The authors concluded that water immersion resulted in a reduction in the use of analgesia/anesthesia for mothers (odds ratio [OR]: 0.87; 95% CI: 0.71–0.99), but differences in vaginal operative deliveries (OR: 0.83; 95% CI: 0.66–1.05) and cesarean sections (OR: 1.33; 95% CI 0.92–1.91) did not reach statistical significance. The differences in the incidence of low Apgar scores (OR: 1.57; 95% CI: 0.63–4.01), admissions to a NICU (OR: 1.05; 95% CI: 0.68–1.61), and neonatal infections (OR: 2.01; 95% CI: 0.50–8.07) also did not reach statistical significance. The safety and efficacy of underwater birth for the newborn has not been established. There is no convincing evidence of benefit to the neonate but some concern for serious harm. Therefore, underwater birth should be considered an experimental procedure that should not be performed except within the context of an appropriately designed RCT after informed parental consent.

Committee on Fetus and Newborn, 2004–2005,

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ACKNOWLEDGMENTS

Dr Batton acknowledges the additional members of the Committee on Fetus and Newborn of the American Academy of Pediatrics for advice and guidance regarding this commentary.

FOOTNOTES

accepted Sep 20, 2004.

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No conflict of interest declared.

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