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Original Research Article

Fetal outcomes of cord milking in term babies with meconium-stained amniotic fluid in a tertiary care centre: interventional type of study

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ABSTRACT

Background: Umbilical cord milking (UCM) is proposed for increasing placental transfusion when immediate care for the newborn is needed enables blood to be directed into the baby more quickly than delayed cord clamping (DCC) at birth than waiting for this to happen physiologically. Any form of stress on the fetus and to mother can induce passage of meconium.[6] Meconium-stained amniotic fluid results in increase the need of neonatal assistance, due to adverse outcomes such as respiratory distress, lower Apgar score, meconium aspiration syndrome and neonatal sepsis. From studies, it was observed that there was a gap in study of cord milking in term babies with MSAF. It was hypothesized that umbilical cord milking to be more beneficial that delayed as it can be performed more quickly, to babies with meconium-stained liquor requiring resuscitatory efforts. Therefore, a study was conducted to evaluate the maternal and fetal profile of term babies with meconium-stained liquor and their outcome on umbilical cord milking at the time of delivery.

Methods: A interventional type of study was conducted with a sample size of 200 labouring patients admitted in labour ward with gestational age between 37 to 42 weeks with meconium-stained amniotic fluid in Tertiary Care Centre. Details regarding patient's demographics, detailed history of period of gestation, high risk factors, past history, patient's entire obstetric history was noted. During delivery, if cord milking and clamping done was noted. Fetal wellbeing through APGAR score of baby, resuscitation required, hematocrit at 48 hours, DSPT required and their septic screening results; was evaluated.

Results: The present study was carried out on 200 labouring patients with meconium-stained amniotic fluid, admitted in labour ward in a tertiary health care centre. Baseline characteristics were comparable in both the groups. When we compared fetal profile in babies whose cord milking was done and in whom cord milking was not done, we observed that babies under UCM group, had better Apgar scores (at 1 min: 6.23 vs 5.77, $p=0.0082$) (at 5 min: 8.17 vs 7.36, $p<0.0001$), required less NICU admission, more hematocrit (53.58 vs 48.70, $p<0.0001$) and lower mortality (25% vs 75%) than non-milking group.

Conclusions: Meconium-stained amniotic fluid is worrisome as it is associated with increased frequency of operative delivery, neonatal sepsis and neonatal intensive care unit admissions which requires appropriate intrapartum care. UCM can be a used as a placental transfusion strategy in neonates with meconium-stained amniotic fluid, requiring resuscitation with some benefits and minimum adverse effects. It could be considered as an alternative for the current practice of delayed cord clamping.

Keywords: Fetal outcome, Meconium-stained amniotic fluid, Term babies, Umbilical cord milking

INTRODUCTION

Most important goal of neonatal care is to deliver adequate oxygen through placental transfusion. Cord clamping can be accomplished by three different methods: immediate cord clamping (ICC), delayed cord clamping (DCC) and umbilical cord milking (C-UCM).

The placental transfusion facilitates the transfer of blood volume from the placenta to the newborn. At gestation, about one-third of the blood flows through the placenta and two-thirds through the fetus at any point in time. Immediate cord clamping (ICC) results in ~30% of feto-placental blood volume remaining in the placenta, in contrast to DCC reduces residual placental blood to 20% of the feto-placental blood volume by 60 seconds and to 13% by ~3–5 min.[1] Umbilical cord milking (UCM) is proposed for increasing placental transfusion when immediate care for the newborn is needed enables blood to be directed into the baby more quickly at birth than waiting for this to happen physiologically.[2] Umbilical cord milking (UCM) consists of gently grasping the uncut umbilical cord of approximately 20 cm length and squeezing the cord from the placenta two to four times toward the infant in rapid time frame, usually within 20 seconds.

Many Studies conclude that cord milking has beneficial effects on fetal outcome as it significantly improves blood pressure, hematocrit and haemoglobin levels within the first few days of life. No associated harm was identified in any study.[4] It was found in a study on Delayed cord clamping (DCC) during deliveries with meconium-stained amniotic fluid; that infants in the DCC group had significantly higher APGAR scores and lower need for intervention in the delivery room than that of ICC (immediate cord clamping).[9] In another study which was the first randomized controlled trial demonstrated higher systemic blood flow with UCM in neonates compared with DCC. Thus, UCM may be a more efficient technique to improve blood volume in infants.[5]

Any form of stress on the fetus and to mother can induce passage of meconium. Term foetuses are prone more prone for MSAF than preterm.[6] MSAF results in increase the need of neonatal assistance, due to adverse outcomes such as respiratory distress, lower Apgar score, meconium aspiration syndrome and neonatal sepsis. Neonate born through MSAF is 100 times more prone to have respiratory problems than those who have been born with low risk of obstetric complications and clear fluid.[2]

ICC is a usual practice in babies with meconium-stained amniotic fluid requiring resuscitation. Cord milking is supposed to provide the beneficial effects of DCC in neonates in a quick fashion. Hence, we hypothesize that cord milking must show beneficial effect to babies with MSAF requiring resuscitatory efforts. As per authors knowledge till date no other study evaluated the effect of umbilical cord milking in term babies with meconium-stained amniotic fluid. Thus, this study was conducted to evaluate the maternal and fetal profile of term babies with MSAF and their outcome on umbilical cord milking at the time of delivery.

METHODS

The study was an Interventional type of study, which was conducted in the Department of Obstetrics and Gynecology, at Government medical college, Nagpur, a tertiary care centre of central India. The study aimed to study the effect of cord milking in term babies with meconium-stained amniotic fluid. The research was carried out from January 2023-September 2025 and included a total of 200 participants who met the inclusion criteria.

Sample size was determined considering 16% of term babies having MSAF; using the following formula: N = Z21-α/2P(1-P)/ D2 (Z = 1.96 (confidence level 95%)

The sample size was estimated to be 200 with 5 percent absolute precision at 95 % confidence level.

Inclusion criteria

Included all pregnant women who had completed more than 37 weeks and less than 42 weeks of gestation. Cephalic presentation of baby. Patients with Meconium-stained amniotic fluid

Exclusion criteria

Patients who do not show meconium stain, pregnancy of less than 37 weeks of gestation or more than 42 weeks of gestation, Rh negative or retrovirus positive mothers, MCDA twin pregnancy. Severe placental abruption, major chromosomal and congenital abnormalities, short umbilical cord (>30 cm).

Study procedure

All the women in labour who had meconium-stained amniotic fluid, satisfying inclusion criteria after initial screening, clinical and laboratory investigation were included in the study. Full-term pregnant females with gestation of 37 TO 41+6 weeks, cephalic presentation, in labor with meconium-stained amniotic fluid were included in the study.

The detailed ANC profile of mothers was recorded retrospectively including: mother's age, obstetrics history, her haemoglobin, weeks of gestation, last ANC USG, any co-morbidities, methods of induction used, if registered or not. Onset of labour was noted if induced or in spontaneous labour along with its mode of delivery. During delivery, if cord milking and clamping was done. Cord milking was done by encircling the intact cord with thumb and forefingers of one hand at the introitus or at the wound in caesarean delivery and gently squeezing along the accessible length approximately 20 cm and pushing the

blood 4-5 times through the cord towards the infant's abdomen. This group was allocated as UCM group and the neonates who underwent ICC were designated as control group. Total 102 cases (51%) cord milking was done and in 98 controls (49%) cord milking was not done. All the neonate were assessed for APGAR of baby at 1 min and 5 min, birth weight, resuscitation required, duration of oxygen therapy required, hematocrit in the fetus done within 72 hours of delivery. Newborn was then followed if requirement of NICU admission, DSPT and septic screening. Then their final outcome was noted.

Statistical analysis

Data was collected by using a structured proforma and entered in MS excel sheet and analyzed by using SPSS 24.0 version IBM USA.

Results were expressed in percentages. Comparison of the results was done and the results were expressed in mean (SD). p value of less than 0.05 was considered as statistically significance.

RESULTS

Table 1 depicts the distribution of patients according to the risk factors associated with pregnancy. In the study, oligohydramnios (20.5%) was found to be the risk factor in majority of patients. Other risk factors reported were as gestational hypertension (8%), Fetal growth restriction (12.5%), polyhydramnios (1%), gestational diabetes mellitus (2%), premature rupture of membranes (3%), severe anaemia (7%), cord around neck of baby noticed at delivery (25.5%), history of fever at term (3%). There were only 7.5% of the patients who had multiple risk factors, whereas no risk factor was found in 3% cases.

Table 2 shows comparison of maternal profiles based on cord milking. Demographic data of both the groups were comparable as no statistical difference was found between the groups.

Table 3, compares fetal profile in babies whose cord milking was done and in whom cord milking was not done. We observed that there was no significant difference in baby weight (p>0.3091). Though it was found that lesser number of babies required resuscitation in whom cord milking was done as compared to the other group. There was a significant difference found in Apgar score at 1 minute, at 5 min and hematocrit levels between the two groups.

Lesser NICU admission (28.39%) was required for neonate stabilization after cord milking as compared to neonates who didn't undergo cord milking (71.60%). Neonates of UCM group had more hematocrit, less hospital stay and less DSPT requirement than ICC group neonates. Only 25% of all the deaths counted in cord milking group whereas 75% mortality was found among group where cord milking was not done.

Table 1: Distribution of study population according to risk factor.

Risk factors	Cases	%
Gestational HTN	16	8
FGR	25	12.5
Oligohydramnios	41	20.5
Polyhydramnios	2	1
Gestational DM	4	2
PROM	6	3
Previous LSCS	14	7
Cord around neck	51	25.5
Severe anemia	14	7
Fever	6	3
Multiple risk factors	15	7.5
No risk factor	6	3

Table 2: Comparison of maternal profile based on cord milking.

Variable	Cord milking done	Cord milking not done	P value
Age	25.34±(4.21)	25.89±(3.04)	0.428
Parity	Primi-46 (41.44%)	Primi-25 (28.08%)	
	Multi-65 (58.56%)	Multi-64 (71.91 %)	
Gestational age	39.06±(0.85)	38.84±(1.25)	0.135
Risk factor	57 (45.96%)	67 (54.04%)	
LSCS	65 (43.91%)	83(56.08%)	
Hb	10.51±(1.56)	10.42±(1.51)	0.834

Table 3: Comparison of fetal profile based on cord milking.

Variable	Cord milking done		Cord milking not done		P value
Total no	102 (51%)		98 (49%)		
Baby wt (gm)	<2 kg (12) 11.76%	2504±(391.5)	<2 kg (13) 13.26%	2566± (409.3)	0.3091
	2-2.5 kg (23) 22.54%		2-2.5 kg (36) 36.73%		
	>2.5-3 kg (60) 58.82%		>2.5-3 kg (38) 38.77%		
	>3 kg (7) 6.86%		>3 kg (11) 11.22%		
Apgar 1min	6.23±(1.09)		5.77± (1.336)		0.0082**
Apgar 5 min	8.17±(1.14)		7.36± (0.91)		<0.0001****
Nicu Adm	23 (28.39%)		58 (71.60%)		
Number of babies required resuscitation (76)	31 (40.78%)		45 (59.21%)		
Hematocrit	53.58 (4.21)		48.70 (3.93)		<0.0001****
Septic screening	10 (40%)		15 (60%)		
DSPT	7 (39%)		11(61%)		
Death	2 (25%)		6 (75%)		

Note: ****-denotes highly significant (as value of p<0.001); **-denotes significant (as p<0.05).

DISCUSSION

Umbilical cord milking enables quick transfer of extra residual placental blood to fetus. Hence, many studies conclude that cord milking significantly improves blood pressure, hematocrit and haemoglobin levels within the first few days of life with no associated harm identified in any study.[4]

In our study, we observed in (Table 1) the distribution of the study population according to the risk factor in which the maximum cases had a risk factor as cord around neck 25.5% and oligohydramnios 20.5%. Similarly, in the study by Dereje et al, those women who had oligohydramnios were 5 times more likely to have meconium-stained amniotic fluid than those who didn't. Fetus with oligohydramnios usually had low or inadequate uteroplacental reserve as a cause of oligohydramnios, so when these women go into labor there will be compression of the spiral arterioles with the uterine contraction, which leads to hypoxia in a fetus. Fetal hypoxia results in the relaxation of the anal sphincter causing the passage of meconium into the amniotic fluid.[20]

The other risk factor which was observed in our study was PROM i.e., 3% of the cases had PROM similar findings were observed in the study by Hailemariam HA which the incidence of meconium-stained amniotic fluid was seen in women who had premature rupture of membrane 7.6 %.[26] The increased risk of MSAF in women with PROM can be explained by; women with PROM having an increased risk of intrauterine fetal infection, which in turn causes fetal stress leading to the passage of meconium into the amniotic fluid. Other risk factors which are found in our study were as: gestational hypertension (8%), fetal growth restriction (12.5%), polyhydramnios (1%) gestational diabetes mellitus (2%), previous LSCS (7%), severe anemia (4.5%) and fever (3%). There were 6 patients who had more than one risk factors described above (7.5%). The incidence of pregnancy induced hypertension (PIH) associated with meconium-stained amniotic fluid (MSAF) was 19.09% in study by Rathoria et al, which was explained as in-utero passage of meconium in PIH patients is because of fetal hypoxia due to uteroplacental insufficiency.[11]

As, we compared the fetal profile between both the groups in patients whom cord milking was done and whom cord milking was not done in table 3, We observed that baby weight in cord milking group was 2504±(391.5) and 2566±(409.3) in group the other group with no significant difference in them. In a study by Zanardo et al, which was "a randomized controlled trial of intact cord milking versus immediate cord clamping in term infants born by elective caesarean section" it was found that birth weight (g) in UCM group was (3,317.2) and ICC group was (3,440.6).[28]

When we compared UCM and non-UCM babies we found that Apgar score was found to be higher in UCM GROUP i.e., 6.23±(1.09) which was statistically significant. (p=0.0082). Also, at 5 minutes when we compared UCM and non-UCM babies we found that APGAR SCORE was more than 8.17±(1.14) in the UCM group when compared to non UCM group i.e., 7.36±(0.91) which was highly significant with a p value (<0.0001). In contrast to this finding were observed in the study done by de Preud'hommed'Hailly et al, with no significant difference regarding APGAR score at 5 minutes between delayed cord clamping vs cord milking.[27] When we compared the UCM group with the non UCM group in case of NICU admission, we found that in the UCM group, 23 (28.39%) babies were admitted in NICU whereas in the non-UCM group, 58 (71.60%) babies were admitted to NICU. Likewise in a study by Mangla et al, UCM had less number of neonatal admissions as compared to DCC.[13] Authors

also observed that 50% of the cases under UCM group required early resuscitation via suctioning or tactile stimulation whereas 56.1% in non-milking group. Also 3.9% (4 cases) required intubation under milking group and 5.1% (5 cases) required advanced resuscitation in the babies who did not undergo cord milking while cord clamping. In a study on premature infants by Katheria et al, infants receiving UCM had higher heart rates and higher SpO2 over the first 5 minutes of life, were exposed to less FiO2 over the first 10 minutes of life than infants with ICC. And this study concluded that UCM when compared to ICC had decreased need for support immediately following delivery and in situations where resuscitation interventions were needed immediately, UCM has the advantage of being completed in a very short time to improve stability following delivery.[25] Though similar study of term infants was not found.

We compared the hematocrit levels at 48±6 hours of life in babies in both the groups. We found a significant increase in hematocrit level in babies in whom cord milking was done i.e., 53.58 (4.21) when compared to babies in whom cord milking was not done 48.70 (3.93) (p value<0.0001). A systemic review compared the milking of the umbilical cord (MUC) with the rapid clamping of the umbilical cord (RCUC). The study revealed that MUC was linked with increased values of hematocrit and haemoglobin and reduced risk of the requirement of oxygen by Al-Wassia et al.[6] In a study done by Mangla et al, which was to study the effect of umbilical cord milking vs delayed cord clamping on venous hematocrit at 48 hours in late preterm and term neonates, the mean (SD) hematocrit at 48 (±6) hours in the MUC group was higher than in DCC group (57.7 (4.3) vs. 55.9 (4.4), p=0.002) similar to our study.[13]

In case of septic screening in term babies with meconium-stained liquor we observed that the percentage of positive cases was 11.5%. Out of the positive cases 15 cases were cases in which cord milking was not done. Although no study was found to compare the sepsis rate between the two groups.

We also observed the neonates who required DSPT. Only 9% (18) of cases required DSPT. Of which 7 cases had undergone UCM and rest 11 had not undergone UCM. However, Koo et al, concluded that no large studies or systematic reviews have shown that UCM increases the need for phototherapy treatment or exchange transfusion compared to delayed or early cord clamping.[15]

Authors also observed the final outcome of the babies, the total number of deaths was 8, which included only 2 neonates in which cord milking was done, thus deaths were less in UCM group as compared to other which is significant. We could not find any similar study that compared the number of deaths in term neonates in whom cord-milking was done but in a study done on preterm neonates by Katheria et al Umbilical cord milking versus delayed cord clamping in infants 28 to 32 weeks, 7 of 511 (1.4%) infants randomized to UCM developed severe IVH or died compared to 7 of 508 (1.4%) infants randomized to DCC (rate difference 0.01%, 95% confidence interval (−1.4% to 1.4%), p=0.99).[25]

Based on the findings of our study, UCM is beneficial however this needs to be validated by larger studies before widespread use can be recommended. As the debate on the optimal method of cord clamping at childbirth continues, we hope this study could heighten our current knowledge on cord milking which could help incorporate the practice into standard care.

CONCLUSION

Meconium-stained amniotic fluid is worrisome as it is associated with increased frequency of operative delivery, neonatal sepsis and neonatal intensive care unit admissions which requires appropriate intrapartum care. UCM can be a used as a placental transfusion strategy in neonates with meconium-stained amniotic fluid, requiring resuscitation with some benefits and no adverse effects. It could be considered as an alternative for the current practice of delayed cord clamping. However, the safety profile of umbilical cord milking, particularly in term newborns with meconium-stained liquor is still debatable, which needs to be verified by larger studies. This study also reveals that umbilical cord milking is a sound practical approach to raise the hematocrit levels without causing any adverse maternal or neonatal effects and eventually become a cost-effective intervention for the primary prevention of anaemia in childhood.

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REFERENCES

1. Rabe H, Gyte GM, Díaz-Rossello JL, Duley L. Effect of timing of umbilical cord clamping and other strategies to influence placental transfusion at preterm birth on maternal and infant outcomes. Cochrane Database Syst Rev. 2019;9(9):3248.
2. World Health Organization. Guideline: delayed umbilical cord clamping for improved maternal and infant health and nutrition outcomes. World Health Organization. 2014.
3. Katheria, Anup C. Umbilical Cord Milking: A Review. Frontiers in Pediat. 2018;6(4):335–9.
4. Upadhyay A, Gothwal S, Parihar R. Effect of umbilical cord milking in term and near term infants: randomized control trial. Am J Obstet Gynecol 2013;208:120-6.
5. Katheria AC, Leone TA, Woelkers D, Garey DM, Rich W, Finer NN. The effects of umbilical cord milking on hemodynamics and neonatal outcomes in premature neonates. J Pediatr. 2014;164(5):1045–50.
6. Al-Wassia H, Shah PS. Efficacy and safety of umbilical cord milking at birth: a systematic review

and meta-analysis. JAMA Pediatr. 2015;169(1):18–25.
7. Maymon E, Chaim W, Furman B, Ghezzi F, Shoham VI, Mazor M. Meconiumstained amniotic fluid in very low risk pregnancies at term gestation. Eur J Obstet Gynecol Reprod Biol. 1998;80:169–73.
8. Erickson-Owens DA, Mercer JS, Oh W. Umbilical cord milking in term infants delivered by cesarean section: a randomized controlled trial. J California Perin Assoc. 2024;32(8):580–4.
9. Osava RH, Silva FM, Vasconcellos de Oliveira SM. Fatoresmaternos e neonataisassociadosaomecônio no líquidoamnióticoem um centro de parto normal. Revista de saudepublica. 2012;46(6):1023–102.
10. Mohammad N, Jamal T, Sohaila A, Ali SR. Meconium-stained liquor and its neonatal outcome. Pak J Med Sci. 2018;34(6):1392-6.
11. Richa R, Shukla I, Kaur N, Agarwal D. Study of risk factors and perinatal outcome in meconium stained deliveries from a district of Uttar Pradesh, India. International J Reprod, Contracep, Obst Gynecol. 2018;7(9):3605–9.
12. Mohammad K, Tailakh S, Fram K, Creedy D. Effects of early umbilical cord clamping versus watsonlayed clamping on maternal and neonatal outcomes: a Jordanian study. J Matern Fetal Neonatal Med. 2021;34(2):231-7.
13. Mangla MK, Thukral A, Sankar MJ. Effect of umbilical cord milking vs delayed cord clamping on venous hematocrit at 48 hours in late preterm and term neonates: a randomized controlled trial. Indian Ped. 2020;57(12):1119–23.
14. Nirmala C, Thomas L, Sujatha Y. Risk factors of meconium stained amniotic fluid-a case control study. International J Clin Obstet Gynaecol. 2020;4(2):157-60.
15. Koo J, Kilicdag H, Katheria A. Umbilical cord milking-benefits and risks. Front Pediatr. 2023;11:1146057.
16. Jain SN, Mehendale AM. A review on umbilical cord milking and its implications in neonatal health. Cureus. 2022;14(10):30610.
17. Addisu D, Mekie M. Adverse maternal and perinatal outcomes of meconium-stained amniotic fluid in term labor at hospitals in south Gondar zone, northwest ethiopia: a prospective cohort study. Biomed Res Int. 2023;4:8725161.
18. Chaudhary P, Priyadarshi M, Singh P. Effects of delayed cord clamping at different time intervals in late preterm and term neonates: a randomized controlled trial. European J Pediat. 2023;182(8):3701–11.
19. Addisu D, Asres A, Gedefaw G, Asmer S. Prevalence of meconium stained amniotic fluid and its associated factors among women who gave birth at term in FelegeHiwot comprehensive specialized referral hospital, North West Ethiopia: a facility based cross-sectional study. BMC Pregn Childbirth. 2018;18:1-7.
20. Dereje T, Sharew T, Hunde L. Meconium Stained Amniotic Fluid and Associated Factors among Women Who Gave Birth at Term in Adama Hospital Medical College, Ethiopia. Ethiop J Health Sci. 2023;33(2):219-26.
21. Mundhra R, Agarwal M. Fetal outcome in meconium stained deliveries. J Clin Diagn Res. 2013;7(12):2874-6.
22. Rao KS, Pathapati S, Vansipriya C. Risk factors for meconium stained liquor and outcome of neonate in meconium stained amniotic fluid. Indian J Obst Gynecol Res. 2017;4(1):1–5.
23. Abate E, Alamirew K, Admassu E, Derbie A. Prevalence and Factors Associated with Meconium-Stained Amniotic Fluid in a Tertiary Hospital, Northwest Ethiopia: a cross-sectional study. Obstet Gynecol Int. 2019;2:793.
24. Parween S, Prasad D, Poonam P, Ahmar R, Sinha A, Ranjana R. Impact of meconium-stained amniotic fluid on neonatal outcome in a tertiary hospital. Cureus. 2022;25;14(4):24464.
25. Katheria A, Szychowski J, Carlo WA, Subramaniam A, Reister F, Essers J, et al. Umbilical cord milking versus delayed cord clamping in infants 28 to 32 weeks: a randomized trial. Pediatrics. 2023;1;152(6):2023063113.
26. Hailemariam HA, Nigusse F, Gamshe EN. Prevalence and Contributing Factors of Meconium Stained Amniotic Fluid Among Women Delivered at St Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia. J Med Physiol Biophys. 2020;67:49.
27. Nieuport SMI, Krijgh EJC, Pruijssers B, Visser J, van Beek RHT. Delayed cord clamping vs cord milking in elective cesarean delivery at term: a randomized controlled trial. Am J Obstet Gynecol MFM. 2024;6(3):101279.
28. Zanardo V, Guerrini P, Severino L, Simbi A, Parotto M, Straface G. A randomized controlled trial of intact cord milking versus immediate cord clamping in term infants born by elective cesarean section. Am J Perinatol. 2021;38(4):392-7.

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