Underwater Delivery: A Safe Birthing Option

(Experience sharing from Tertiary Care Hospital)

Abstract:

Background: Women's experiences of using water for labour and birth are generally positive in terms of feeling relaxed, involved in decision-making and being more in control. The use of water as pain relief during labour has been found to be effective, resulting in less use of epidural/spinal for pain relief during labour. There is evidence to suggest that the length of the first stage may be reduced. **Objective-**To find out the maternal and fetal outcome following underwater delivery. **Methodology**-Pregnant women were provided information about all alternate birthing positions during antenatal period. 180 low risk Pregnant women opting for underwater delivery were provided the facility of underwater delivery in birthing tub and Maternal and fetal outcome were analysed over a period of 12 months. Women's satisfaction was assessed on a 5-point Likert scale. **Results**-Among 180 mothers, 18% were primigravida and 82% were multigravida, Birth weight of the babies was below 2.5kg in 60% and above 2.5 kg in 40% babies. The average duration of the second stage was 32 minutes, average duration of third stage was 8 minutes. Birth asphyxia and third stage complications were not observed in any case. Episiotomy was not needed in any case. The incidence of 1st degree was 15% and 2nd degree perineal tear was 6.7. Early initiation of breast feeding, delayed cord clamping and AMTSL could be implemented in all cases. Babies born under water did not suffer from any complications like aspiration, birth trauma, lower APGAR score, neonatal infections or increased morbidity or mortality. The average satisfaction score of women was 4.7 on 5-point Likert scale. **Conclusion-** Underwater delivery revealed advantages such as labor pain relief, reduced risk of Obstetric interventions, soothing environment and smooth transition for baby from the womb to outer world.

Keywords: Water birth, Maternal outcome, Perinatal outcome

Introduction

Water birth is a natural birthing technique where the expectant mother delivers in a warm water tub or pool. One of the key benefits of water birth is pain relief; the warm water helps support the mother's weight and provides a soothing, relaxing effect, reducing discomfort during labor. The buoyancy of the water also allows for greater mobility, enabling the mother to move more freely and find comfortable positions, which can help in optimal baby positioning and promote smoother delivery.

In addition to pain relief and mobility, water births are associated with a reduced risk of medical interventions. Studies have shown that water births often have lower rates of epidurals, episiotomies, and Cesarean sections, making it a preferred choice for women seeking a more natural birthing experience. The serene and calming nature of the water also creates a soothing environment, helping the mother feel more at ease and less anxious, contributing to a positive and peaceful birthing experience.

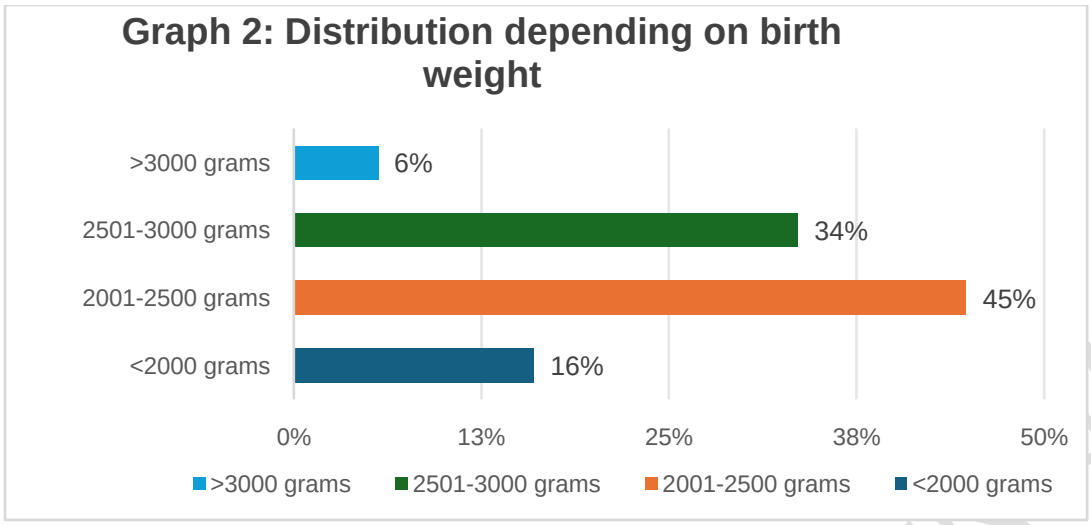
Water birth offers numerous benefits for both the mother and baby, including enhanced bonding opportunities as partners or family members can actively participate, providing emotional support and strengthening the connection with the newborn. The gentle environment of the water provides a smooth transition for the baby, reducing the stress typically associated with birth. Mothers often report higher satisfaction with their birth experience due to the increased sense of control, as the water supports about 75% of a woman’s weight, making her feel buoyant and comfortable. Additionally, warm water helps the perineum become more elastic and relaxed, which can reduce the likelihood and severity of tearing during delivery, leading to a more positive and comfortable experience for the mother. The objective of the present study was to evaluate maternal and foetal outcomes in with underwater delivery.

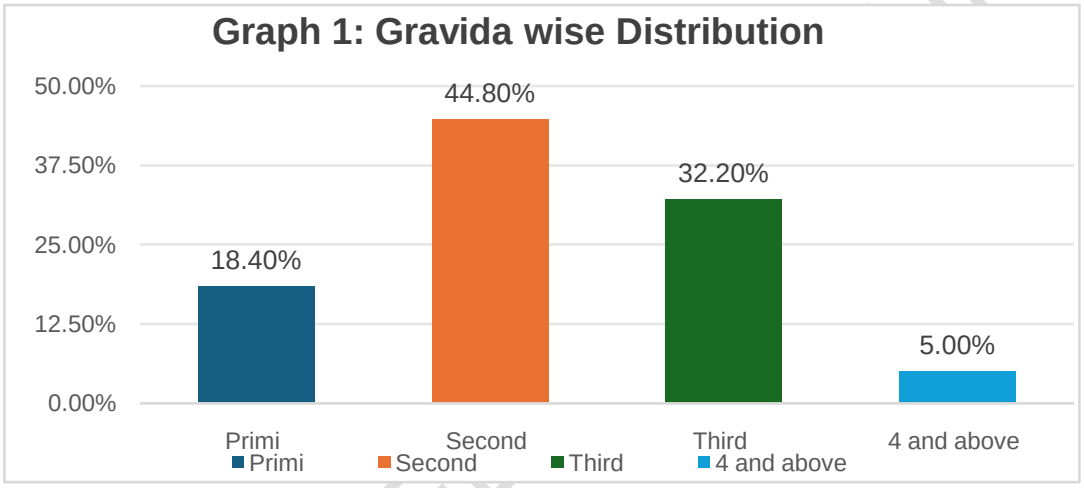
Material and methods: During the antenatal period, pregnant women were educated about various alternate birthing positions to allow them to make informed decisions about their delivery. For those opting for underwater delivery, a birthing tub was provided to facilitate this choice, with all necessary precautions taken according to the protocol of hydro-labour to ensure safety. The patient, spouse and family members were counselled, and consent was obtained.

Only low-risk pregnancies, as per the established inclusion criteria, were allowed to proceed with underwater delivery, ensuring that the method was suitable for the participants. The inclusion criteria for underwater delivery were: Pregnant women with 37-42 weeks of gestation with uncomplicated singleton pregnancy, with cephalic presentation, and engaged foetus. The labor had spontaneous onset, with normal liquor volume and fetal heart rate within 110-160 bpm. The mother had not received opiate pain relief in the last 2 hours. In cases of rupture of membranes, the duration had to be less than 24 hours with clear liquor. Only women with a normal blood picture were included.

The maternal and fetal outcomes were analysed over a 12-month period, involving 180 women who underwent underwater delivery. To assess the effectiveness and overall experience, women's satisfaction was evaluated using a 5-point Likert scale, providing a measure of how content they were with their underwater birth experience. This approach aimed to gauge both the clinical outcomes and the emotional and physical satisfaction of the mothers involved.

Results: Among the 180 mothers who participated in the study, 18% were primigravida (first-time mothers) and 82% were multigravida (having had one or more previous pregnancies). In terms of birth weight, 60% of babies had a weight below 2.5 kg, while 40% had a weight above 2.5 kg, indicating a mix of low and normal birth weight babies. The average duration of the second stage of labor (pushing) was 32 minutes, which is within the expected range, while the third stage (delivery of the placenta) averaged 8 minutes, reflecting a timely and efficient delivery process.





Notably, there were no cases of birth asphyxia or complications in the third stage of labor, indicating a smooth delivery process overall. The majority had no perineal tear with incidence of 77.8% and incidence of 1st degree perineal tear was 15% and 2nd degree perineal tears was relatively low at 6.7%, suggesting minimal trauma during delivery. Additionally, early initiation of breastfeeding, delayed cord clamping, and Active Management of the Third Stage of Labor (AMTSL) were successfully implemented for all cases, promoting better neonatal and maternal outcomes. Women reported a high level of satisfaction with the water birth experience, with an average satisfaction score of 4.7 out of 5 on the 5-point Likert scale, reflecting a generally positive perception of the method.

Discussion

Labour Pain: All cases included in the study did not need any epidural/spinal analgesics or pain killers during hydrotherapy. This may be due to the relaxing effect of warm water and the facilitated movement in its weightlessness and greater freedom of movement. Furthermore, immersing in warm water is proposed to create a calming impact, reduces stress and relieves anxiety through the secretion of stress-related hormones such as catecholamines.

Labour induction: In this study, among the 180 parturient none had need for labor induction and their labor progressed well by good uterine contractions. The buoyancy of water enables a woman to move more easily which can facilitate the neuro-hormonal interactions of labor, alleviating pain, and potentially optimizing the progress of labor. Besides these facts, water immersion may be associated with improved uterine perfusion, less painful contractions, a shorter labor with fewer interventions.

Study by Bovbjerg MLet al [7] showed that 23.4% were primigravida. Birth weight of the babies was below 2.5kg in 62% and above 2.5 kg in 32% babies. Study by Ravi C et al [9] showed that in water birth, there is no need for performance of episiotomy even for primigravida mothers.

In the present study the average duration of the second stage was 32 minutes, average duration of third stage was 8 minutes. Birth asphyxia and third stage complications were not observed in any case.
Water immersion during the first stage of labour can undoubtedly provide maternal benefits, especially in terms of pain relief, lower episiotomy and induction rates, without affecting neonatal outcomes.[1-3]

Perineal Trauma: The perineal tear was very limited and majority of them had no tear (77.8%) with minimum incidence of 1st degree (15%), 2nd degree (6.7%) perineal tears . There was no need for episiotomy among any of the parturients who opted for hydro birthing.

In present study 51.7% experienced no tear, 41.1% had a first-degree tear, 6.7% had a second-degree tear, and 0.5% had a third-degree tear. The meta-analysis results showed no significant differences between the immersion and control gro**ups in terms of third-degree and fourth-degree lacerations (RR, 1.37; 95% CI, 0.86–2.17; five trials), episiotomy (RR, 0.93;**

95% CI, 0.80–1.08; five trials), or the need for assisted vaginal delivery (RR, 0.86; 95% CI, 0.71–1.05; seven trials) or cesarean delivery (RR, 1.21; 95% CI, 0.87–1.65; eight trials).[8]

Fetal and maternal outcome: In present study early initiation of breast feeding, delayed cord clamping and AMTSL could be implemented in all cases. The average satisfaction score of women was 4.7 on 5-point Likert scale. A study by Jordan A. McKinney et al [10]showed that patients undergoing water birth had lower odds of postpartum haemorrhage (21 articles, 149,732 pregnancies). Neonates delivered in water had higher odds of cord avulsion (10 articles, 91,504 pregnancies) and lower odds of low Apgar scores (21 articles, 165,917 pregnancies), neonatal infection (15 articles, 53,635 pregnancies), neonatal aspiration requiring resuscitation (19 articles, 181,001 pregnancies), and neonatal intensive care unit admission (30 articles, 287,698 pregnancies).

Postpartum hemorrhage: Based on population-wide studies from well-developed countries, Miller et al., has concluded that the incidence of PPH after vaginal delivery ranges from 0.8% to 7.9%. The greater likelihood of PPH was being nulliparous women with a second stage duration of ≥3 hr. Our present study did not report any post partum hemorrhage. The lower blood loss in water bath could be explained by the hydrostatic pressure in the tub or possibly by a facilitated control of third stage of labor.

Apgar scoring and NICU: It is widely recognised that a low Apgar score, commonly defined as a score less than 7, is associated with increased risks of neonatal mortality, morbidity, infections, asphyxia related complications, neonatal hypoglycaemia, and respiratory distress and long term outcomes. In our study, Mean Apgar score at 1 minute and 5 minute was 7 and 8 respectively which indicates normal healthy newborn. There was no incidence of aspiration, drowning or mortality. This has been explained by diving reflex which is an inhibitory primitive reflex. Aspiration is said to occur only when the diving reflex fails. The overall neonatal admission rates were low, due to the fact of relatively low-risk population being studied.

Conclusion:

Underwater delivery revealed advantages such as labor pain relief, reduced risk of Obstetric interventions soothing environment and smooth transition for baby from the womb to outer world. Babies born under water did not suffer from any complications like aspiration, birth trauma, lower APGAR score, neonatal infections or increased morbidity or mortality.

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