Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/20422
DOI URL: http://dx.doi.org/10.21474/IJAR01/20422

RESEARCH ARTICLE

UNDERWATER DELIVERY: A SAFE BIRTHING OPTION (EXPERIENCE SHARING FROM TERTIARY CARE HOSPITAL)

Jagisha Vijay[1], Vidyadhar Bangal[2] and Parikshit Jondhale[3]

1. Postgraduate Resident, Dept. of Obstetrics and Gynaecology Pravara Institute of Medical Sciences (DU), Loni, Maharashtra.
2. Prof and Head of OBGY, Dept. of Obstetrics and Gynaecology Pravara Institute of Medical Sciences (DU), Loni, Maharashtra.
3. Assistant Professor, Dept. of Obstetrics and Gynaecology Pravara Institute of Medical Sciences (DU), Loni, Maharashtra.

Manuscript Info

Manuscript History
Received: 12 December 2024
Final Accepted: 15 January 2025
Published: February 2025

Key words:-
Water Birth, Maternal Outcome, Perinatal Outcome

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-During the antenatal period, pregnant women were educated and provided information about various alternate birthing positions. A total of 180 low-risk pregnant women who opted for underwater delivery were provided with the option to give birth in a birthing tub. Fetal and maternal outcomes were evaluated over a span of 12-month, and a 5-point Likert scale was used to measure women's satisfaction with the birthing experience.

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.

Corresponding Author:- Jagisha Vijay
Address:- Postgraduate Resident, Dept. of Obstetrics and Gynaecology Pravara Institute of Medical Sciences (DU), Loni, Maharashtra.

Introduction:-

Water birth is a natural birthing technique where the expectant mother delivers in a warm water tub or pool. Most common benefit is the pain relief; the warm water helps support the mother's weight and provides a soothing, relaxing effect, reducing discomfort during labor. The water's buoyancy provides improved movement, helping pregnant women to move easily and find comfortable spots. This can assist in getting the baby into the best position and encourage an easier delivery.[1]

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 common choice for normal delivery. [2]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.[3]

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.[4]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. Moreover, warm water aids in making the perineum more flexible and relaxed. This can decrease the chances of tearing during childbirth and lessen its severity, resulting in a more pleasant and comfortable experience for the mother.[5,6]

Material and Methods:-

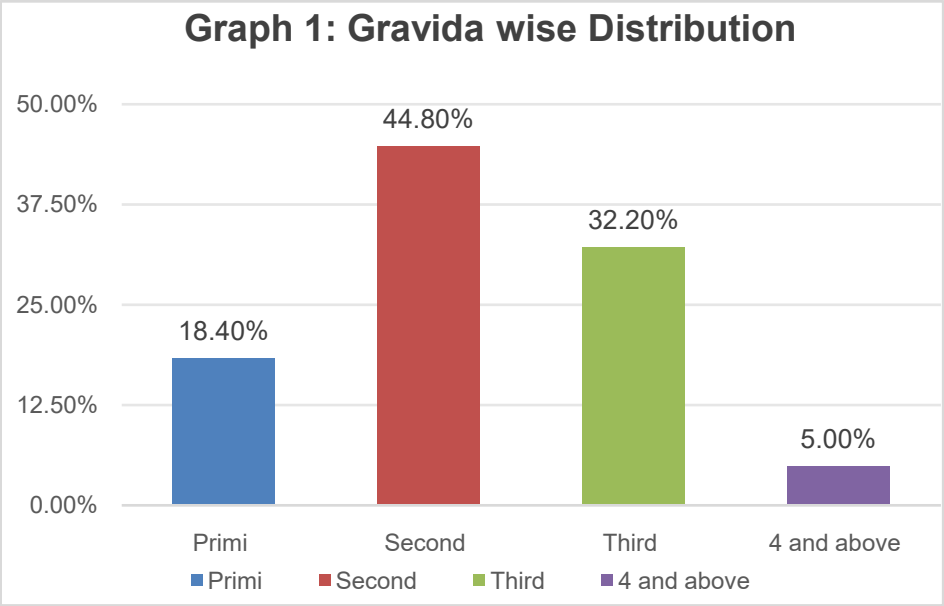
During the antenatal period, pregnant women were educated about various alternate birthing positions to allow them to make informed decisions about their delivery. For those opting for underwater delivery, a birthing tub was provided to facilitate this choice, with all necessary precautions taken according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

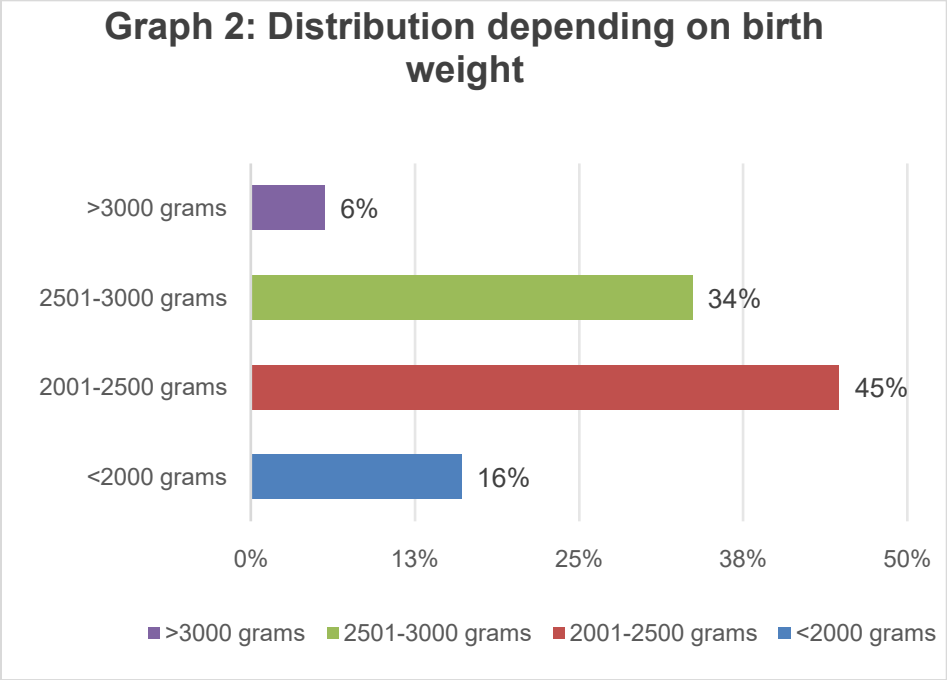
Only low-risk pregnancies, as per the established inclusion criteria, were allowed to proceed with underwater delivery, ensuring that the method was suitable for the participants. The inclusion criteria for underwater delivery were: Pregnant women with 37-42 weeks of gestation with uncomplicated singleton 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,82% were multigravida (having had one or more previous pregnancies) and 18% were primigravida (first-time mothers). 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:-

LabourPain:

In all instances included in the research, there was no requirement for any epidural or spinal analgesics or pain relief medications during hydrotherapy sessions. This could be attributed to the soothing nature of warm water, which allows for easier movement due to its buoyancy and promotes greater freedom of motion. Additionally, being in warm water is thought to have a soothing effect, helping to reduce stress and ease anxiety by affecting the release of stressrelated hormones like catecholamines.

Labourinduction:

Within this research, none of the 180 women in labor needed to have their labor induced, as their labor progressed effectively with strong uterine contractions. The buoyant qualities of water allow women to move more freely, which may help enhance the neurohormonal connections involved in labor, reducing pain and possibly improving the labor process. Moreover, immersion in water may lead to better blood flow to the uterus, less intense contractions, a shorter labor duration, and a need for fewer medical interventions.

Study by BovbjergMLet 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 occurrence of perineal tears was very minimal, with most mothers not experiencing any tears (77. 8%), and the rates of 1st degree (15%) and 2nd degree (6. 7%) tears being low. No episiotomies were performed on any of the women who chose 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 groups 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 postpartum hemorrhage (PPH) occurs in 0. 8% to 7. 9% of vaginal deliveries. [10]Nulliparous women with a second stage lasting 3 hours or more were at a higher risk for PPH. In our study, there were no reported cases of postpartum hemorrhage. The reduced blood loss in water births may be attributed to the hydrostatic pressure in the tub or the possibly improved management of the third stage of labor.

Apgar scoring and NICU:

It is commonly known that a low Apgar score, typically defined as a score below 7, is linked to a higher risk of neonatal mortality, complications, infections, asphyxia, hypoglycemia, respiratory issues, and longterm health problems. In our study, the average Apgar scores at 1 minute and 5 minutes were 7 and 8 respectively, signifying healthy newborns. There were no cases of aspiration, drowning, or fatalities. This could be explained by the diving

reflex, which acts as an inhibitory primitive response. Aspiration is said to occur only if this reflex does not function. The overall rates of neonate admissions were low due to the relatively lowrisk population that was 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.

Acknowledgment:-

We would like to express our sincere gratitude to Pravara institute of medical sciences(DU),Loni, Maharashtra for providing the necessary resources and a supportive environment for this research study.

References:-

1. Vidiri A, Zaami S, Straface G, Gullo G, Turrini I, Matarrese D, Signore F, Cavaliere AF, Perelli F, Marchi L. Waterbirth: current knowledge and medico-legal issues. Acta Biomed. 2022 Mar 14;93(1):e2022077.
2. Aughey H, Jardine J, Moitt N, et al. Waterbirth: a national retrospective cohort study of factors associated with its use among women in England. BMC Pregnancy Childbirth. 2021;21:256.
3. Zaami S, Stark M, Beck R, Malvasi A, Marinelli E. Does episiotomy always equate violence in obstetrics? Routine and selective episiotomy in obstetric practice and legal questions. Eur Rev Med Pharmacol Sci. 2019;23:1847–1854.
4. Zhang, G., & Yang, Q. (2022). Comparative Efficacy of Water and Conventional Delivery during Labour: A Systematic Review and Meta-Analysis. Journal of healthcare engineering, 2022, 7429207. https://doi.org/10.1155/2022/7429207 (Retraction published J Healthc Eng. 2023 Dec 6;2023:9765825. doi: 10.1155/2023/9765825)
5. Davies, R., Davis, D., Pearce, M., & Wong, N. (2015). The effect of waterbirth on neonatal mortality and morbidity: a systematic review and meta-analysis. JBI database of systematic reviews and implementation reports, 13(10), 180–231. https://doi.org/10.11124/jbisrir-2015-2105
6. Iglesias Casás, S., Pérez-Fernández, M. R., Montenegro-Alonso, M. S., Parada-Cabaleiro, M. E., Sanmartín-Freitas, L., & Mena-Tudela, D. (2023). Neonatal outcomes after water birth: A retrospective cohort study. Enfermeriaclinica (English Edition), 33(4), 292–302. https://doi.org/10.1016/j.enfcle.2023.05.005
7. Bovbjerg ML, Cheyney M, Caughey AB. Maternal and neonatal outcomes following waterbirth: a cohort study of 17 530 waterbirths and 17 530 propensity score-matched land births. BJOG. 2022 May;129(6):950-958.
8. Cluett ER , Burns E . Immersion in water in labour and birth . Cochrane Database of Systematic Reviews 2009 , Issue 2 . Art. No.: CD000111 .
9. Ravi C, Kandasamy R. An Overview of Water Birth and Its Benefits. Pon J Nurs 2021;14(4):91–93.
10. Jordan A. McKinney, Gustavo Vilchez, Alicia Jowers, Amanda Atchoo, Lifeng Lin, Andrew M. Kaunitz, Kendall E. Lewis, Luis Sanchez-Ramos. Water birth: a systematic review and meta-analysis of maternal and neonatal outcomes. American Journal of Obstetrics and Gynecology. 2024; Volume 230: Issue 3: Supplement:m Pages S961-S979.e33.