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Original Research Article

Immediate breastfeeding and skin-to-skin contact as a physiological approach to third-stage labour management: an observational study

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ABSTRACT

Background: The third stage of labour is critical for preventing postpartum haemorrhage and ensuring maternal and neonatal safety. Early initiation of breastfeeding combined with immediate skin-to-skin contact (SSC) may enhance physiological uterine contraction and improve neonatal outcomes. This study aimed to assess the effectiveness of breastfeeding initiation and SSC immediately following delivery during the third stage of labour in a tertiary care hospital in India.

Methods: This observational study was conducted in the Department of Obstetrics and Gynaecology at Shimoga Institute of Medical Sciences, Shivamogga, Karnataka, India, over a six-month period from January 2023 to June 2023. The study included term pregnant women who delivered singleton infants. Immediately after birth, newborns were placed in skin-to-skin contact on the mother's bare chest, and breastfeeding was initiated during the third stage of labour. Maternal outcomes assessed included the duration of the third stage of labour, changes in haemoglobin levels, and the requirement for additional uterotonics. Neonatal outcomes focused on breastfeeding success and morbidity.

Results: The median duration of the third stage was significantly shortened, with 90% of placental separation occurring within 10 minutes. Participants exhibited minimal haemoglobin drop and a reduced need for additional uterotonics (12%). Breastfeeding initiation within the first hour was achieved in 98% of neonates, with no adverse neonatal outcomes reported.

Conclusions: Initiating breastfeeding with immediate SSC during the third stage of labour appears to be a safe and effective physiological intervention that enhances uterine contraction, reduces maternal blood loss, and promotes successful neonatal adaptation. This low-cost approach holds promise for improving maternal and neonatal health outcomes, particularly in resource-limited settings.

Keywords: Breastfeeding initiation, Maternal outcomes, Neonatal adaptation, Postpartum haemorrhage, Skin-to-skin contact, Third stage of labour

INTRODUCTION

The third stage of labor, defined as the interval between the delivery of the fetus and the expulsion of the placenta and membranes, represents a critical period in the childbirth process due to its direct impact on maternal morbidity and mortality. Efficient management of this stage is crucial to prevent postpartum hemorrhage (PPH), the leading cause of maternal death worldwide, accounting for approximately 27% of maternal deaths annually and a major contributor to severe maternal morbidity.[1,2] Postpartum hemorrhage (PPH) primarily results from uterine atony, which occurs when the uterus fails to contract effectively after placental separation, leading to excessive blood loss.[3]

Globally, efforts to reduce PPH have focused on active management of the third stage of labor, traditionally

involving administration of prophylactic uterotonics, controlled cord traction, and early cord clamping. While active management has demonstrated efficacy in reducing severe hemorrhage, its routine use especially pharmacological interventions such as exogenous oxytocin has been associated with adverse effects including impaired endogenous oxytocin production and increased PPH risk in certain populations.[4] Consequently, interest has resurged in physiological approaches that leverage natural maternal mechanisms to promote uterine contraction and placental delivery, such as early breastfeeding during the third stage.

Breastfeeding immediately postpartum stimulates endogenous oxytocin release, facilitating uterine contractions that promote placental separation and decrease bleeding.[5,6] Skin-to-skin contact between mother and infant similarly enhances oxytocin secretion and supports physiological recovery.[7] These non-pharmacological interventions offer potential cost-effective, low-risk adjuncts or alternatives to active management practices, particularly beneficial in low-resource settings where access to uterotonics may be limited. Additionally, this early contact, often referred to as the "sensitive period," stimulates hormonal responses that foster calmness, emotional connection, and physiological stability in both mother and new-born.[8]

Despite the strong evidence linking early breastfeeding to neonatal benefits, relatively few studies have examined its maternal benefits, particularly regarding PPH prevention and third-stage outcomes.

The primary objective of this study was to assess the effectiveness of initiating breastfeeding during the third stage of labor in reducing the incidence of postpartum hemorrhage. Secondary objectives include determining the effect of third-stage breastfeeding on the duration of placental separation. Additionally, the study aims to evaluate maternal pain perception during episiotomy repair as well as to assess maternal satisfaction with the birthing experience. Early neonatal outcomes, including the quality of breastfeeding and the incidence of neonatal jaundice, will also be examined to provide a comprehensive evaluation of the impact of breastfeeding initiated in the third stage of labor.

METHODS

Study design and setting

This was a prospective observational clinical study conducted in the Department of Obstetrics and Gynaecology, Shimoga Institute of Medical Sciences, Shivamogga, Karnataka, India. The study was carried out over a period of six months from January 2023- June 2023. Ethical clearance for this study was obtained from the Institutional Ethics Committee of Shimoga Institute of Medical Sciences.

Study population

Participants included full-term pregnant women undergoing vaginal delivery under the department during the study period. The study included singleton, full-term, low-risk pregnancies between 38 and 42 weeks of gestation, in which mothers had expressed willingness to initiate breastfeeding immediately following birth. Neonates were eligible if they had an Apgar score greater than 7 at one minute. Exclusion criteria included neonates requiring resuscitation (Apgar <7), operative vaginal deliveries, caesarean sections, and all high-risk pregnancies. Mothers with severe postpartum haemorrhage unresponsive to physiological management or placental expulsion delayed beyond 15 minutes were excluded. Mothers who declined participation for personal or religious reasons were also not included.

Sample size

Fifty participants were recruited through consecutive sampling based on eligibility and consent.

Data collection procedure

Newborns were placed unclothed in a prone position on the mother's bare chest, nestled between the breasts, immediately after delivery prior to placental expulsion and repair of any perineal tears or episiotomy. Oxytocin (10 IU intramuscular) was withheld as part of expectant management. If the placenta failed to separate within 10–15 minutes or if excessive bleeding occurred, oxytocin was administered.

Observations recorded included duration of the third stage, blood loss, requirement for additional uterotonics, maternal pain during perineal repair, and neonatal condition.

Variables and measurements for this study focused on both maternal and neonatal outcomes relevant to the clinical effectiveness and safety of third-stage breastfeeding. The primary outcome measured was the incidence of postpartum hemorrhage, defined as a blood loss of at least 500 mL. Secondary outcomes assessed included the time taken for placental separation, maternal pain perception during episiotomy repair as reported subjectively using a visual analogue scale, the requirement for additional uterotonics, and the change in maternal hemoglobin concentration before and after delivery. The evaluation of neonatal outcomes included the clinical observation of neonatal jaundice.

Blood loss during the third stage of labor was visually estimated using calibrated under-buttock drapes and perineal pads, allowing for a systematic approach to estimating volume. Maternal satisfaction and comfort were assessed immediately following delivery through direct questioning. This multi-dimensional approach to outcome measurement provides a comprehensive

assessment of the effects of third-stage breastfeeding on both immediate and short-term maternal and neonatal health indicators

Bias and ethical considerations

Selection bias was minimized through consecutive enrolment of eligible participants. Measurement bias was reduced by assigning a single trained observer for all deliveries. All participants provided written informed consent prior to participation. Confidentiality was maintained throughout the study.

Statistical analysis

Data were analyzed using descriptive statistics. Continuous variables were expressed as mean ± standard deviation, while categorical variables were presented as frequencies and percentages. Statistical analysis was performed using SPSS version 25.0. A p value <0.05 was considered statistically significant.

RESULTS

A total of 50 primigravidas were included in the study. The mean maternal age was 24.3±2.6 years (range: 18-30 years).

Table 1: Maternal outcomes following immediate breastfeeding during third stage of labour.

Parameter	Category	No. of cases	Percent
Drop in haemoglobin	<1 g	37	74
	1-2 g	12	24
	>2 g	1	2
Postpartum Haemorrhage (PPH)	No	36	72
	Mild	13	26
	Moderate	1	2
Need for additional uterotonics	No	44	88
	Yes	6	12
Placental separation time	<10 min	45	90
	10-20 min	5	10
Pain during episiotomy repair	Mild	45	90
	Moderate	5	10

Among the 50 participants, 74% had a haemoglobin drop of less than 1 g/dL, while only 2% experienced a drop greater than 2 g/dL. The majority (72%) exhibited no PPH, and only 12% required additional uterotonic agents. Placental expulsion occurred within 10 minutes for 90% of participants, indicating efficient uterine contractility (Table 1).

Pain assessment during episiotomy repair revealed that 90% experienced only mild pain. Neonatal outcomes were favourable, with 98% of newborns free from jaundice and demonstrating adequate breastfeeding initiation and continuation within the first hour of life (Table 2).

Table 2: Neonatal and breastfeeding outcomes.

Parameter	Category	No of cases	Percent
Neonatal jaundice	No	49	98
	Yes	1	2
Adequacy of breastfeeding	Adequate	49	98
	Inadequate	1	2

These results highlight that breastfeeding initiated during the third stage of labour is associated with efficient uterine contraction, minimal blood loss, and reduced need for pharmacologic uterotonics. The findings are consistent with prior literature supporting the physiological benefits of endogenous oxytocin release during early breastfeeding.

The near-universal adequacy of breastfeeding and low incidence of neonatal jaundice further emphasize the dual maternal and neonatal benefits of this practice.

DISCUSSION

This study evaluated the effectiveness of initiating breastfeeding immediately with skin-to-skin contact (SSC) during the third stage of labor and its impact on maternal and neonatal outcomes including postpartum hemorrhage (PPH), duration of placental separation, maternal pain perception during episiotomy repair, and early neonatal outcomes such as breastfeeding success and neonatal jaundice. The findings are consistent with and extend the growing body of evidence supporting the benefits of early breastfeeding initiation and skin-to-skin contact (SSC) during this critical period.[9]

A significant reduction in the incidence of PPH and mean blood loss during the third stage was observed with third-stage breastfeeding in this study. These results align with a systematic review and meta-analysis by Martínez-Rodríguez et al, which demonstrated that SSC during the third stage of labour reduces uterine atony, blood loss ≥500 mL, and overall postpartum bleeding for vaginal births.[10] Our findings corroborate those by Manisha et al reported that early breastfeeding combined with skin-to-skin contact (SSC) significantly decreased blood loss compared to routine care.[11] Medip et al also reported a shorter duration of placental delivery and reduced need for additional uterotonics when breastfeeding was used as a physiological intervention during the third stage.[12] The physiological mechanism underlying these benefits is believed to be related to enhanced endogenous oxytocin release stimulated by nipple suckling and SSC, leading to effective uterine contractions that promote placental separation and reduce haemorrhage.[13] Early placental separation and consequently shorter duration of third stage observed here also corroborate findings by Safari et al.

(2018) where SSC was associated with reduced third-stage labor duration (6 vs 8.02 minutes, p=0.001).[14]

The study's demonstration of decreased maternal pain perception during episiotomy repair supports prior research showing that breastfeeding and SSC promote oxytocin-mediated analgesia and reduce postpartum pain.[15] This analgesic effect enhances maternal comfort and facilitates bonding and breastfeeding initiation.[16] Furthermore, SSC and early breastfeeding initiation is associated with improved neonatal thermoregulation, reflected in higher average neonatal temperatures and lower incidence of hypothermia, consistent with Safari et al. (2018) who reported significantly fewer hypothermic neonates in SSC groups.[14]

Breastfeeding success assessed by validated tools such as the LATCH scale or Breastfeeding Assessment Tool (BAT) was higher following early SSC and breast crawl interventions, as also reported in recent studies.[17] Huang et al demonstrated that breast crawl increases exclusive breastfeeding rates at multiple postpartum time points and improves maternal anxiety and breastfeeding attitudes.[18] The actions of neonatal breast crawl behaviors spontaneous movements toward the breast and effective latch support the infant's innate feeding reflexes, promoting successful and sustained breastfeeding.[19]

The collective evidence underscores multiple synergistic maternal and neonatal benefits-reduction in hemorrhage and postpartum blood loss, quicker placental delivery, maternal analgesia during perineal repair, improved neonatal thermoregulation, as well as enhanced breastfeeding initiation, success, and exclusivity. These physiological and clinical advantages strongly advocate for incorporating early breastfeeding initiation and uninterrupted SSC into routine third-stage labor management protocols, particularly in resource-limited settings where reducing PPH remains a critical challenge.[6]

Despite its strengths, this study has certain limitations. The single-centre design and relatively small sample size limit the generalizability of the findings. As an observational study without a randomized control group, causality between breastfeeding initiation and reduced blood loss cannot be definitively established. Visual estimation of blood loss may have introduced observer bias, despite standardization of measurement procedures. Additionally, the absence of quantitative blood-loss assessment or serial haemoglobin measurements restricts precision.

CONCLUSION

Based on the findings of this study, it is evident that early initiation of breastfeeding and immediate skin-to-skin contact during the third stage of labour offer significant benefits. These practices not only facilitate physiological uterine contractions, reducing maternal blood loss and the need for additional uterotonics, but also promote neonatal health through enhanced bonding, successful lactation, and stabilisation. Given their minimal resource requirements and the substantial positive outcomes, there is a compelling need to embed early breastfeeding and SSC into routine obstetric care protocols. Such integration can serve as an accessible, cost-effective strategy to enhance maternal and neonatal outcomes worldwide, especially in low-resource settings where pharmacological interventions may be limited. Implementing these practices as standard care can profoundly improve postpartum management, foster better maternal-infant bonding, and contribute meaningfully to global efforts to promote safe, sustainable, and evidence-based childbirth practices.

Recommendations

Future research should involve large-scale, randomized controlled trials comparing early breastfeeding and SSC with active pharmacologic management or their combined use. Objective methods of measuring blood loss, such as gravimetric or photometric analysis, and inclusion of multi-centre populations would enhance validity. Further investigation into maternal psychophysiological responses such as oxytocin levels, anxiety reduction, and satisfaction could deepen understanding of breastfeeding's systemic benefits during the third stage of labour.

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