

## “A Study On Umbilical Cord Milking Vs Delayed Cord Clamping On Hematological Parameters At 6 Weeks Of Life In Term Neonates”.

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**ABSTRACT:-** Introduction :Parinatal iron deficiency has received little attention in the past ,due to assumption that Infants are protected from iron deficiency unless the mother is marked anemic.In a survey in India,70% of infants between 6 and 11 months of age were found anemic.Trans-placental transfer of iron and blood from placenta and cord can affect iron stores at birth at the time of delivery.To enhance their transfer from placenta and umbilical cord to baby,interventions like umbilical cord milking and delayed cord clamping have received a lot of scientific attention,they serve to potentially enhance neonatal blood volume and consequently iron stores after birth.Delayed cord clamping (DCC) in which clamping of cord is delayed by 30 to 180 seconds has been shown to improve the haematological status in both preterm and term infants.The other method of transfer of blood from placenta to fetus is Umbilical cord milking (UCM).It is the method of rapid transfer of cord blood to baby by means of squeezing or strapping of cord towards the baby from the maternal end.the current research evaluates wheather umbilical cord milking at birth in babies born at >36 weeks of gestation is as effective as delayed cord clamping in improving hematological status at birth and at 6 weeks of life with comparable hemodynamic effect after birth.

**Aims & Objective:** The Aim of the study was to compare between Umbilical cord milking vs delayed cord clamping on Hematological parameters at 6 week of life in term neonates also to compare Mean ferritin and Mean Hemoglobin in umbilical cord milking group to Delayed cord clamping group. A total of 200 subjects in term newborn babies born at >36 weeks either by vaginally or by caesarean section at our hospital who were residing within 5km radius of SIMS hospital. The subjects were selected using purposive sampling technique .

**MATERIALS AND METHODS:** The present study was carried out in Department of Paediatrics ,Neonatal unit and department of Obstetrics from the patients being admitted in Saraswathi Institute of Medical Sciences, Anwarpur, Hapur Uttar pradesh. A total of 200 subjects in term newborn babies born at >36 weeks either by vaginally or by caesarean section at our hospital who were residing within 5km radius of SIMS hospital.

**RESULT:** In our study neonates allocated to milking group had higher hemoglobin values at 6 weeks as compared with delayed clamping group,indicating an increased amount of placental blood transfer in Umbilical cord milking group.this relationship also indicate that the peocedure of milking fourtimes guarantees the transfer of extra amount of placental blood into the neonates when compared to delayed clamping.

**CONCLUSION:** A total of 200 subjects in term newborn babies born at >36 weeks either by vaginally or by caesarean section at our hospital who were residing within 5km radius of SIMS hospital, neonates allocated to milking group had higher hemoglobin values at 6 weeks as compared with delayed clamping group,indicating an increased amount of placental blood transfer in Umbilical cord milking group.Both the groups in our study achived higher mean hemoglobin at 30 minutes and 48 hours .

**Key words:** Delayed cord clamping(DCC),Umbilical cord milking(UCM).

### I. INTRODUCTION

Parinatal iron deficiency has received little attention in the past, due to assumption that Infants are protected from iron deficiency unless the mother is marked anemic. In a survey in India, 70% of infants between 6 and 11 months of age were found anemic. Trans-placental transfer of iron and blood from placenta and cord can affect iron stores at birth at the time of delivery. To enhance their transfer from placenta and umbilical cord to baby, interventions like umbilical cord milking and delayed cord clamping have received a lot of scientific attention, they serve to potentially enhance neonatal blood volume and consequently iron stores after birth. Delayed cord clamping (DCC) in which clamping of cord is delayed by 30 to 180 seconds has been shown to improve the haematological status in both preterm and term infants. The other method of transfer of blood from placenta to fetus is Umbilical cord milking (UCM).It is the method of rapid transfer of cord blood to

baby by means of squeezing or strapping of cord towards the baby from the maternal end. The current research evaluates whether umbilical cord milking at birth in babies born at >36 weeks of gestation is as effective as delayed cord clamping in improving hematological status at birth and at 6 weeks of life with comparable hemodynamic effect after birth. A total of 200 subjects in term newborn babies born at >36 weeks either by vaginally or by caesarean section at our hospital who were residing within 5km radius of SIMS hospital. In our study neonates allocated to milking group had higher hemoglobin values at 6 weeks as compared with delayed clamping group, indicating an increased amount of placental blood transfer in Umbilical cord milking group. This relationship also indicates that the procedure of milking four times guarantees the transfer of extra amount of placental blood into the neonates when compared to delayed clamping. It is the method of rapid transfer of cord blood to baby by means of squeezing or strapping of cord towards the baby from the maternal end.

## II. METHODOLOGY

**Study Area:** The study was conducted in the Department of Paediatrics, Neonatal unit and department of Obstetrics from the patients being admitted in Saraswathi Institute of Medical Sciences, Anwarpur, Hapur Uttar Pradesh.

**Study design:** The study was a randomized control trial (parallel group study with 1:1 randomization).

**Study period:** The study was conducted from April 2018 to March 2019.

**Study population:** A total of 200 subjects in term newborn babies born at >36 weeks either by vaginally or by caesarean section at our hospital who were residing within 5km radius of SIMS hospital.

**STATICAL ANALYSIS:** The one way ANOVA was used to statistically analyze and compare the various proportions which were derived in the different groups. Pearson's correlation was used for correlations. SPSS version - 20 was used for all statistical analysis.

**TABLE-1 OVERALL POPULATION DESCRIPTIVE ESTIMATES**

	N	Mean	SD	SE	Minimum	Maximum
<b>Maternal age</b>	200	29.38	7.228	0.511	20	45
<b>Maternal weight</b>	200	59.74	9.68	0.685	45	88
<b>Maternal Hb</b>	200	10.48	1.0028	0.0709	9.1	12.3

**TABLE-2**

**Descriptive estimates of Hemoglobin of the study sample at 6 weeks according to study groups**

	Umbilical cord Milking (n=100)		Delayed Clamping (n=100)		Overall sample (n=200)		p-value
	Mean	SD	Mean	SD	Mean	SD	
<b>Hb at 30 mins</b>	17.283	1.90	16.311	1.97	17.283	1.93	0.045*
<b>Hb at 48 hours</b>	15.630	0.79	15.156	0.82	15.643	0.80	0.051
<b>Hb at 6 weeks</b>	15.140	0.77	14.712	0.80	15.164	0.78	0.039*

**TABLE-3**  
**Serum ferritin estimation**

	Umbilical cord Milking (n=100)		Delayed Clamping (n=100)		Overall sample (n=200)		p- value
	Mean	SD	Mean	SD	Mean	SD	
<b>Serum Ferritin(30mins)</b>	137.82	7.24	138.19	7.98	137.612	7.60	0.688
<b>Serum Ferritin (6 weeks)</b>	133.53	7.24	131.64	8.01	132.594	7.61	0.006

### III. DISCUSSION

The present study was carried out in Department of Paediatrics, Neonatal unit and department of Obstetrics from the patients being admitted in Saraswathi Institute of Medical Sciences, Anwarpur, Hapur Uttar Pradesh. A total of 200 subjects in term newborn babies born at >36 weeks either by vaginally or by caesarean section at our hospital who were residing within 5km radius of SIMS hospital. In our study neonates allocated to milking group had higher hemoglobin values at 6 weeks as compared with delayed clamping group, indicating an increased amount of placental blood transfer in Umbilical cord milking group. This relationship also indicates that the procedure of milking four times guarantees the transfer of extra amount of placental blood into the neonates when compared to delayed clamping. Trans-placental transfer of iron and blood from placenta and cord can affect iron stores at birth at the time of delivery. To enhance their transfer from placenta and umbilical cord to baby, interventions like umbilical cord milking and delayed cord clamping have received a lot of scientific attention; they serve to potentially enhance neonatal blood volume and consequently iron stores after birth. Delayed cord clamping (DCC) in which clamping of cord is delayed by 30 to 180 seconds has been shown to improve the haematological status in both preterm and term infants. The other method of transfer of blood from placenta to fetus is Umbilical cord milking (UCM). It is the method of rapid transfer of cord blood to baby by means of squeezing or strapping of cord towards the baby from the maternal end. The current research evaluates whether umbilical cord milking at birth in babies born at >36 weeks of gestation is as effective as delayed cord clamping in improving hematological status at birth and at 6 weeks of life with comparable hemodynamic effect after birth.

### IV. CONCLUSION

We demonstrated that in full term neonates, the hematological and hemodynamic effects of umbilical cord milking (UCM) with early cord clamping were slightly higher to those of delayed cord clamping (DCC) after 30 mins of birth, former intervention had significant higher hemoglobin and serum ferritin levels after 6 weeks of life. Trans-placental transfer of iron and blood from placenta and cord can affect iron stores at birth at the time of delivery. To enhance their transfer from placenta and umbilical cord to baby, interventions like umbilical cord milking and delayed cord clamping have received a lot of scientific attention; they serve to potentially enhance neonatal blood volume and consequently iron stores after birth. Delayed cord clamping (DCC) in which clamping of cord is delayed by 30 to 180 seconds has been shown to improve the haematological status in both preterm and term infants, study neonates allocated to milking group had higher hemoglobin values at 6 weeks as compared with delayed clamping group, indicating an increased amount of placental blood transfer in Umbilical cord milking group. This relationship also indicates that the procedure of milking four times guarantees the transfer of extra amount of placental blood into the neonates when compared to delayed clamping.

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