"PROSPECTIVE COMPARATIVE STUDY OF EFFECT OF UMBILICAL CORD MILKING(UCM) V/S EARLY CORD CLAMPING(ECC) ON NEONATAL HAEMATOLOGICAL AND CLINICAL PARAMETERS IN A TERTIARY CARE HOSPITAL"

By

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DISSERTATION SUBMITTED TO SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH, TAMAKA, KOLAR, KARNATAKA

In partial fulfilment of the requirements for the degree of

DOCTOR OF MEDICINE
IN
PAEDIATRICS

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LIST OF ABBREVIATIONS

GLOSSARY	ABBREVIATIONS
UCM	Umbilical cord milking
ECC	Early cord clamping
DCC	Delayed cord clamping
wks	Weeks
kgs	Kilograms
gm%	Grams percentage
%	Percentage
T	Thousand
mm^3	Millimeter cube
mg	milligram
dl	deciliter
bpm	Beats per minute
mm	Millimeter
cpm	Cycles per minute

ABSTRACT

Background:

Anemia is a major problem in the period of infancy. In developing countries anemia is causing even bigger menace considering the nutritional status of the mother. Preventing anemia during infancy is very important as anemia can cause many neurological sequelae and the growth of the baby in the early childhood is hampered. So there is definite need in reducing the incidence and the complications and in the early childhood period. By specific maneuvers like umbilical cord milking and delayed cord clamping, extra amount of blood transfusion occurs from the mother to the baby. The present study aims to look into uses of umbilical cord milking on various hematological parameters and clinical parameters.

MATERIALS AND METHODS:

The study was a prospective comparative study done on 144 babies. By using block randomization number 4 babies were divided into 2 groups. In the intervention group umbilical cord milking was done. At day 1,2,7 of life various hematological parameters and clinical parameters were assessed among the UCM ,ECC.

RESULTS:

The values of hemoglobin and packed cell volume on day 1,2,7 were higher among the babies in umbilical cord milking group when seen against early cord clamping group with $p<0.0001$ which was statistically significant. The mean values of heart rate on day 1,2 were higher among the babies in UCM when compared with the babies in early cord clamping group with $p<0.05$

which was statistically significant. The mean values of systolic BP on day 1,2,7 were higher among the babies in UCM when compared with the babies in early cord clamping group with $p<0.0001$ which was statistically significant. The mean values of diastolic blood pressure on day 2 were higher among the babies in UCM when compared with the babies in early cord clamping group with $p=0.009$ which was statistically significant. The other parameters like white blood cells, platelets, Respiratory rate, respiratory distress syndrome, cardiac failure, need for blood transfusion, mortality were similar among the UCM and early cord clamping group.

CONCLUSION:

Umbilical cord milking had improved the hemoglobin, packed cell volume ,systolic pressure among the babies and it had also improved the well being of the baby.

AIM OF THE STUDY

AIM OF THE STUDY:

1. To study the haematological parameters and neonatal outcomes of the newborn at birth, day 2 , and day 7 of life in the neonates who underwent umbilical cord milking.
2. To study the haematological parameters and neonatal outcomes of the newborn at birth, day 2 , and day 7 of life in the neonates who underwent early cord clamping
3. To compare the haematological parameters and neonatal outcomes among the neonates who underwent umbilical cord milking versus neonates who underwent early cord clamping

INTRODUCTION

INTRODUCTION

Anemia is defined as the haemoglobin values lesser than set values for the particular age, sex, race altitude[1]. According to WHO, anemia is a serious problem in the world specifically in infants, children and pregnant women. WHO estimates that 40% of pregnant women worldwide are anemic[2].

There are several factors affecting the maternal health causing anemia in pregnant women. Women are prone to anemia because of lesser education, women with lesser birth spacing between two pregnancies, young women, and women belonging to lower class[3]. Other causes causing anemia in pregnancy are iron deficiency, infections, ante-partum hemorrhage .Severe maternal anemia causes lesser transfusion of iron through the placenta making the baby anemic during the first few months of life. Anemic insult during the infancy also causes poor growth of the baby and has many long term cognitive deficits[4].

According to the World Health Organization (WHO), prevalence of anaemia in developing countries is 39% in children <5 years, 48% in children 5– 14 years[5]. According to the data from National Family Health Survey-4 conducted in 2015, 56% of 6- to 59-month-old children were anaemic[6]. These figures are the economic consequences of the lower income countries. Anemia causes an irreparable damage to the development of the child[7,8]. Anemia due to iron deficiency leads to loss in physical productivity in children[9]. So this makes a silent and a significant morbidity in the childhood which is not acceptable in modern times. So there is a need in reducing the incidence of anemia and the suffering in the childhood. By reducing the incidence of the anemia, the well being of the child can be improved.

After the birth of the baby, the blood flow through the umbilical arteries continues approximately for 25 seconds and the blood flow becomes negligible by 30-45 seconds[10].The blood flow in the umbilical vein continues from mother for up to 3 minutes[11]. The factors affecting this placental transfusion from mother to the baby are uterine contractions, lifting baby after the delivery and the timing the clamping of the umbilical cord[12].Timing of clamping the cord plays a crucial role in the neonatal and the infantile period.

Early cord clamping according to Active management of the third stage of labour(AMTSL) reduces the placental transfusion and therefore there is reduction of mean blood volume by 10%. Studies were showing that Delayed cord clamping by 3 minutes showed higher foetal blood volume[13].Studies were also showing that after clearly defining the total time of Delayed cord clamping(DCC), the placental transfusion of 32 millilitres/kilogram was noted[14].The amount of the placental transfusion by delayed cord clamping was found to be 8 millilitres/kilogram which was demonstrated by serial weighing of the neonates[15]. Recent studies compared Delayed cord clamping with Early cord clamping and had concluded that the Delayed cord clamping group had higher haemoglobin, higher hematocrit, required fewer blood transfusions, had lesser incidence of intraventricular hemorrhage[16]. Delayed cord clamping had also lesser incidence of respiratory distress[17,18]. A recent meta-analysis had showed DCC was useful in reducing the incidence of anemia among term and preterm neonates[19]. Delayed cord clamping also improves baby's iron stores during the period of infancy. However while performing the method of delayed cord clamping procedure, the advantages should be weighed against the disadvantages like

delayed resuscitation, polycythemia, hypothermia, hyperbilirubinemia, intraventricular hemorrhage.

UCM is another method of transferring the blood to the baby. Recent study had compared haemoglobin and iron stores in infancy among Umbilical cord milking group and DCC and had concluded that UCM had higher haemoglobin and increased iron stores at 6 weeks of age[20]. When other parameters like the blood transfusion and vitals among preterm neonates were compared among the UCM and DCC, there was a decreased blood transfusion and more stable vitals among umbilical cord milking group[21,22].This Umbilical cord milking has a potential benefit when compared with Delayed cord clamping[23]. So for babies requiring resuscitation at birth Umbilical cord milking should be preferred when compared with delayed cord clamping.

There is a definite need to reduce the neonatal mortality and morbidity in the neonatal period and to prevent any cognitive dysfunction in the early childhood. So in this study, haematological and clinical parameters can be compared among groups of UCM and ECC.

NEED FOR STUDY:

Preterm neonates are prone to anemia of prematurity. Term neonates are prone to many top up blood transfusions in the neonatal period. When we see the data of deaths occurring in infancy, some preterm neonates would have not been supplemented with Iron. Anemia is common among children in developing countries. There is a need to bring down the suffering of the neonates, infants and children. This can be prevented by some extra amount of placental transfusion to the neonate during birth. Currently delayed cord clamping is being used to get the extra amount of placental transfusion. But there are some problems in delayed cord clamping. While resuscitating preterm neonates, delayed cord clamping procedure may delay the initiation of resuscitation and may also increase the incidence of hypothermia. So in order to overcome these shortcomings umbilical cord milking is being followed in the recent times as it helps with placental transfusion without much delay in resuscitation. Umbilical cord milking can stabilise the newborn during the transition phase after birth and bring down the suffering of the preterm and term neonates. But right now early cord clamping is being followed routinely in many hospitals. As the umbilical cord milking is beneficial, this study will be conducted in our hospital and after seeing the final results this can be made as a protocol in our hospital. As the sick neonates will also be included in the study, umbilical cord milking procedure helps in attaining better results.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

STRUCTURE OF UMBILICAL CORD:

The umbilical cord is a helical and tubular blood conduit connecting the foetus to the placenta[7]. Umbilical cord has 2 umbilical arteries, 1 umbilical vein, rudimentary allantois, remnant of omphalomesenteric duct and Wharton's jelly[8].Umbilical cord blood vessels do not have any branches which are very unique when compared to any vessel in adult. The umbilical vein supplies the foetus with oxygenated and nutrient rich blood from placenta. The foetal heart pumps deoxygenated blood through umbilical arteries back to the placenta. As the foetus grows, the umbilical cord also elongates and it also increases in its diameter. This umbilical cord is a unique organ as it helps in pumping the blood to the foetal heart[25].

Umbilical arteries are surrounded with 4 layers of smooth muscle to maintain the muscular tone. Umbilical vein is not covered by any smooth muscle[8]. The umbilical vasculature operates when dilated but the stimulus from hormones and chemical substances can cause vasoconstriction. In larger mammals, the umbilical cord must constrict from the placenta to the foetus to avoid anaemia. In the humans, similar mechanisms are seen due to many chemical mediators. Umbilical blood vessel constrictions at birth and blood loss prevention are regulated by various vasoactive substances like Prostaglandins (PGI2, PGE2). Hormones such as serotonin, angiotensin and oxytocin help in the regulation of blood flow in baby. Measurement of blood flow allows the obstetrician to determine whether enough blood volume goes to the foetus[26].

PLACENTAL TRANSFUSION:

After the delivery of the baby some amount of blood is transferred[26]. This depends on many factors[27]. The factors affecting the placental transfusion are the uterine contractions after the 2nd stage of labour, the position of the baby after 2nd stage of labour, the time taken for clamping the cord[26].During the first 30 seconds of birth of the baby, there will be a blood transfusion of 12 millilitres/kilogram approximately[28,29].

DIFFERENT TYPES OF CORD MANOEUVRES DURING BIRTH:

Early cord clamping, Umbilical cord milking, Delayed cord clamping are the different types cord manoeuvres. To prevent the maternal post partum haemorrhage, Early cord clamping is done[28]. So during the early cord clamping the extra amount of placental transfusion which was supposed to happen will not be seen[30]. When there is early cord clamping 20 millilitres/kilogram of whole blood and 25 milligrams/kilogram remains in the placenta itself. In Umbilical cord milking, after the 2nd stage of labour, the umbilical cord is raised and is milked multiple times towards the baby so that extra amount of blood is transferred to the neonate. Studies showed umbilical cord milking was safe and there were no adverse effects following the procedure[27]. In Delayed cord clamping ,after a time period of 60 – 120 seconds lets blood transfer[29].Delayed cord clamping is a cautious process because babies requiring resuscitation after birth will have to wait 60 – 120 seconds for the cord clamping and thereby resuscitation[29].

COMPARISON VARIOUS PARAMETERS AMONG UMBILICAL CORD MILKING GROUP, EARLY CORD CLAMPING GROUP AND DELAYED CORD CLAMPING GROUP:

The average number of hospital days and the average loss of weight at discharge is lesser in the neonates who underwent umbilical cord milking when compared to neonates who underwent early cord clamping. Haemoglobin was more in the neonates who underwent umbilical cord milking when compared to neonates who underwent early cord clamping[24,27].

Hemoglobin levels obtained at birth were higher in neonates who underwent umbilical cord milking when compared to the neonates who underwent delayed cord clamping[20]. Hemoglobin levels at 12 hours,24 hours of life,48 hours of life were higher among the neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping [21,22]. There was no difference in haemoglobin levels obtained at birth among the neonates who underwent one-time umbilical cord milking when compared with multiple-time umbilical cord milking[23].

Packed cell volume levels obtained at birth,12 hours of life,48 hours of life was higher in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[21,24].Polycythemia (hematocrit > 65%) was observed to have lower incidence in neonates who underwent umbilical cord milking when compared to the neonates who underwent delayed cord clamping[20,29].

Blood transfusion was lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent delayed cord

clamping[30,31]. The number of transfusions in the neonatal period was lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[32,34]. There was no difference in total number of transfusions in neonates who underwent one-time umbilical cord milking when compared to the neonates who underwent multiple-times umbilical cord milking[28,33].

The blood pressure at birth was higher in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[31,32,34]. There was no difference in blood pressure in neonates who underwent umbilical cord milking when compared to the neonates who underwent multiple-times umbilical cord milking[33,37].

The peak bilirubin values were lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[32,34]. There was no significant difference in peak bilirubin levels in neonates who underwent umbilical cord milking when compared to the neonates who underwent multiple-times umbilical cord milking[33].

The need for vasopressors was lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent delayed cord clamping[30,39]. The need for vasopressors was lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[32].

The incidence of respiratory distress syndrome was lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[34,38].

The incidence of intraventricular haemorrhage was lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent delayed cord clamping[31,41].The incidence of intraventricular haemorrhage was lower in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[32,34,35].

Urine output was higher in neonates who underwent umbilical cord milking when compared to the neonates who underwent delayed cord clamping[38,42.]Urine output was higher in neonates who underwent umbilical cord milking when compared to the neonates who underwent early cord clamping[37,43].

Infections were lower in the neonates who underwent umbilical cord milking when compared with the neonates who underwent early cord clamping[38,40].

The depressed neonates who underwent UCM at birth had lower rates of intubation when compared with the depressed neonates who underwent early cord clamping[39,41].

LEVELS OF HEMOGLOBIN:

There is transport of nutritious substances from the mother to the foetus through the placenta. Different substances are transported in different phases of the gestation.[1]. So preterm neonates are deprived of the Iron transport. At birth term neonates have 17 gram % of haemoglobin and preterm neonates have 16.4 gram% of haemoglobin[2]. In due course of 10-12 weeks, the haemoglobin of term neonates drops to 9.5 grams% and haemoglobin of preterm neonates drops to 8 grams%. This is called as physiological

anaemia of infancy[2]. This is due to lesser red blood cell production[3]. After 2-3 months of life as the baby grows in weight and stature, the haemoglobin level also increases to 11.8 grams%[4]. During the growth of the baby , there is a simultaneous iron redistribution. The approximate level of total body iron is 260 mg. Various essential proteins in the body constitute the total amount of body iron. Among them 70% is constituted by haemoglobin,24% is constituted by myoglobin and ferritin & 6% is constituted by various Iron containing enzymes[5]. As the infant grows, the ferritin stores are used up for the infant's growth. As a result the infant's ferritin levels are reduced to 12% of the total iron stores

IRON STORES IN INFANCY:

The amount of Iron present in breast milk is 0.1mg/100ml which is very low[6]. The total extent of iron absorbed from the breast milk is equal of the losses of iron from the gastrointestinal tract of the baby[7].So as the baby grows in the infancy, the requirement of iron is increased. So therefore in these situations, total iron stores play a crucial role in the growth and development of the baby[8]. So it can be said that preterm babies have reduced total iron stores in the body can have problems in the growth and development of the baby[8].

IMPORTANCE OF INFANTILE ANEMIA:

Iron is a very crucial component for the growth and development of brain[9].Iron component is necessary for the production of nerve cells and also for its differentiation into other types of neurons[10].So when the iron stores are deficient, there will be defective synthesis of neurons and also its

conversion to other forms[9]. The main manifestations of iron deficiency are poor cognition, delayed milestones achievement of milestones, emotional disturbances[9]. This iron deficiency is very significant in an infant's life because even after the replacement by iron supplementation, the consequences of iron deficiency would not be reversed[9]. These studies stress upon the iron supplementation during the early infancy period or before the manifestations of iron deficiency anemia[9]. This also tells about the significance of prevention of anemia.

FORESTALLING IRON DEFICIENCY ANEMIA DURING EARLY CHILDHOOD:

By altering the cord clamping, immediate starting feeding for 6 months total body iron stores would be increased and thereby incidence of the iron deficiency anemia could be brought down[11].

As a part of AMTSL early cord clamping is being followed as it reduces the occurrence of post partum hemorrhage[12,13]. But in this process, when the baby is born, the baby's umbilical cord is clamped immediately and is being handed for the newborn care.

MATERIALS AND METHODS

MATERIALS AND METHODS-

Source of data: All Term and Late Preterm neonates delivered at RL Jalappa hospital during the period of study.

Study design: A Prospective comparative study**.**

Study period: January 2019-May 2020

METHOD OF COLLECTION OF DATA:

Inclusion Criteria: All Term and Late Preterm neonates delivered in RL Jalappa Hospital who had consented to be a part in the study

Exclusion Criteria:

1. Rh negative mother's baby
2. Hydrops fetalis baby
3. Antepartum hemorrhage in mother
4. Twin gestation
5. Congenital defects
6. Cord prolapse
7. HIV positive mother

Sample size: There are 2 groups considered to compare the outcomes.

1) The newborns undergoing umbilical cord milking.

2) The newborns undergoing early cord clamping.

The sample size is estimated based on Packed Cell Volume(PCV) values of the babies who underwent Umbilical cord milking and Early cord clamping at 48 hours. Observed average variance estimate of 37.8% PCV levels[26] was with 90% power,99% confidence interval with alpha error of 1%.To detect the difference of 4% in PCV levels, the required sample size per group is 72. The subjects will be randomized to 2 groups by using block randomization technique with block size of 4.

METHODOLOGY:

- All the obstetricians were sensitized regarding the procedure of Umbilical cord sampling during the monthly perinatal meetings.
- Umbilical cord milking procedure[32] : After the delivery of baby, umbilical cord was clamped 2-3 centimetres from the umbilical stump. Milking from the clamped end towards the infant once at a speed of 10 centimetres/second .144 newborn babies were allotted randomly into intervention group or control group of 72 each with block number 4
- After assigning the babies to 2 groups, during the delivery of babies placed in intervention group , the umbilical cord was milked as mentioned above.
- The haematological parameters were seen at the time of birth, on day 2 , on day 7 of life are
    1. Hb
    2. Packed cell volume (PCV)
    3. Total White blood cells(WBC)
    4. Platelets
- The Clinical parameters like Heart rate, Respiratory rate, Blood pressure APGAR scores, Respiratory distress syndrome, Serum Bilirubin values and Mortality were compared among the 2 groups for every 12 hours

Heart rate[44]: Heart rate can assessed by palpating the base of umbilical cord or auscultating the precordial area of the newborn

Blood pressure: Blood pressure of the neonate can be measured by oscillometric method

Congestive cardiac failure: Feeding difficulties and excessive sweating are the usual presenting features. Tachycardia, Tachypnoea, Hepatomegaly are seen in Congestive cardiac failure.

Respiratory rate: While observing the respiratory rate of the neonate, note the inspiratory expansion of the chest cage. The expansion should be the same during each cycle.

APGAR[45]: The Apgar score consists of five components: heart rate, respiratory effort, muscle tone, reflex irritability, and colour. A score of 0,1,2 will be allotted for each parameter. Total score would range from 0-10

Respiratory distress syndrome[46]**:** Respiratory distress is recognised as any signs of breathing difficulties in neonates. The signs of respiratory distress are tachypnoea(respiratory rate more than 60 cycles per minute), subcostal retractions, grunting,nasal flaring and cyanosis.

Mortality: mortality occurring in the study was taken

STATISTICAL ANALYSIS:

Independent t test was used as test of significance to identify the mean difference between two quantitative variables

RESULTS

RESULTS

DESCRIPTIVE ANALYSIS:

A total of 144 babies were considered in the sample size.

Table-1

	UCM	ECC	Total
Male	42(53.8%)	36(46.2%)	78
Female	30(45.4%)	36(54.6%)	66
Total	72	72	144

Figure-1

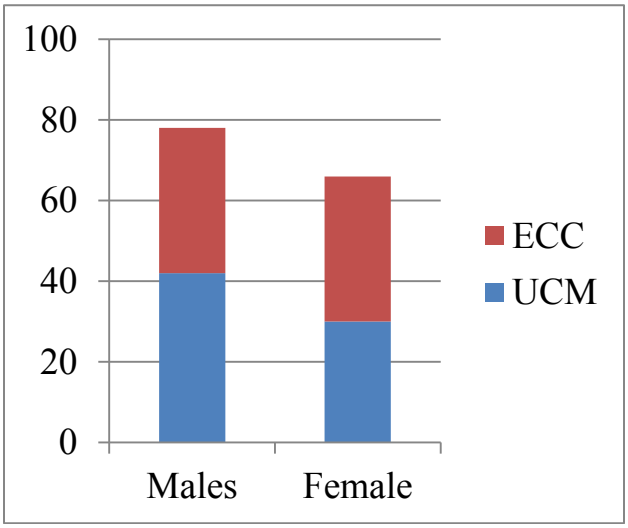

Table 1, Figure 1 shows the gender distribution of the babies. Among the total 144 babies, there were 78 male babies and 66 female babies. Among the male babies , 42 babies underwent umbilical cord milking and 36 babies underwent early cord clamping. Among the female babies , 30 babies underwent umbilical cord milking and 36 babies underwent early cord clamping.

Table-2

	UCM	ECC	Total
Term	51	43	94
Late preterm	21	29	50
Total	72	72	144

Figure- 2

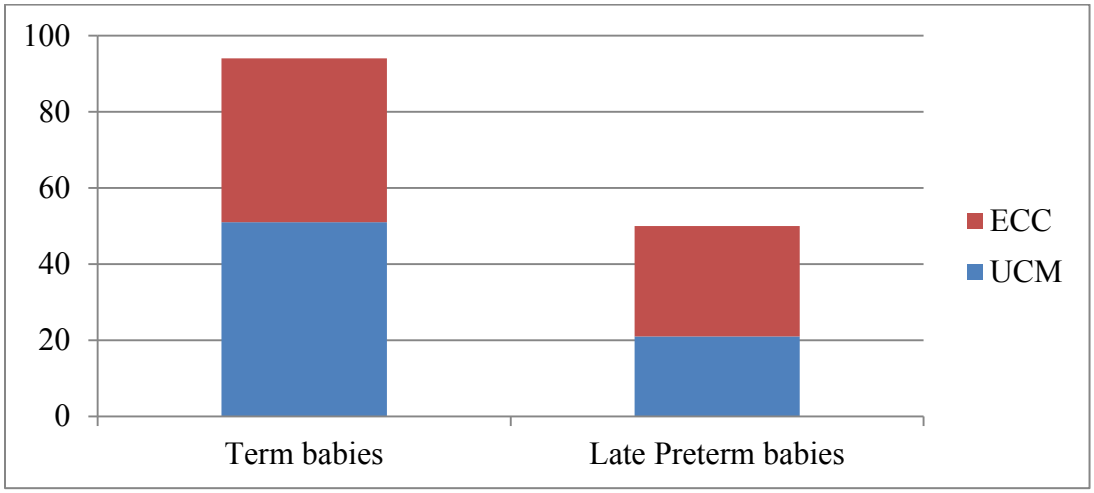

Table 2 shows the gestational distribution of the babies. Among the total 144 babies, 94 babies had Term gestation(37 weeks – 41 weeks 6 days of gestation). Among the term babies, 51 babies underwent umbilical cord milking and 43 babies underwent ECC. 50 babies had Late Preterm gestation(34 weeks – 36 weeks 6 days of gestation). Among the late preterm babies, 21 babies underwent umbilical cord milking and 29 babies underwent early cord clamping. **Figure 2** shows the pictorial representation of gestational distribution.

Table-3

	UCM	ECC	Total
<2kgs	7(50%)	7(50%)	14
2-2.5kgs	12(60%)	8(40%)	20
2.5-3kgs	20(43.4%)	26(56.6%)	46
3-3.5kg	14(36.8%)	24(73.2%)	38
>3.5kgs	19(73%)	7(27%)	26
Total	72	72	144

Figure-3

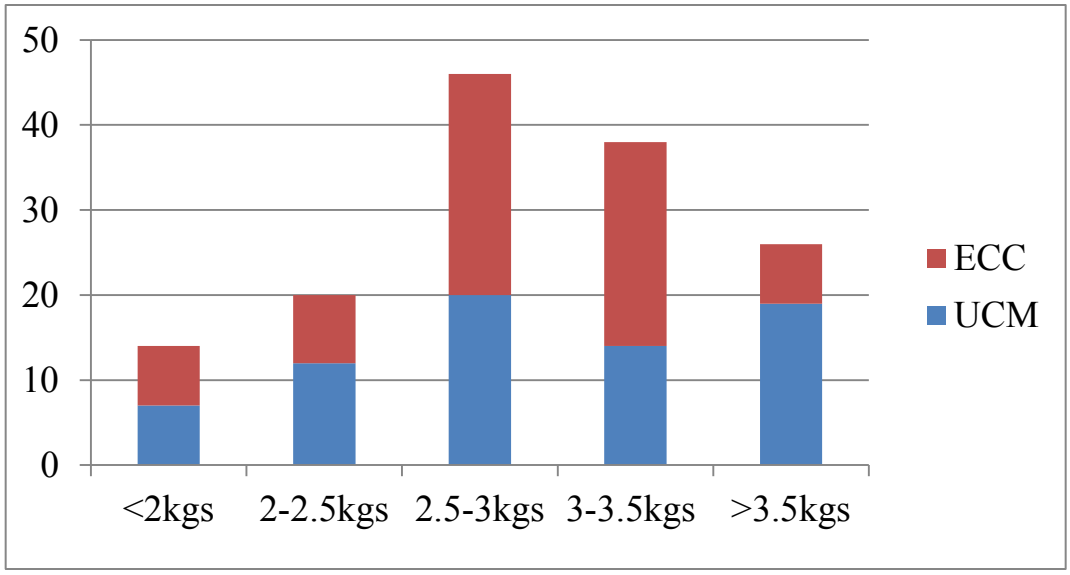

Table-3 explains the distribution of the babies according to weight. A total of 14 babies had birth weight of less than 2 kilograms. Among the babies weighing <2 kilograms, 7 babies underwent UCM and 7 babies underwent ECC. A total of 20 had 2-2.5 kilograms. Among the babies weighing 2-2.5 kilograms, 12 babies underwent umbilical cord milking and 8 babies

underwent early cord clamping. A total of 46 babies had birth weight between 2.5 kilograms to 3 kilograms. Among the babies weighing 2.5-3 kilograms , 20 babies underwent umbilical cord milking and 26 babies underwent early cord clamping. 38 babies had 3-3.5 kilograms. Among the babies weighing 3-3.5 kilograms, 14 babies underwent umbilical cord milking and 24 babies underwent early cord clamping. A total of 26 babies had birth weight of more than 3.5 kilograms. Among the babies weighing >3.5 kilograms, 19 babies underwent umbilical cord milking and 7 babies underwent early cord clamping. **Figure 3** shows the pictorial distribution of the babies according to weight.

STATISTICAL ANALYSIS:

Table-4

Hematological parameter	UCM (Mean value)	UCM (SD)	ECC (Mean value)	ECC (SD)	P value
Hemoglobin (Day 1)	18.73	1.78	16.76	1.73	<0.001
Hemoglobin (Day 2)	18.09	1.73	16.04	2.23	<0.001
Hemoglobin (Day 7)	17.27	1.53	14.93	1.76	<0.001
Packed cell volume (Day 1)	55.72	5.62	51.02	5.19	<0.001
Packed cell volume (Day 2)	52.5	6.14	47.94	6.03	<0.001
Packed cell volume (Day 7)	50.97	5.83	46.47	4.49	<0.001
White blood cells (Day 1)	16.41	5.3	14.95	3.46	0.054
White blood cells (Day 2)	13.57	3.95	13.9	4.1	0.626
White blood cells (Day 7)	11.16	4.13	12.3	4.19	0.102
Platelets (Day 1)	223.25	49.289	228.43	55.696	0.555
Platelets (Day 2)	211.96	60.283	212.65	52.718	0.941
Platelets (Day 7)	200.0	42.981	211.46	47.247	0.130
Total Bilirubin (Day 1)	2.64	1.35	2.72	1.54	0.732
Total Bilirubin (Day 2)	5.98	2.92	5.53	2.90	0.353
Total Bilirubin (Day 7)	8.11	1.69	8.41	2.16	0.356

Table-4 shows the comparison of various haematological parameters among the total sample population and its statistical significance. The mean values of Hemoglobin and Packed cell volume on day 1,2,7 among umbilical cord milk grouping was more and it was statistically significant with p <0.001. Other parameters' mean values among the umbilical cord milking group and ECC had no significance.

Table-5 :- Comparison of Hemoglobin between two groups at various time interval.

Hb(gm%)	**GROUP**	**Mean**	**SD**	**P value**
Day 1	Umbilical cord milking	18.73	1.78	<0.001
	Early cord clamping	16.76	1.73	
Day 2	Umbilical cord milking	18.09	1.90	<0.001
	Early cord clamping	16.04	2.23	
Day 7	Umbilical cord milking	17.27	1.53	<0.001
	Early cord clamping	14.93	1.76	

Figure 4:- Graph showing Comparison of Hemoglobin between two groups at various time interval

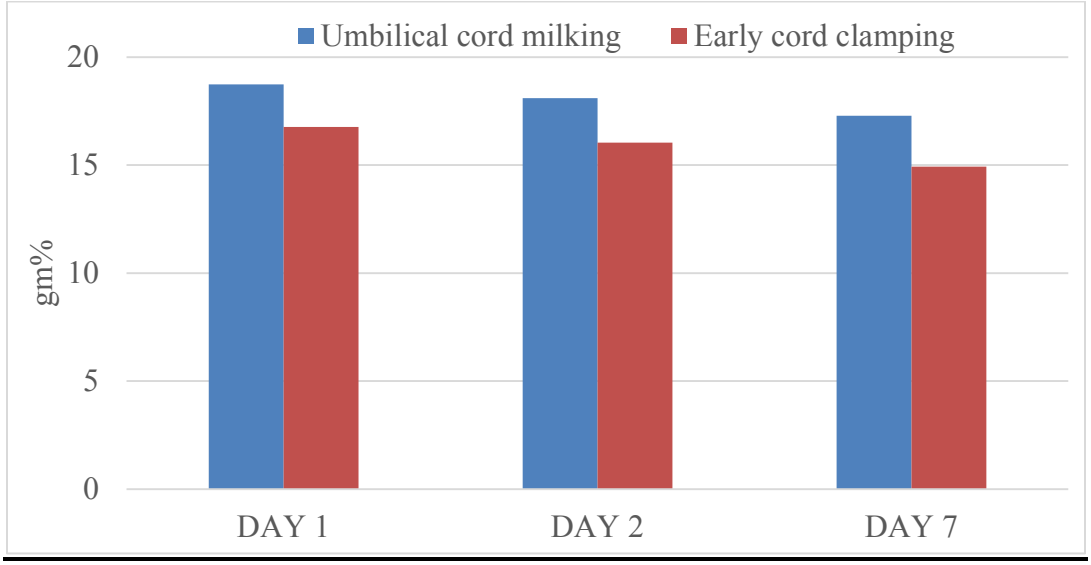

Table-5, Figure-4 show the comparison of Hemoglobin values Day 1,2,7 of life. By using independent t test, the mean haemoglobin values were higher in the UCM group with p <0.001 which was statistically significant.

Table 6 :- Comparison of Packed cell volume between two groups at various time interval.

Packed cell volume (%)	GROUP	Mean	SD	P value
Day 1	Umbilical cord milking	55.72	5.62	<0.001
	Early cord clamping	51.02	5.19	
Day 2	Umbilical cord milking	52.50	6.14	<0.001
	Early cord clamping	47.94	6.03	
Day 7	Umbilical cord milking	50.97	5.83	<0.001
	Early cord clamping	46.47	4.49	

Figure 5:- **Graph showing Comparison of Packed cell volume between two groups at various time intervals**.

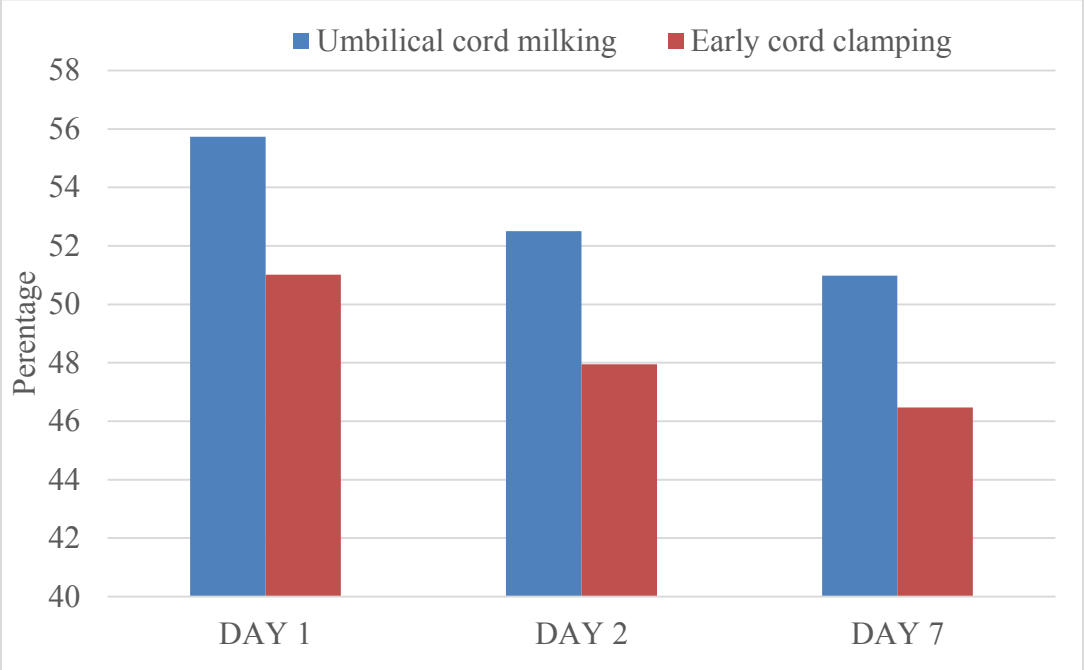

Table-6, Figure-5 show the comparison of Packed cell volume on Day 1,2,7. By using independent t test, the mean packed cell volume values were higher in the UCM with p <0.001 which was statistically significant.

Table 7:- Comparison of WBC between two groups at various time interval.

WBC (T/mm3)	**GROUP**	**Mean**	**SD**	**P value**
Day 1	Umbilical cord milking	16.41	5.30	0.054
	Early cord clamping	14.95	3.46	
Day 2	Umbilical cord milking	13.57	3.95	0.626
	Early cord clamping	13.90	4.10	
Day 7	Umbilical cord milking	11.16	4.13	0.102
	Early cord clamping	12.30	4.19	

Figure 6:- Graph showing Comparison of WBC between two groups at various time intervals.

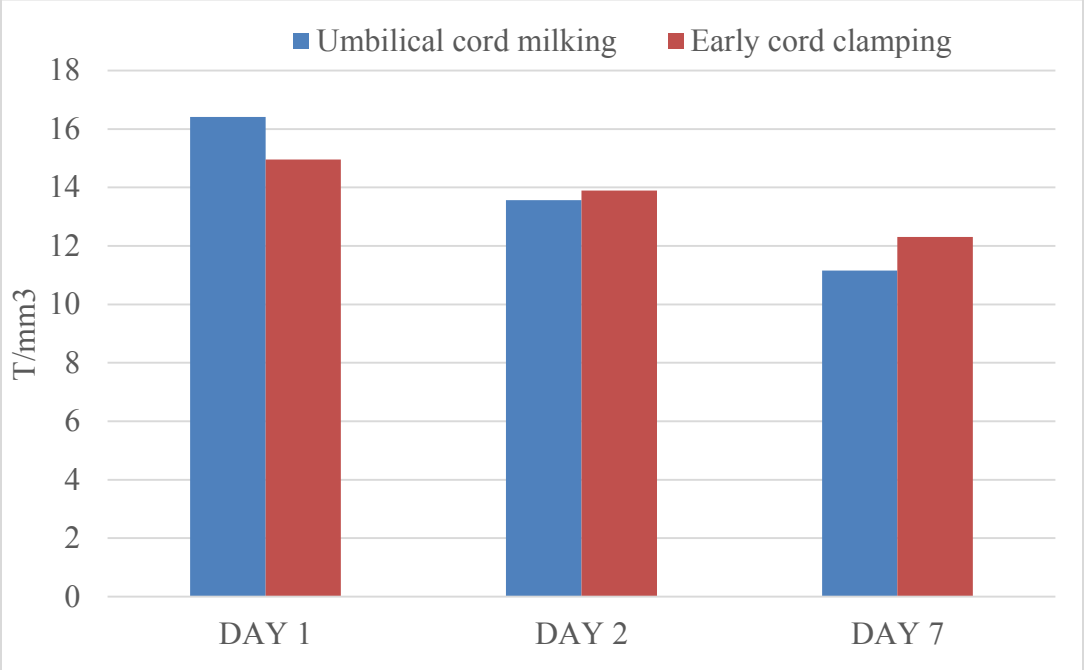

Table-7, Figure-6 show the comparison of White blood cell values on Day 1,2,7 of life. By using independent t test, there was no difference in White blood cells among the groups with $p>0.05$

Table 8:- Comparison of platelets between two groups at various time interval.

Platelets (T/mm3)	GROUP	Mean	SD	P value
Day 1	Umbilical cord milking	223.25	49.289	0.555
	Early cord clamping	228.43	55.696	
Day 2	Umbilical cord milking	211.96	60.283	0.941
	Early cord clamping	212.65	52.718	
Day 7	Umbilical cord milking	200.00	42.981	0.130
	Early cord clamping	211.46	47.247	

Figure 7:- Graph showing Comparison of platelets between two groups at various time interval.

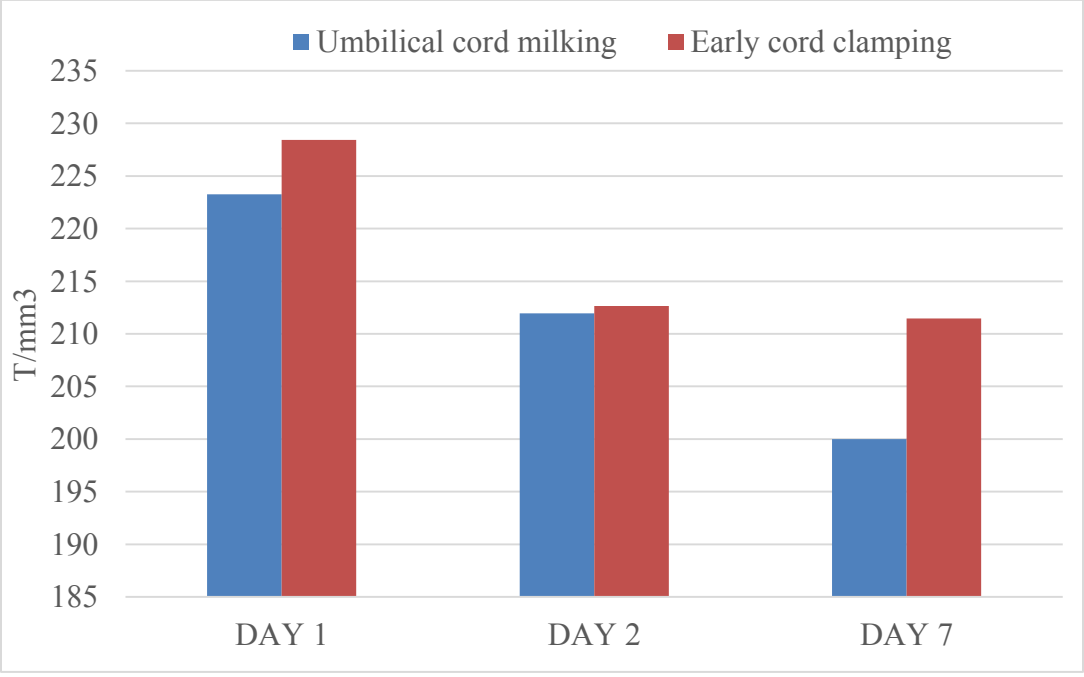

Table-8, Figure-7 show the comparison of Platelet values on Day 1,2,7 of life. By using independent t test, there was no difference in platelets among the groups with $p>0.05$.

Table 9:- Comparison of Serum Total Bilirubin between two groups at various time interval**.**

Serum Total Bilirubin (mg/dl)	**GROUP**	**Mean**	**SD**	**P value**
Day 1	Umbilical cord milking	2.64	1.35	0.732
	Early cord clamping	2.72	1.54	
Day 2	Umbilical cord milking	5.98	2.92	0.353
	Early cord clamping	5.53	2.90	
Day 7	Umbilical cord milking	8.11	1.69	0.356
	Early cord clamping	8.41	2.16	

Figure 8:- Graph showing Comparison of Serum Total Bilirubin between two groups at various time interval.

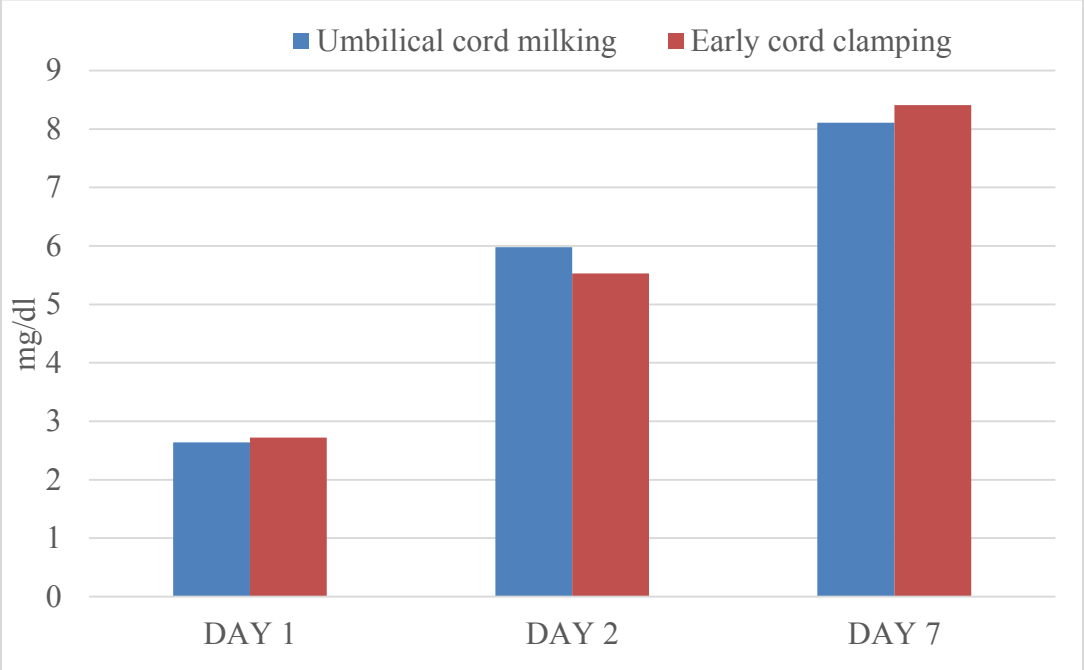

Table-9 , Figure-8 show the comparison of Serum Total bilirubin values on Day 1,2,7 of life. By using independent t test, there was no difference in serum total bilirubin values among the groups.

Table 10:- Comparison of heart rate between two groups at various time interval.

Heart rate (beats/min)	GROUP	Mean	SD	P value
Day 1	Umbilical cord milking	133.25	11.193	0.037
	Early cord clamping	129.75	8.608	
Day 2	Umbilical cord milking	137.69	6.942	0.002
	Early cord clamping	134.28	5.702	
Day 7	Umbilical cord milking	139.04	8.736	0.117
	Early cord clamping	136.64	9.515	

Figure 9:- Graph showing Comparison of heart rate between two groups at various time interval.

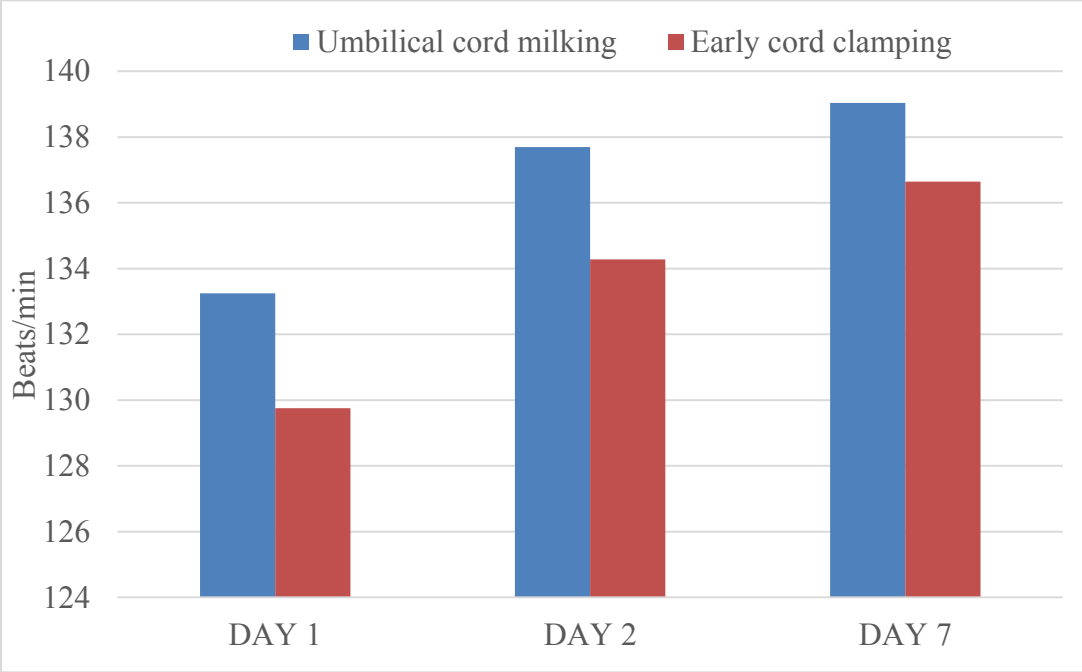

Table-10 , Figure-9 show the comparison of Heart rate(HR) values on Day 1,2,7 of life. By using independent t test, the HR in umbilical cord milking group on day 2 was higher with p= 0.002 which was statistically significant. HR on day 1 and day 7 of life were similar.

Table 11 :- Comparison of respiratory rate between two groups at various time interval.

Respiratory rate (breaths/min)	GROUP	Mean	SD	P value
Day 1	Umbilical cord milking	46.15	3.963	0.916
	Early cord clamping	46.22	3.879	
Day 2	Umbilical cord milking	44.92	2.901	0.755
	Early cord clamping	45.07	2.961	
Day 7	Umbilical cord milking	45.83	3.666	0.201
	Early cord clamping	45.04	3.736	

Figure 10 :- Graph showing Comparison of respiratory rate between two groups at various time interval.

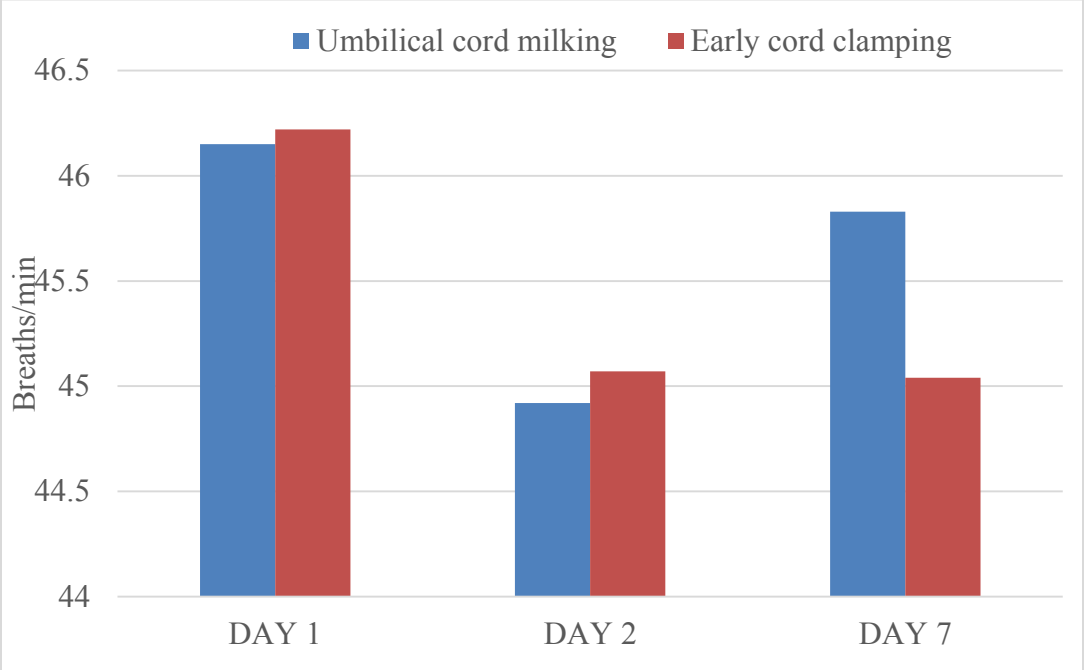

Table-11 , Figure-10 show the comparison of respiratory rate on Day 1,2,7 of life. By using independent t test, respiratory rate values were similar.

Table 12:- Comparison of Systolic Blood Pressure between two groups at various time interval.

Systolic BP (mm/hg)	GROUP	Mean	SD	P value
Day 1	Umbilical cord milking	64.81	3.657	<0.001
	Early cord clamping	61.58	2.847	
Day 2	Umbilical cord milking	68.31	4.719	<0.001
	Early cord clamping	64.03	4.357	
Day 7	Umbilical cord milking	72.89	3.691	<0.001
	Early cord clamping	70.03	4.396	

Figure 11 :- Graph showing Comparison of Systolic BP between two groups at various time interval.

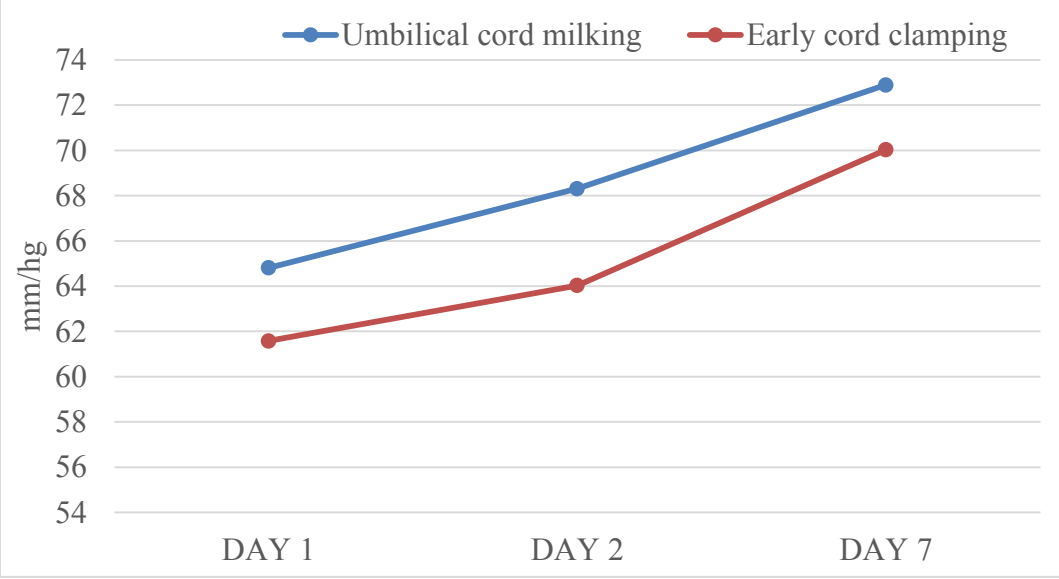

Table-12, Figure-11 show the comparison of Systolic blood pressure on Day 1,2,7 of life. By using independent t test, it the mean systolic blood pressure values were higher in the UCM .

Table 13 :- Comparison of diastolic BP between two groups at various time interval.

Diastolic BP (mm/hg)	**GROUP**	**Mean**	**SD**	**P value**
Day 1	Umbilical cord milking	40.67	2.069	0.312
	Early cord clamping	40.25	2.807	
Day 2	Umbilical cord milking	44.08	2.566	0.009
	Early cord clamping	42.81	3.161	
Day 7	Umbilical cord milking	47.86	2.855	0.459
	Early cord clamping	47.53	2.523	

Figure 12 :- Graph showing Comparison of Diastolic BP between two groups at various time interval.

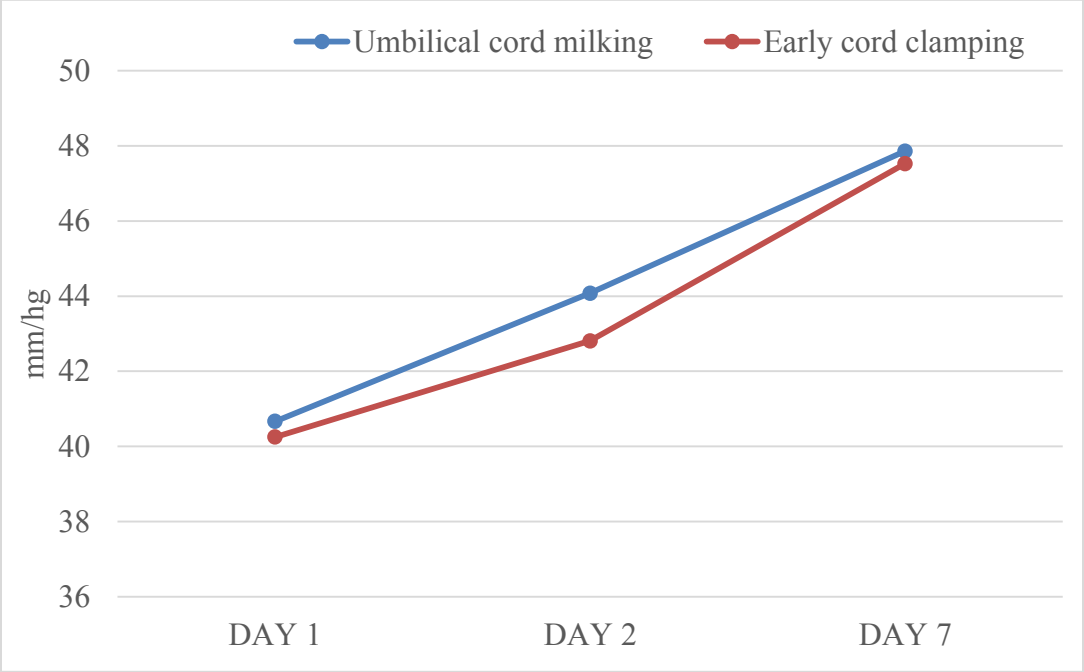

Table-13 , Figure-12 show the comparison of Diastolic blood pressure on Day 1,2,7. By using independent t test, the mean diastolic blood pressure in umbilical cord milking group on day 2 was more with p= 0.009 which was statistically significant. It was also noted that there was no difference among the values of diastolic blood pressures on day 1 and day 7 of life.

Table 14 :- Comparison of APGAR score between two groups at first minute of life

APGAR at 1min	Mean	Std. Deviation	P value
Umbilical cord milking	6.84	0.37	1.00
Early cord clamping	6.85	0.37	

Table-14 shows the comparison of APGAR scoring at 1st minute of life. By using independent t test, it was found that there was no difference.

Table 15 :- Comparison of APGAR score between two groups at first minute of life

APGAR at 5min	Mean	Std. Deviation	P value
Umbilical cord milking	8.97	0.18	1.00
Early cord clamping	8.21	0.18	

Table-14 shows the comparison of APGAR scoring at 5th minute of life. By using independent t test, it was found that there was no difference.

There were 2 blood transfusions among early cord clamping group and by using independent t test the results were not statistically significant. There were no cases of cardiac failure, respiratory distress syndrome and deaths.

DISCUSSION

DISCUSSION

To decrease the incidence of delayed attainment of cognitive skills during the period of infancy or early childhood, some amount of transfusion of blood must take place[47]. This transfusion of blood can be done by Umbilical cord milking or by Delayed cord clamping[48]. Delayed cord clamping is the standard followed to increase the transfusion of blood[49].After birth, the umbilical cord is usually clamped following 30-180 seconds during Delayed cord clamping[50]. While extracting the baby through caesarean section, in view of time constraints of the surgery or when there is maternal bleed or while a baby needs resuscitation after birth, performing Delayed cord clamping would be difficult[51]. Alternatively Umbilical cord milking serves the purpose of transfusion of blood during the baby's birth[53].

The procedure of umbilical cord milking was started way back in 1952 to study its effect on the babies born through caesarean section and the study had concluded that the umbilical cord milking process had helped in better haemoglobin ,packed cell volume values when compared with early cord clamping process[49].

In our study the total sample size was 144 out of whom 78 babies were male and 66 babies were female. In a study conducted by Bhimlesh K et al[52] 106 babies were male and 94 babies were female.

In our study out of 144 babies in sample size, 94 babies belonged to term gestation and 50 babies belonged to late preterm while the study conducted by Amit U et al[54] showed 112 babies of term gestation and 88 babies of late preterm gestation.

In our study, out of 144 babies 87 babies were delivered through vaginal route and 57 babies were delivered by caesarean route. Among the babies delivered by vaginally, 40 babies underwent umbilical cord milking and 47 babies underwent early cord clamping. Among the babies delivered by caesarean route, 29 babies underwent umbilical cord milking and 28 babies underwent early cord clamping. In other similar studies conducted by Amit U et al[54,55] out of 200 babies 122 babies were delivered through vaginal route and 78 babies were delivered by caesarean route. Among the babies delivered by vaginally, 56 babies underwent umbilical cord milking and 66 babies underwent early cord clamping. Among the babies delivered by caesarean route, 44 babies underwent umbilical cord milking and 34 babies underwent early cord clamping[56,58].

In our study out of 144 babies in the sample size, Hb on day 1 of life among the umbilical cord milking group was 18.7 g/dl and mean haemoglobin value on day 1 of life among the early cord clamping group was 16.7 g/dl while the study conducted by Justin B et al[57] showed that the mean haemoglobin value on day 1 of life in UCM was 14.2 g/dl and mean haemoglobin value on day 1 of life among the early cord clamping group was 13.1 g/dl. The lesser value was in view of lesser length of milking the cord(19 centimetres). In our study, the mean haemoglobin value on day 2 of life among the UCM was 18 g/dl and while the study conducted by Erickson et al[60] showed that the mean haemoglobin value on day 2 of life among the umbilical cord milking group was 19.4g/dl and mean haemoglobin value on day 2 of life among the ECC was 17.2 g/dl. The

higher value of the haemoglobin in their study was probably due to higher number of milking the cord(5times).

In our study out of 144 babies in the sample size, the mean packed cell volume value on day 1 of life among the UCM was 55 % and mean packed cell volume value on day 1 of life among the early cord clamping group was 51 % while the study conducted by Justin B et al[59] showed that the mean packed cell volume value on day 1 of life among the UCM was 44.5% and mean packed cell volume value on day 1 of life among the early cord clamping group was 41.7 %. The lesser value because of lesser length of milking the cord(19 centimetres).In our study the mean packed cell volume value on day 2 of life among the UCM was 52.5 % ,PCV on day 2 of life among the ECC was 47.9 % while the study conducted by Erickson et al[60,61] showed that the mean packed cell volume value on day 2 of life among the umbilical cord milking group was 57.5 % and PCV on day 2 of life among the early cord clamping group was 50 %. The higher value of the packed cell volume in their study was probably due to higher number of milking the cord(5times).

In our study the mean total serum bilirubin value on day 7 of life in UCM was 8.1 mg/dl and mean total serum bilirubin value on day 7 of life among the ECC group was 8.4 mg/dl while the study conducted by Erickson et al[54,55] showed that the mean total serum bilirubin value on day 7 of life among the umbilical cord milking group was 12.4 mg/dl and mean total serum bilirubin value on day 7 of life among the early cord clamping group was 11.8 mg/dl. The higher value of the total serum bilirubin in their study was probably due to higher number of milking the cord(5 times).

In our study out of 144 babies in the sample size, the HR on day 1 of life among the UCM was 133 beats per minute and mean heart rate value on day 1 of life among the ECC was 129 while the study conducted by Anup C et al[61,62] showed 154 HR on day 1 in UCM and HR on day 1 of life among the ECC was 153 beats per minute. In our study, the mean heart rate value on day 2 of life in UCM was 137 beats per minute and mean heart rate value on day 2 of life among the ECC was 134 beats per minute while the study conducted by Anup C et al[60,62] told HR on day 2 of life among the UCM was 152 beats per minute and mean heart rate value on day 2 of life among the ECC was 150 beats per minute. The higher value of the heart rate in their study was probably due to positioning of the baby below the level of mother, following which probably due to gravity, more transfusion of the blood would have happened while milking the cord.

In our study the mean respiratory rate value among umbilical cord milking group on day 1 was 46 cycles per minute and mean respiratory rate value among early cord clamping group was 46 cycles per minute. In the study conducted by Amit U et al[62,63] the mean respiratory rate value among umbilical cord milking group on day 1 was 43 cycles per minute and mean respiratory rate value among early cord clamping group was 43 cycles per minute. In our study the mean respiratory rate value among umbilical cord milking group on day 2 was 44 cycles per minute and mean respiratory rate value among early cord clamping group was 45 cycles per minute. In the study conducted by Amit U et al[62] the mean respiratory rate value among umbilical cord milking group on day 2 was 42 cycles per minute and mean respiratory rate value among early cord clamping group was 41 cycles per

minute. There was not much difference noted in respiratory rate among these studies

In our study the mean value of mean arterial pressure among UCM on day 1 of life was 48 . In a study by Justin B et al[64] the mean value of mean arterial pressure among UCM on day 1 of life was 35mm and the mean value of mean arterial pressure among the ECC on day 1 of life was 32mm. In our study the mean value of mean arterial pressure among UCM on day 2 of life was 52mm and the mean value of mean arterial pressure among the ECC on day 2 of life was 49mm. In a study by Justin B et al[63] the mean value of mean arterial pressure among umbilical cord milking group on day 2 of life was 36mm and the mean value of mean arterial pressure among the early cord clamping group on day 2 of life was 34mm.The decreased mean values of mean arterial pressure were probably due to the lesser length of milking the cord(19 centimetres).

There were no cases of respiratory distress. In study by Arpitha C et al[64,65], 1 case of respiratory distress was noted among the UCM and 2 cases of respiratory distress among the early cord clamping group. This was because of increased number of times of milking the umbilical cord(5 times).

In our study , no babies from umbilical cord milking group required blood transfusion. 2 babies from the early cord clamping group required blood transfusion. In a study conducted by So-Youn S et al[66], no babies from umbilical cord milking group required blood transfusion. 2 babies from the ECC required blood transfusion. There is not much of a difference in blood transfusion among these studies.

CONCLUSION

CONCLUSION

- The present study had compared various hematological and clinical parameters among the umbilical cord milking group and early cord clamping group.

- This study showed that Umbilical cord milking had higher placental transfusion when compared with Early cord clamping.

- The mean haemoglobin values, mean packed cell volume values, mean systolic blood pressure were significantly higher in the umbilical cord milking group when compared with early cord clamping group on day 1 , day 2,day 7.

- Mean heart rate values in umbilical cord milking group were significantly higher than the mean heart rate values in early cord clamping group on day 1,day 2

- The mean white blood cell values, mean platelet values, mean serum total bilirubin values, mean direct bilirubin values, mean respiratory rate values, mean diastolic blood pressure values, requirement of blood transfusions were similar among umbilical cord milking group and early cord clamping group on day 1,day 2,day 7
- There is no additional requirement of phototherapy and there were no cases of polycythemia for the babies undergoing umbilical cord milking.

SUMMARY

SUMMARY

Different types of placental transfusions are UCM ,DCC. Due to the delay in the resuscitation of the baby, only umbilical cord milking is preferred in this study. During the baby's birth, extra amount of placental transfusion can reduce the baby's morbidity and mortality. Anemia and its subsequent neurological sequelae have detrimental effect on the baby during infancy.

The study population in the study was 144. The babies were randomly allocated into umbilical cord milking and early cord clamping groups by using block 4. In the intervention group , milking was done. On day 1 , day 2, day 7 of life , various hematological parameters and clinical parameters were compared.

The haemoglobin values were higher in the UCM when compared with early cord clamping group on day 1 (18.73 v/s 16.76),day 2(18.09 v/s 16.04),day 3(17.27 v/s 14.93) with $p<0.001$. The PCV values were higher in the UCM on day 1 (55.72 v/s 51.02),day 2(52.50 v/s 47.94),day 3(50.97 v/s 46.47) with $p<0.001$. WBC, mean platelet values, mean total bilirubin values,mean direct bilirubin values were similar among umbilical cord milking group and early cord clamping group on day 1,2,7.

Mean heart rate values in UCM on day 1 of life (133 v/s 129 with $p= 0.037$) and day 2 of life (137 v/s 134 with $p=0.002$). Mean values of heart rates on day 7 were similar. Mean Respiratory rate values were similar .Systolic BP was higher in the UCM on day 1 (64 v/s 61),day 2(68 v/s 64),day 7(72 v/s 40) with $p<0.001$.The mean diastolic blood pressure values were similar. No respiratory distress syndrome, cardiac failure, requirement of blood

transfusions and mortality. By using umbilical cord milking as a maneuver for placental transfusion, the morbidity and mortality of the babies can be reduced.

LIMITATIONS:

The babies were followed up till 7 days of life. A longer follow up of the babies can study the neurological outcomes of the baby.

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BIBLIOGRAPHY

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ANNEXURES

ANNEXURE-1

PROFORMA

Prospective comparative control study of effect of Umbilical cord milking v/s Early cord clamping on Neonatal Haematological and Clinical parameters in a tertiary care hospital

SL NO: **Date:**

NAME OF MOTHER:

UHID No:

NAME OF FATHER:

ADDRESS:

SEX:

DATE OF BIRTH:

TIME OF BIRTH:

PLACE OF BIRTH:

DATE OF ADMISSION:

PARAMETERS OBTAINED AT BIRTH

HEMATOLOGICAL PARAMETERS

PARAMETER	IN UMBILICAL CORD MILKING	IN EARLY CORD CLAMPING
HEMOGLOBIN(gm%)		
PACKED CELL VOLUME(%)		
WHITE BLOOD CELLS(T/mm^3)		
PLATELETS(T/mm^3)		
SERUM TOTAL BILIRUBIN(mg/dl)		
SERUM DIRECT BILIRUBIN(mg/dl)		

CLINICAL PARAMETERS

PARAMETER	IN UMBILICAL CORD MILKING	IN EARLY CORD CLAMPING
HEART RATE(bpm)		
BLOOD PRESSURE(mm of Hg)		
CONGESTIVE CARDIAC FAILURE		
NEED FOR BLOOD TRANSFUSION		
RESPIRATORY RATE(cpm)		
APGAR SCORE		
RESPIRATORY DISTRESS SYNDROME		
MORTALITY		

PARAMETERS OBTAINED ON DAY 2 OF LIFE

HEMATOLOGICAL PARAMETERS

PARAMETER	**IN UMBILICAL CORD MILKING**	**IN EARLY CORD CLAMPING**
HEMOGLOBIN(gm%)		
PACKED CELL VOLUME(%)		
WHITE BLOOD CELLS(T/mm^3)		
PLATELETS(T/mm^3)		
SERUM TOTAL BILIRUBIN(mg/dl)		
SERUM DIRECT BILIRUBIN(mg/dl)		

CLINICAL PARAMETERS

PARAMETER	**IN UMBILICAL CORD MILKING**	**IN EARLY CORD CLAMPING**
HEART RATE(bpm)		
BLOOD PRESSURE(mm of Hg)		
CONGESTIVE CARDIAC FAILURE		
NEED FOR BLOOD TRANSFUSION		
RESPIRATORY RATE(cpm)		
APGAR SCORE		
RESPIRATORY DISTRESS SYNDROME		
MORTALITY		

PARAMETERS OBTAINED ON DAY 7 OF LIFE

HEMATOLOGICAL PARAMETERS

PARAMETER	**IN UMBILICAL CORD MILKING**	**IN EARLY CORD CLAMPING**
HEMOGLOBIN(gm%)		
PACKED CELL VOLUME(%)		
WHITE BLOOD CELLS(T/mm^3)		
PLATELETS(T/mm^3)		
SERUM TOTAL BILIRUBIN(mg/dl)		
SERUM DIRECT BILIRUBIN(mg/dl)		

CLINICAL PARAMETERS

PARAMETER	**IN UMBILICAL CORD MILKING**	**IN EARLY CORD CLAMPING**
HEART RATE(bpm)		
BLOOD PRESSURE(mm of Hg)		
CONGESTIVE CARDIAC FAILURE		
NEED FOR BLOOD TRANSFUSION		
RESPIRATORY RATE(cpm)		
APGAR SCORE		
RESPIRATORY DISTRESS SYNDROME		
MORTALITY		

ANNEXURE-2

PATIENT INFORMATION SHEET

Prospective comparative control study of effect of Umbilical cord milking v/s Early cord clamping on Neonatal Haematological and Clinical parameters in a tertiary care hospital

Principal investigator: Dr Srinadh Pragada/Dr.K.N.V.Prasad

I Dr. Srinadh Pragada, Post graduate student in Department at Sri Devraj Urs Medical College, will be conducting a study titled..... 'Prospective comparative control study of effect of Umbilical cord milking v/s Early cord clamping on Neonatal Haematological and Clinical parameters in a tertiary care hospital' for my dissertation under the guidance of Dr. K.N.V. Prasad, Professor, Department of Pediatrics. The participants of this study i.e. neonates were randomized according to block randomization number 4 . Hematological and Clinical Parameters were compared between Umbilical cord milking and Early cord clamping at the time of birth, day 2 of life and day 7 of life.

You will not be paid any financial compensation for the participation of your child in this research project.

All the data were kept confidential and were used only for research purpose by this institution. You are free to provide consent for the participation of your child in this study. You can also withdraw your child from the study at any point of time without giving any reasons whatsoever. Your refusal to participate will not prejudice you to any present or future care at this institution.

Name and Signature of the Principal Investigator

Date-

ANNEXURE-3

INFORMED CONSENT FORM

Date:

I, Mr/Mrs _____ ,have been explained in my own vernacular language that my child was included in the study, Prospective comparative control study of effect of Umbilical cord milking v/s Early cord clamping on Neonatal Hematological and Clinical parameters in a tertiary care hospital,hereby give my valid written informed consent without any force or prejudice for recording the observations of haematological and clinical parameters . The nature and risks involved have been explained to me, to my satisfaction. I have been explained in detail about the study being conducted. I have read the patient information sheet and I have had the opportunity to ask any question. Any question that I have asked, have been answered to my satisfaction. I provide consent voluntarily to allow my child as a participant in this research. I hereby give consent to provide history, undergo physical examination, undergo the procedure, undergo investigations and provide its results and documents etc to the doctor / institute etc. For academic and scientific purpose the operation / procedure, etc may be video graphed or photographed. All the data may be published or used for any academic purpose. I will not hold the doctors / institute etc responsible for any untoward consequences during the procedure / study.

_____ _____

(Signature & Name of Pt. Attendant) **(Signature/Thumb impression &**
(Name of Patient/Guardian) **(Relation with patient)**

Witness:

_____

(Signature & Name of Research person/doctor)

KEY TO MASTER CHART

GENDER	1=MALE 0=FEMALE
Congestive Cardiac Failure	1=Yes 0=No
Need for Blood Transfusion	1=Yes 0=No
Mortality	1=Yes 0=No

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
1	1	38.1	3.1	UCM	1	16.8	46.9	25.77	324	4.3	0.01	132	68/40	0	48	0	7/10,9/10	0	0
					2	11.1	30.7	14.61	334	10.1	0.01	136	76/48	0	48	0	-	0	0
					3	9.3	25.2	6.96	330	8.2	0.01	130	80/48	0	42	0	-	0	0
2	1	36.8	2.26	ECC	1	16.5	46.9	11.47	401	1.9	0.01	142	64/40	0	48	0	7/10,9/10	0	0
					2	14.6	41	8.49	262	0.8	0.01	144	70/46	0	41	0	-	0	0
					3	16.8	49	9.89	132	9.9	0.01	140	74/44	0	40	0		0	0
3	0	35.8	1.8	ECC	1	19.4	60.5	27.05	230	2.5	0.01	150	60/40	0	50	0	7/10,9/10	0	0
					2	21.1	63.3	17.14	229	6.6	0.01	146	62/40	0	46	0		0	0
					3	19.5	57.9	9,200	215	7.1	0.01	142	70/46	0	48	0		0	0
4	0	37.9	3.2	UCM	1	13.5	36.8	13.7	277	4	0.01	128	70/42	0	54	0	7/10,9/10	0	0
					2	11.1	30.7	14.6	326	10.1	0.01	136	76/48	0	48	0		0	0
					3	12.8	25.2	6.96	319	8.2	0.01	130	80/48	0	42	0		0	0
5	1	40	1.9	UCM	1	16.4	48.2	15.4	156	2.6	0.01	138	76/48	0	48	0	7/10.9/10	0	0
					2	17	51.2	11.94	198	8	0.01	130	70/42	0	46	0		0	0
					3	17.7	52.1	10.4	285	2.3	0.01	134	74/42	0	46	0		0	0
6	1	35.8	3	ECC	1	20.4	62.5	8.15	164	2.5	0.01	146	70/40	0	44	0	7/10,9/10	0	0
					2	23.5	60	5.89	110	11.3	0.01	142	76/40	0	46	0		0	0
					3	16.8	49	9.89	132	9.9	0.01	140	74/44	0	40	0		0	0
7	1	36.4	2.46	UCM	1	16.1	51.5	24.41	267	2.1	0.01	154	72/44	0	42	0	7/10,9/10	0	0
					2	18.7	50.7	9.72	288	8.1	0.01	152	72/40	0	46	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	130	76/48	0	42	0		0	0
8	0	39.4	3.6	UCM	1	19.5	61.3	10.3	157	2.6	0.01	142	68/42	0	50	0	7/10,9/10	0	0
					2	20	57.7	7.16	149	7.5	0.01	148	72/46	0	44	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	130	76/48	0	42	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
9	0	36.8	2.68	ECC	1	20.2	58.7	10.79	284	2.6	0.01	140	68/46	0	50	0	7/10,9/10	0	0
					2	19.4	55.7	16.45	208	7.2	0.01	138	72/44	0	52	0		0	0
					3	18	50.1	13.97	221	7.6	0.01	130	74/50	0	46	0		0	0
10	1	35.6	2.46	ECC	1	16.1	50	8.47	269	5.1	0.01	128	60/40	0	42	0	7/10,9/10	0	0
					2	14.9	46.3	8.34	230	7.6	0.01	136	68/46	0	40	0		0	0
					3	16.8	49	9.89	132	9.9	0.01	140	74/44	0	40	0		0	0
11	1	40	1.8	UCM	1	20.7	60.5	24.2	226	4.9	0.01	130	62/40	0	46	0	7/10,9/10	0	0
					2	20.4	60	9.5	105	9.7	0.01	134	66/42	0	42	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
12	1	36.9	2.24	UCM	1	15.8	47	18.2	280	6.5	0.01	146	68/40	0	48	0	8/10,9/10	0	0
					2	15.5	45.1	8.3	223	12.6	0.01	136	76/48	0	44	0		0	0
					3	16.4	50.8	8.4	183	5.9	0.01	130	76/48	0	42	0		0	0
13	1	36.8	1.6	ECC	1	18.8	53	11.9	240	7	0.01	134	60/40	0	54	0	7/10,9/10	0	0
					2	17.9	53	7.88	231	10.5	0.01	130	64/40	0	48	0		0	0
					3	15.8	48	7.12	213	8.2	0.01	132	68/44	0	46	0		0	0
14	0	37.4	2.9	UCM	1	14.1	39.7	15.43	316	3.1	0.01	152	70/44	0	48	0	7/10,9/10	0	0
					2	13	35.7	16.28	323	5.3	0.02	146	72/48	0	40	0		0	0
					3	12.8	25.2	6.96	319	8.2	0.01	130	80/48	0	42	0		0	0
15	0	36.9	2.27	ECC	1	18.4	53	8.15	194	2.5	0.01	146	68/42	0	42	0	7/10,9/10	0	0
					2	16.7	50	5.89	170	6.3	0.01	140	64/44	0	46	0		0	0
					3	15.6	45	9.89	152	8.9	0.01	132	66/48	0	40	0		0	0
16	1	36.1	3	UCM	1	15.7	46.8	35.4	290	2	0.01	132	70/40	0	48	0	7/10,9/10	0	0
					2	13.4	36.9	23.18	227	6.6	0.01	140	76/42	0	50	0		0	0
					3	12.4	34.8	10.35	297	8.64	0.01	130	80/48	0	42	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
17	1	38.6	2.9	UCM	1	16.1	51.5	24.41	267	2.1	0.01	154	64/40	0	48	0	7/10,9/10	0	0
					2	18.7	50.7	11.92	288	8.1	0.01	152	70/44	0	42	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
18	1	36.9	3	ECC	1	16.2	49	12.9	390	2.9	0.01	138	62/42	0	50	0	7/10,9/10	0	0
					2	15.6	44.4	15.61	342	5.5	0.01	136	70/46	0	46	0		0	0
					3	16.8	49	9.89	132	9.9	0.01	140	74/44	0	40	0		0	0
19	1	40	1.9	UCM	1	22.9	644.2	17.2	282	4.9	0.4	142	70/40	0	54	0	7/10,9/10	0	0
					2	19.8	55.6	14.92	196	9.3	0.6	148	72/40	0	48	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
20	0	41	2.29	UCM	1	17.4	50.2	10.55	153	3.4	0.01	138	66/42	0	54	0	7/10,9/10	0	0
					2	18.2	46	6.79	140	7.2	0.01	140	72/48	0	46	0		0	0
					3	17.3	52.7	6.7	189	8.9	0.01	118	68/46	0	47	0		0	0
21	0	36.8	2.03	ECC	1	15.2	47.1	18.59	333	2	0.01	134	64/42	0	48	0	7/10,9/10	0	0
					2	13.6	37.9	16.73	354	8.5	0.01	140	68/40	0	44	0		0	0
					3	13.6	39.8	8.88	312	8.3	0.01	138	70/48	0	46	0		0	0
22	1	36.6	3.5	UCM	1	20.4	62.5	8.15	164	2.5	0.01	142	68/40	0	50	0	6/10,9/10	0	0
					2	23.5	56	5.89	110	11.3	0.01	146	72/42	0	48	0		0	0
					3	16.8	49	9.89	132	9.9	0.01	134	78/46	0	42	0		0	0
23	0	36.8	3	ECC	1	11	21.9	16.6	123	5.1	0.01	128	60/40	0	48	0	7/10,9/10	0	0
					2	10.7	32.3	26.1	111	7.9	0.01	134	64/46	0	44	0		0	0
					3	12.6	35	9.5		9.4	0.01	132	68/44	0	40	0		0	0
24	1	34.9	2.5	ECC	1	17.6	50.3	14.05	300	2.2	0.01	134	60/40	0	52	0	7/10,9/10	0	0
					2	17	48.6	10.31	308	8.7	0.01	128	64/40	0	44	0		0	0
					3	17.3	50	10.02	311	4.4	0.01	130	66/44	0	48	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
25	0	36.8	1.92	ECC	1	18.8	53	11.9	240	7	0.01	128	62/42	0	46	0	7/10,9/10	0	0
					2	17.9	46	7.2	226	9.5	0.01	134	64/46	0	44	0		0	0
					3	13.6	35	9.5		9.4	0.01	132	68/44	0	40	0		0	0
26	1	40	1.92	UCM	1	17.4	50.2	10.55	153	3.4	0.01	150	60/40	0	48	0	7/10,9/10	0	0
					2	18.2	50.6	6.79	140	8.9	0.01	142	66/42	0	42	0		0	0
					3	16.3	45.5	11.1	176	11.4	0.01	130	76/48	0	42	0		0	0
27	0	36.8	2.21	ECC	1	16.6	52.2	20.92	235	2.2	0.01	138	60/42	0	50	0	7/10,9/10	0	0
					2	21	63	22.03	139	12.2	0.01	132	64/46	0	46	0		0	0
					3	14.1	34.1	10.8	163	8.2	0.01	148	68/50	0	50	0		0	0
28	1	37.9	2.53	UCM	1	17.7	55.5	13.6	264	1.8	0.01	138	66/42	0	46	0	7/10,9/10	0	0
					2	16.9	49	9.49	263	5	0.01	140	72/48	0	48	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
29	1	35.8	2.8	ECC	1	17.2	50.7	9.79	274	1.6	0.01	134	68/44	0	42	0	7/10,9/10	0	0
					2	15.7	45.3	16.45	206	5.2	0.01	142	72/48	0	46	0		0	0
					3	17	54	12.2	160	5.4	0.01	142	68/46	0	43	0		0	0
30	1	36.4	2.1	UCM	1	14.1	40.4	14.44	439	2.8	0.01	154	68/44	0	44	0	7/10,9/10	0	0
					2	13.7	40.3	10.24	409	8.2	0.01	138	70/48	0	42	0		0	0
					3	17.3	52.7	6.7	189	8.9	0.01	118	68/46	0	47	0		0	0
31	0	36.8	1.96	ECC	1	18.8	53	11.9	240	7	0.01	146	64/44	0	52	0	7/10,9/10	0	0
					2	17.9	53	7.88	231	10.1	0.01	138	68/50	0	48	0		0	0
					3	16.8	49	9.89	132	9.9	0.01	140	74/44	0	40	0		0	0
32	0	38.9	3.5	UCM	1	17.6	53.9	14.61	208	2	0.01	154	64/40	0	48	0	7/10,9/10	0	0
					2	19.6	55.9	11.56	202	4.6	0.01	152	70/44	0	42	0		0	0
					3	17.3	52.7	6.7	189	8.9	0.01	118	68/46	0	47	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
33	1	36.7	1.84	UCM	1	20.4	58.5	8.15	164	2.5	0.01	140	68/46	0	48	0	7/10,9/10	0	0
					2	18.5	55	7.89	180	7.3	0.01	138	72/46	0	40	0		0	0
					3	16.8	49	9.89	142	6.5	0.01	140	78/50	0	42	0		0	0
34	0	38.3	3.6	UCM	1	15.4	46.4	14.05	234	1.7	0.01	142	62/40	0	42	0	6/10,9/10	0	0
					2	14.7	42.8	14.05	232	5.6	0.01	140	70/48	0	40	0		0	0
					3	17.3	52.7	6.7	189	8.9	0.01	118	68/46	0	47	0		0	0
35	1	36.8	2.45	ECC	1	18.6	51.8	11.02	281	3.9	0.01	146	70/40	0	46	0	7/10,9/10	0	0
					2	16.2	43.7	11.44	316	9.3	0.01	142	76/40	0	48	0		0	0
					3	16.7	46.3	13	354	6.8	0.01	140	74/44	0	42	0		0	0
36	0	36.8	2.6	ECC	1	17.6	54.5	14.4	115	2.4	0.01	138	62/42	0	46	0	7/10,9/10	0	0
					2	10.99	31.3	10.02	136	5	0.6	136	64/46	0	48	0		0	0
					3	12.8	25.2	6.96	319	8.2	0.01	130	80/48	0	42	0		0	0
37	1	36.9	2.66	UCM	1	20.7	58.5	24.2	226	4.9	0.01	142	68/40	0	48	0	7/10,9/10	0	0
					2	19.2	56	9.5	105	9.7	0.01	146	70/40	0	50	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	130	76/48	0	42	0		0	0
38	0	35.8	3.1	ECC	1	15.3	45.6	22.8	121	4.8	0.01	134	62/40	0	42	0	7/10,9/10	0	0
					2	14.3	41.6	17.18	121	7.9	0.01	126	64/46	0	46	0		0	0
					3	17	54	12.2	160	5.4	0.01	142	68/46	0	43	0		0	0
39	0	39	3.7	UCM	1	18.7	55.4	16.67	289	3.4	0.01	154	64/40	0	54	0	7/10,9/10	0	0
					2	19.2	53.2	5.67	267	9.3	0.01	152	70/44	0	50	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
40	0	38.6	3.2	UCM	1	18.1	53.8	11.33	226	2.7	0.01	132	68/40	0	42	0	7/10,9/10	0	0
					2	18	50.7	15.27	340	7.3	0.01	136	76/48	0	44	0		0	0
					3	17.3	52.7	6.7	189	8.9	0.01	118	68/46	0	47	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
41	0	35.9	2.86	UCM	1	15.6	45.5	19.21	181	4	0.01	152	70/44	0	52	0	7/10,9/10	0	0
					2	16.1	48.3	8.6	252	7.9	0.01	146	72/48	0	40	0		0	0
					3	12.8	25.2	6.96	319	8.2	0.01	130	80/48	0	42	0		0	0
42	1	35.8	1.99	ECC	1	15.8	49.8	14.85	297	3.4	0.01	136	64/44	0	46	0	7/10,9/10	0	0
					2	16.2	43.7	11.44	286	6.9	0.01	128	68/50	0	48	0		0	0
					3	16.8	49	9.89	132	9.9	0.01	140	74/44	0	40	0		0	0
43	1	39.3	3.2	UCM	1	18.7	53.3	25.8	234	5.2	0.01	152	68/40	0	52	0	7/10,10/10	0	0
					2	19.7	56	10.9	137	12.4	0.01	142	74/48	0	44	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
44	0	36.8	2.18	ECC	1	10.3	52.1	18.8	283	4.2	0.01	148	64/48	0	54	0	7/10,9/10	0	0
					2	16.7	46.3	13	354	6.8	0.01	140	74/44	0	42	0		0	0
					3	16.9	48.8	12.9	232	8.7	0.01	146	76/50	0	42	0		0	0
45	1	36.4	2.8	UCM	1	21.2	65.2	21.04	210	8.1	0.01	142	68/40	0	48	0	7/10,9/10	0	0
					2	16.2	47.8	5.9	243	14.6	0.7	146	72/42	0	46	0		0	0
					3	20.3	60	7.33	211	8.9	0.2	134	78/46	0	42	0		0	0
46	0	36.8	2.67	ECC	1	18.8	53	11.9	240	7	0.01	140	66/48	0	48	0	7/10,9/10	0	0
					2	17.9	53	7.88	231	10.5	0.01	132	70/52	0	40	0		0	0
					3	17	54	12.2	160	5.4	0.01	142	68/46	0	43	0		0	0
47	0	36.8	2.14	ECC	1	17.8	52.6	13.33	217	3.6	0.01	132	66/40	0	50	0	7/10,9/10	0	0
					2	17.6	52.1	6.9	191	11.5	0.01	140	68/46	0	44	0		0	0
					3	12.8	25.2	6.96	319	8.2	0.01	130	80/48	0	42	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
48	0	38.8	2.68	ECC	1	19.5	58.3	15.69	279	6.9	0.01	146	64/40	0	48	0	7/10,9/10	0	0
					2	18.4	56.7	12.6	206	7.7	0.01	142	66/42	0	50	0		0	0
					3	10.5	31.2	10.6	196	8.9	0.02	142	68/50	0	45	1		0	0
49	0	39.9	2.47	ECC	1	16.2	46	12.9	390	2.9	0.01	130	64/46	0	44	0	7/10,9/10	0	0
					2	15.6	43	15.61	342	5.5	0.01	134	70/48	0	46	0		0	0
					3	17	54	12.2	160	5.4	0.01	142	68/46	0	43	0		0	0
50	0	35.6	2.61	ECC	1	17	49.2	16.1	197	2.8	0.01	138	62/42	0	54	0	7/10,9/10	0	0
					2	15.5	42.5	12.6	300	9.2	0.01	136	70/46	0	48	0		0	0
					3	12.6	35	9.5		9.4	0.01	132	68/44	0	40	0		0	0
51	1	38	1.87	UCM	1	18.77	56.6	23.3	258	7.21	0.01	132	68/40	0	54	0	7/10,9/10	0	0
					2	19.5	59.5	11.9	221	13.8	0.01	136	76/48	0	46	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
52	0	38	3.1	ECC	1	14.9	44.4	15.06	261	4.3	0.01	140	62/40	0	42	0	7/10,9/10	0	0
					2	15.4	42.3	8.4	168	11.6	0.01	134	64/46	0	48	0		0	0
					3	10.5	31.2	10.6	196	8.9	0.02	142	68/50	0	45	1		0	0
53	1	37	2.71	UCM	1	17	51.4	11.53	340	2.9	0.01	140	68/46	0	46	0	7/10,9/10	0	0
					2	17.7	48.6	11.6	429	10.8	0.01	138	72/46	0	42	0		0	0
					3	15.9	43.7	11.34	266	11.3	0.01	140	78/50	0	44	0		0	0
54	0	36.8	2.8	UCM	1	19.4	48.2	15.4	156	2.6	0.01	142	68/40	0	48	0	7/10,9/10	0	0
					2	17	51.2	11.94	218	8	0.01	146	72/42	0	46	0		0	0
					3	17.7	44.1	10.4	285	2.3	0.01	134	78/46	0	42	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
55	1	35.8	2.43	ECC	1	14.6	44.6	10.37	211	1.4	0.01	138	62/42	0	52	0	7/10,9/10	0	0
					2	12.8	38	8.5	340	10.2	0.01	130	66/40	0	48	0		0	0
					3	12.6	35	9.5		9.4	0.01	132	68/44	0	40	0		0	0
56	1	38.6	2.37	UCM	1	17.2	53.9	19.6	327	1.3	0.01	154	64/40	0	48	0	7/10,9/10	0	0
					2	14.9	44.5	7.07	152	3.6	0.01	152	70/44	0	42	0		0	0
					3	12.8	25.2	6.96	319	8.2	0.01	130	80/48	0	42	0		0	0
57	0	40	1.92	ECC	1	17.3	51.7	9.04	383	4.2	0.01	134	62/46	0	46	0	7/10,9/10	0	0
					2	14.5	42.2	10.6	196	8.9	0.02	142	68/50	0	45	0		0	0
					3	16.1	48.2	7.6	358	8.9	0.01	126	70/48	0	48	0		0	0
58	1	36.8	3.08	ECC	1	17.8	52.5	14.42	245	6.4	0.01	134	62/42	0	42	0	7/10,9/10	0	0
					2	18.4	54.5	10.6	266	11.2	0.01	138	64/46	0	40	0		0	0
					3	10.5	31.2	10.6	196	8.9	0.02	142	68/50	0	45	0		0	0
59	1	38.6	1.86	UCM	1	22.2	64.3	13.2	224	3.9	0.01	148	66/40	0	44	0	7/10,9/10	0	0
					2	20	59.2	13.76	187	4.5	0.01	140	72/48	0	46	0		0	0
					3	18.5	53	108	173	9.6	0.02	122	70/50	0	49	0		0	0
60	0	35.9	2.91	UCM	1	15.5	49.1	34.6	260	1.6	0.01	132	68/40	0	47	0	7/10,9/10	0	0
					2	16.9	48.6	15.2	327	6.6	0.01	136	76/48	0	44	0		0	0
					3	18.4	53.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
61	1	36.8	2.56	UCM	1	20.2	61.9	12.92	188	2.6	0.01	154	64/40	0	43	0	7/10,9/10	0	0
					2	19.9	56.4	11.3	150	6.1	0.01	152	70/44	0	46	0		0	0
					3	17.4	51.8	8.4	183	5.9	0.01	132	72/46	0	42	0		0	0
62	0	36.8	3.1	ECC	1	18.4	58	16.8	280	1.8	0.02	120	58/40	0	42	0	7/10,9/10	0	0
					2	18	55	18.6	210	2.6	0.01	133	58/42	0	46	0		0	0
					3	17	54	12.2	160	5.4	0.01	142	68/46	0	43	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
63	1	39.9	2.51	UCM	1	19.6	61	20.2	190	2.6	0.01	132	64/42	0	48	0	7/10,9/10	0	0
					2	19	58	16.3	186	5.1	0.01	138	68/44	0	42	0		0	0
					3	18.4	57	12.7	167	8.6	0.01	140	74/50	0	45	0		0	0
64	0	36.8	2.68	ECC	1	17	54	18.6	260	1.6	0.01	130	60/42	0	50	0	6/10,9/10	0	0
					2	16.2	51	19.5	240	3.9	0.01	124	62/42	0	48	0		0	0
					3	15.9	50	12.8	180	6.5	0.01	143	70/48	0	42	0		0	0
65	0	40	2.3	UCM	1	20	61	11.8	210	2.1	0.01	125	66/42	0	47	0	7/10,9/10	0	0
					2	19.4	58	15.6	205	3.4	0.01	128	68/44	0	43	0		0	0
					3	19	57	6.9	190	7.2	0.01	148	74/50	0	46	0		0	0
66	1	36.8	2.8	ECC	1	18.6	50	15.9	193	2	0.01	129	62/40	0	48	0	7/10,9/10	0	0
					2	17	47	16.8	183	3.5	0.01	137	64/40	0	47	0		0	0
					3	16.5	44	10.6	168	8.2	0.01	120	70/50	0	49	0		0	0
67	1	38.4	3.3	UCM	1	19.5	60	13.8	196	1.8	0.01	128	60/40	0	52	0	7/10,9/10	0	0
					2	19	58	18.6	183	3.5	0.01	136	64/44	0	46	0		0	0
					3	18.4	56	10.1	170	7.6	0.03	150	70/50	0	49	0		0	0
68	0	41	3.4	ECC	1	19	49	20.6	208	2.5	0.01	130	62/36	0	48	0	7/10,9/10	0	0
					2	18.6	46	15.4	186	5.1	0.01	120	64/40	0	43	0		0	0
					3	17	43	10.8	180	8.6	0.01	142	68/46	0	50	0		0	0
69	0	36.8	2.1	ECC	1	18	56	13.8	230	2.6	0.01	116	60/38	0	53	0	7/10,9/10	0	0
					2	17.3	54	16.4	206	4.7	0.01	128	64/38	0	50	0		0	0
					3	16.7	51	108	193	6.8	0.01	136	68/48	0	49	0		0	0
70	1	38.4	2.58	UCM	1	21	60	11.8	240	1.8	0.01	128	64/38	0	46	0	6/10,8/10	0	0
					2	20.6	56	15.6	222	3.5	0.01	120	68/44	0	44	0		0	0
					3	20	55	8.4	203	7.8	0.01	131	70/50	0	48	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
71	0	40	2.47	ECC	1	17	52	12.6	198	1.3	0.01	118	62/36	0	50	0	7/10,9/10	0	0
					2	16.2	48	18.6	190	2.6	0.02	130	62/40	0	46	0		0	0
					3	15	46	6.8	182	5.8	0.01	142	68/50	0	42	0		0	0
72	1	38	2.9	ECC	1	16	50	14.7	220	1.6	0.01	124	60/38	0	40	0	7/10,9/10	0	0
					2	15.6	47	18.9	208	2.3	0.01	138	62/40	0	44	0		0	0
					3	14.9	46	10.3	199	5.4	0.01	140	66/48	0	43	0		0	0
73	0	38	1.84	ECC	1	16.8	49	18.3	210	2.1	0.01	130	58/38	0	47	0	6/10,9/10	0	0
					2	16.3	47	15.7	200	3.5	0.01	120	60/42	0	40	0		0	0
					3	15	44	10.4	189	4.8	0.01	124	70/50	0	43	0		0	0
74	1	39.9	3.5	UCM	1	19.2	58	11.4	201	2.8	0.01	130	64/40	0	48	0	7/10,9/10	0	0
					2	19	55	15.2	196	3.6	0.01	138	68/46	0	46	0		0	0
					3	18.4	54	6.8	168	8.6	0.01	149	74/50	0	48	0		0	0
75	0	38.4	2.72	UCM	1	19.4	59	18.6	190	2.3	0.01	140	64/38	0	43	0	7/10,9/10	0	0
					2	19	55	15.2	180	4.5	0.01	132	68/44	0	48	0		0	0
					3	18.5	53	108	173	9.6	0.02	122	70/50	0	49	0		0	0
76	1	37.9	3.1	ECC	1	18.9	56	13.2	198	1.8	0.01	130	58/38	0	48	0	6/10,8/10	0	0
					2	18	53	16.8	186	2.6	0.01	138	60/38	0	44	0		0	0
					3	17.3	51	9.6	180	6.8	0.01	118	70/48	0	46	0		0	0
77	1	38.4	2.86	UCM	1	20.4	61	15.8	208	2.8	0.01	127	64/42	0	51	0	7/10,9/10	0	0
					2	20	58	19.6	201	4.7	0.01	137	68/44	0	46	0		0	0
					3	19.4	57	11	186	8.6	0.01	143	74/50	0	42	0		0	0
78	0	38.9	2.52	ECC	1	16.6	51	18.3	206	2.8	0.01	128	58/40	0	53	0	7/10,9/10	0	0
					2	16	47	12.5	198	4.8	0.01	136	58/42	0	46	0		0	0
					3	15.4	46	8.6	190	8.4	0.01	142	68/46	0	44	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
79	1	39.4	3.3	ECC	1	16.8	52	11.8	188	2.5	0.01	126	62/36	0	48	0	7/10,9/10	0	0
					2	16	50	15.7	186	3.6	0.01	139	62/40	0	40	0		0	0
					3	15.1	47	7.8	169	6.8	0.02	130	68/50	0	46	0		0	0
80	0	41	2.75	ECC	1	18.4	54	14.8	196	1.9	0.01	130	58/40	0	49	0	7/10,9/10	0	0
					2	18	51	11.8	179	4.5	0.01	140	58/42	0	43	0		0	0
					3	17	49	7.6	173	6.8	0.01	121	68/46	0	48	0		0	0
81	0	40	3.24	ECC	1	18.6	54	13.8	196	1.3	0.01	119	60/42	0	42	0	6/10,9/10	0	0
					2	18.5	52	15.2	186	2.8	0.01	134	62/44	0	44	0		0	0
					3	18.2	51	6.3	190	4.7	0.01	138	70/50	0	48	0		0	0
82	0	40	2.9	ECC	1	16.4	50	14.3	183	1.8	0.01	120	64/40	0	46	0	7/10,9/10	0	0
					2	16	48	15.8	176	2.9	0.01	132	64/42	0	47	0		0	0
					3	15.6	46	10.8	173	7.4	0.01	150	68/48	0	43	0		0	0
83	1	38.6	2.12	UCM	1	19.8	58	14.7	230	1.8	0.02	120	60/40	0	47	0	7/10,9/10	0	0
					2	19.5	56	10.5	215	3.5	0.01	133	64/40	0	43	0		0	0
					3	19	54	6.9	204	8.4	0.01	148	72/50	0	41	0		0	0
84	1	38.4	2.96	ECC	1	17.8	52	18.3	210	2.8	0.01	128	64/40	0	46	0	7/10,9/10	0	0
					2	17	49	14.2	206	3.4	0.01	120	68/46	0	47	0		0	0
					3	16.4	47	10.8	199	7.5	0.01	137	74/50	0	49	0		0	0
85	0	39.7	2.85	ECC	1	16.4	52	15.6	230	1.5	0.01	130	60/40	0	49	0	7/10,9/10	0	0
					2	16	50	12.6	208	2.7	0.01	140	64/42	0	42	0		0	0
					3	14.9	47	8.9	206	6.3	0.01	146	68/46	0	46	0		0	0
86	0	38.1	3.4	ECC	1	15.6	50	12.6	196	1.7	0.01	120	62/36	0	42	0	7/10,9/10	0	0
					2	15.1	47	13.7	190	2.8	0.01	130	62/40	0	48	0		0	0
					3	14.8	45	8.6	183	7.3	0.03	139	68/50	0	47	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
87	1	38	3.2	ECC	1	18.7	55	14.6	192	2.3	0.01	118	62/40	0	45	0	7/10,9/10	0	0
					2	18.1	52	18.6	168	3.8	0.01	132	62/40	0	49	0		0	0
					3	17.5	51	9.8	159	9.8	0.01	140	66/50	0	47	0		0	0
88	0	38	3.08	ECC	1	15.9	51	15.6	203	1.7	0.01	124	60/40	0	43	0	6/10,9/10	0	0
					2	15.2	48	12.5	207	2.6	0.01	139	62/42	0	49	0		0	0
					3	15	46	10.7	196	6.8	0.01	146	68/50	0	52	0		0	0
89	1	38.4	2.68	UCM	1	19.7	58	17.6	250	2.1	0.01	128	64/42	0	47	0	7/10,9/10	0	0
					2	19.2	54	20.8	223	4.6	0.01	134	68/44	0	46	0		0	0
					3	18.8	52	10.9	219	8.4	0.01	148	74/50	0	51	0		0	0
90	0	40	2.6	ECC	1	16.5	51	15.6	201	1.6	0.01	120	62/36	0	45	0	7/10,9/10	0	0
					2	16.2	48	12.3	190	2.8	0.01	128	62/40	0	48	0		0	0
					3	14.6	46	8.6	183	7.8	0.01	137	68/50	0	44	0		0	0
91	1	41	4.1	ECC	1	15.3	50	16.5	213	2.1	0.01	120	58/40	0	41	0	7/10,8/10	0	0
					2	15.2	49	12.3	205	3.8	0.01	133	58/42	0	49	0		0	0
					3	14.6	47	8.4	196	7.9	0.01	145	68/46	0	45	0		0	0
92	0	38.4	3.67	ECC	1	16.4	52	16.5	198	1.1	0.01	120	62/40	0	46	0	7/10,9/10	0	0
					2	15.6	50	14.8	190	2.5	0.01	127	64/42	0	43	0		0	0
					3	14.6	48	10.8	186	6.7	0.01	123	70/50	0	42	0		0	0
93	1	40	2.89	UCM	1	20	62	17.5	245	1.9	0.01	124	66/40	0	42	0	7/10,9/10	0	0
					2	19.5	59	10.6	235	4.5	0.01	129	68/44	0	48	0		0	0
					3	19.1	57	8.3	222	9.8	0.01	138	76/50	0	48	0		0	0
94	0	38.9	2.58	ECC	1	15.6	53	18.6	190	1.8	0.01	120	62/36	0	43	0	6/10,9/10	0	0
					2	15.3	50	14.6	182	2.5	0.01	136	62/40	0	45	0		0	0
					3	15	49	11.2	176	6.9	0.01	145	68/50	0	48	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
95	0	38.4	3.51	UCM	1	18.6	58	11.5	236	2.1	0.01	120	64/42	0	47	0	7/10,9/10	0	0
					2	18.2	56	14.3	210	3.6	0.01	136	68/44	0	49	0		0	0
					3	17.2	54	6.8	208	7.8	0.01	146	74/50	0	50	0		0	0
96	1	38.6	3.59	ECC	1	14.6	49.1	12.4	210	1.6	0.01	126	60/40	0	51	0	7/10,9/10	0	0
					2	14.1	47	16.8	203	3.4	0.01	135	62/40	0	46	0		0	0
					3	13.6	46	8.7	196	7.8	0.01	140	66/44	0	49	0		0	0
97	0	39	3.62	ECC	1	18	55	17.3	176	1.8	0.01	124	58/42	0	46	0	7/10,9/10	0	0
					2	17.6	52	11	170	3.4	0.01	135	60/44	0	43	0		0	0
					3	17	51	9.6	159	8.4	0.01	142	70/48	0	50	0		0	0
98	1	40	3.58	ECC	1	14.5	50	17.5	235	2.1	0.01	123	62/36	0	46	0	7/10,9/10	0	0
					2	14	47	20.8	201	4.5	0.01	136	62/40	0	43	0		0	0
					3	13.6	45	12.3	193	8.6	0.01	149	68/50	0	48	0		0	0
99	1	41	3.9	UCM	1	19	57	11.5	256	2.1	0.02	130	64/38	0	41	0	7/10,9/10	0	0
					2	18.6	54	16.3	241	4.6	0.01	124	68/40	0	48	0		0	0
					3	18	52	10.2	222	9.4	0.01	128	70/50	0	52	0		0	0
100	0	39.4	3.88	UCM	1	19.9	58	18.5	232	1.8	0.01	124	64/40	0	51	0	7/10,9/10	0	0
					2	19.1	54	20.3	210	5.4	0.01	126	68/46	0	50	0		0	0
					3	18.3	52	13.5	196	9.9	0.01	135	74/50	0	53	0		0	0
101	0	36.8	2.87	UCM	1	20.1	61	16.9	210	2.1	0.01	128	64/42	0	47	0	6/10,9/10	0	0
					2	19.6	58	15.2	201	3.9	0.02	138	68/44	0	40	0		0	0
					3	19	56	9.4	193	8.7	0.01	140	74/50	0	42	0		0	0
102	0	38.7	2.57	ECC	1	14.8	51	11.5	240	2.8	0.01	134	58/40	0	41	0	7/10,9/10	0	0
					2	14.1	49	13.8	210	4.5	0.01	125	58/42	0	43	0		0	0
					3	13.8	47	8.7	203	6.8	0.01	120	68/46	0	47	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
103	1	41.4	3.69	UCM	1	19.3	58	14.6	198	1.8	0.01	118	66/44	0	46	0	7/10,9/10	0	0
					2	19	56	18.9	190	2.8	0.01	132	68/40	0	40	0		0	0
					3	18.2	52	10.8	180	7.4	0.01	138	68/40	0	50	0		0	0
104	1	38.1	2.52	ECC	1	15.6	50	11.6	208	2.3	0.03	128	62/36	0	49	0	7/10,9/10	0	0
					2	15.1	48	13	200	4.6	0.01	136	62/40	0	43	0		0	0
					3	14.7	46	9.1	196	8.6	0.01	140	68/50	0	46	0		0	0
105	0	38.9	2.58	UCM	1	20.6	61	10.9	180	1.6	0.01	128	64/42	0	41	0	7/10,9/10	0	0
					2	20	57	13.6	176	4.5	0.01	134	68/46	0	45	0		0	0
					3	19.4	54	8.4	170	7.6	0.01	142	74/50	0	51	0		0	0
106	1	36.8	3.6	UCM	1	18.7	58	18.5	190	2.4	0.01	120	64/42	0	46	0	7/10,9/10	0	0
					2	18	54	14.3	176	5.6	0.01	135	68/44	0	42	0		0	0
					3	17.2	53	8.9	163	7.6	0.01	148	74/50	0	40	0		0	0
107	1	41	3.87	ECC	1	14.8	51	17.7	245	2.4	0.01	124	62/36	0	43	0	7/10,9/10	0	0
					2	14	48	14.3	236	4.6	0.01	132	62/40	0	40	0		0	0
					3	13.6	46	8.7	222	8.4	0.01	142	68/50	0	47	0		0	0
108	0	40	3.8	ECC	1	16.8	49.4	17.6	222	1.5	0.01	120	60/44	0	45	0	7/10,9/10	0	0
					2	15.8	46.1	12.9	210	2.4	0.01	130	62/42	0	40	0		0	0
					3	14.3	45.8	10.6	208	7.4	0.01	138	70/46	0	42	0		0	0
109	1	38.6	2.61	UCM	1	18.1	58	21.3	186	2.6	0.02	128	66/40	0	42	0	6/10,9/10	0	0
					2	17	55	12.5	183	6.4	0.01	126	68/44	0	43	0		0	0
					3	16.3	54	9.6	175	9.9	0.01	140	76/50	0	45	0		0	0
110	1	38.6	2.68	ECC	1	15.6	52	14.3	207	2	0.01	120	60/38	0	49	0	7/10,9/10	0	0
					2	15.1	50	12.8	200	4.8	0.01	128	62/40	0	43	0		0	0
					3	14.1	48	8.3	196	8.3	0.01	139	66/46	0	40	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
111	0	38.9	3	UCM	1	20.4	59	11.8	189	1.4	0.01	124	64/42	0	46	0	7/10,9/10	0	0
					2	19.6	56	13.6	174	5.4	0.01	129	68/44	0	45	0		0	0
					3	18.9	54	9.4	170	8.9	0.01	138	74/50	0	47	0		0	0
112	0	39.4	3.6	ECC	1	15.8	50	15.3	230	1.8	0.01	127	58/40	0	42	0	7/10,9/10	0	0
					2	15.4	47	16.7	222	4.8	0.02	136	58/42	0	40	0		0	0
					3	15	46	10.9	206	9.6	0.01	146	68/46	0	43	0		0	0
113	1	37.6	2.18	UCM	1	19.6	58	19.3	210	2.8	0.01	119	64/40	0	46	0	7/10,9/10	0	0
					2	19.2	56	12.6	208	5.7	0.01	128	68/46	0	49	0		0	0
					3	18.3	52	10.8	196	8.8	0.01	140	74/50	0	47	0		0	0
114	1	37.9	2.62	ECC	1	14.9	51	17.6	205	2.1	0.01	120	62/36	0	43	0	6/10,8/10	0	0
					2	14.3	48	10.5	190	3.4	0.01	133	62/40	0	46	0		0	0
					3	13.5	46	9.4	179	7.4	0.01	142	68/50	0	40	0		0	0
115	1	36.8	2.63	UCM	1	20.2	60	15.6	201	1.9	0.01	122	62/38	0	46	0	7/10,9/10	0	0
					2	19.5	57	13.7	193	5.4	0.01	134	66/46	0	49	0		0	0
					3	19	55	10.8	186	9.4	0.03	146	72/50	0	43	0		0	0
116	1	37.9	3.8	ECC	1	18.5	58	12.8	193	1.1	0.01	123	28/42	0	40	0	7/10,9/10	0	0
					2	18.1	54	16.3	189	2.5	0.01	138	64/44	0	42	0		0	0
					3	17.6	52	9.4	176	6.5	0.01	142	70/50	0	45	0		0	0
117	0	38.3	2.89	ECC	1	14.3	53	14	183	2.1	0.01	122	58/40	0	45	0	7/10,9/10	0	0
					2	14	50	10.5	180	4.7	0.01	135	58/42	0	47	0		0	0
					3	13.2	48	7.3	167	8.3	0.01	146	68/46	0	43	0		0	0
118	0	40	3.83	UCM	1	19.5	59	12.9	230	2.8	0.01	126	64/40	0	50	0	7/10,9/10	0	0
					2	19.1	56	18.6	210	4.7	0.02	138	68/46	0	46	0		0	0
					3	18.3	54	6.7	208	9.8	0.01	145	74/50	0	43	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
119	1	38.6	2.79	UCM	1	18.8	57	14	210	2.8	0.01	128	64/42	0	42	0	7/10,9/10	0	0
					2	18.1	54	12.8	202	4.8	0.01	136	68/44	0	44	0		0	0
					3	17.3	52	10.6	189	8.2	0.01	142	74/50	0	46	0		0	0
120	1	37.3	2.63	ECC	1	17.4	53	11.5	240	1.8	0.03	120	62/36	0	40	0	6/10,9/10	0	0
					2	16.9	51	14.8	222	3.4	0.01	133	62/40	0	43	0		0	0
					3	16	49	6.8	209	8.1	0.01	148	68/50	0	44	0		0	0
121	0	38.4	3.25	ECC	1	18.4	58	16.3	205	1.3	0.01	128	58/40	0	46	0	7/10,9/10	0	0
					2	17.8	55	18.5	196	2.5	0.01	134	58/42	0	42	0		0	0
					3	17	54	10.6	186	8.9	0.01	142	68/46	0	46	0		0	0
122	1	40	3.86	ECC	1	15.4	46	16.3	190	2.8	0.01	130	60/40	0	46	0	6/10,9/10	0	0
					2	13.4	43	18.5	176	4.8	0.01	138	62/42	0	45	0		0	0
					3	11.6	42	10.6	163	8.2	0.01	118	68/50	0	47	0		0	0
123	0	41	2.76	ECC	1	15.6	45	17.4	208	2	0.01	130	60/40	0	40	0	7/10,9/10	0	0
					2	13.9	43	18.1	200	4.8	0.01	138	62/42	0	42	0		0	0
					3	12.8	41	14.7	196	8.3	0.01	118	68/50	0	45	0		0	0
124	0	38.4	2.88	UCM	1	19.7	57	12.9	210	1.3	0.01	130	58/40	0	41	0	7/10,9/10	0	0
					2	18.4	54	18.6	202	2.5	0.01	138	58/42	0	48	0		0	0
					3	16.1	48	6.7	189	8.9	0.02	118	68/46	0	52	0		0	0
125	1	39	2.13	UCM	1	19.8	58	12.9	190	2.8	0.01	123	62/36	0	47	0	7/10,9/10	0	0
					2	18.4	54	18.6	176	4.8	0.01	138	62/40	0	49	0		0	0
					3	13.5	48	6.7	163	8.2	0.01	142	68/50	0	50	0		0	0
126	0	38.6	3.68	UCM	1	18.9	57	18.5	210	1.3	0.01	123	66/40	0	41	0	6/10,9/10	0	0
					2	17.6	51	14.3	202	2.5	0.01	138	68/44	0	48	0		0	0
					3	16.8	48	8.9	189	8.9	0.01	142	76/50	0	52	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
127	1	38	2.75	ECC	1	14.8	42	16.3	208	2	0.01	120	60/40	0	46	0	6/10,9/10	0	0
					2	13.4	39	18.5	200	4.8	0.01	133	62/42	0	45	0		0	0
					3	11.8	37	10.6	196	8.3	0.03	148	68/50	0	47	0		0	0
128	0	36.8	2.8	UCM	1	19.6	57	12.9	210	1.3	0.01	120	58/40	0	40	0	7/10,9/10	0	0
					2	17.6	53.5	18.6	202	2.5	0.01	133	58/42	0	42	0		0	0
					3	14.9	50.1	6.7	189	8.9	0.04	148	68/46	0	45	0		0	0
129	1	41	3.5	ECC	1	14.7	43.1	19.3	190	2.8	0.01	120	62/36	0	47	0	7/10,9/10	0	0
					2	12.8	38.4	12.6	176	4.8	0.01	133	62/40	0	49	0		0	0
					3	11.1	34.1	10.8	163	8.2	0.01	148	68/50	0	50	0		0	0
130	0	38.4	3.3	ECC	1	14.9	48.2	19.3	208	2	0.01	130	58/40	0	41	0	6/10,9/10	0	0
					2	14.1	44.2	12.6	200	4.8	0.01	138	58/42	0	48	0		0	0
					3	12.8	39.8	10.8	196	8.3	0.01	118	68/46	0	52	0		0	0
131	1	39	2.79	UCM	1	18.6	55.1	18.5	196	1.3	0.01	120	66/40	0	46	0	6/10,9/10	0	0
					2	17.2	51.7	14.3	186	2.5	0.01	133	68/44	0	45	0		0	0
					3	15.1	48	8.9	190	8.9	0.01	148	76/50	0	47	0		0	0
132	0	36.9	2.21	UCM	1	19.4	58.1	12.9	190	1.3	0.01	130	60/40	0	40	0	7/10,9/10	0	0
					2	18.6	55	18.6	176	2.5	0.01	138	62/42	0	42	0		0	0
					3	15.8	47.1	6.7	163	8.9	0.01	118	68/50	0	45	0		0	0
133	0	38.4	3	UCM	1	18.4	57.1	19.3	196	2	0.01	123	58/40	0	40	0	7/10,9/10	0	0
					2	16.9	51.2	12.6	186	4.8	0.01	138	58/42	0	42	0		0	0
					3	14.6	46	10.8	190	8.3	0.01	142	68/46	0	45	0		0	0
134	0	36.4	2.28	UCM	1	16.9	51.8	11.5	210	2	0.01	120	62/36	0	46	0	6/10,9/10	0	0
					2	14.6	50	14.8	202	4.8	0.01	133	62/40	0	45	0		0	0
					3	13.8	46.8	6.8	189	8.3	0.01	148	68/50	0	47	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
135	0	38.4	3.85	UCM	1	18.6	57.7	19.3	208	2.8	0.01	120	66/40	0	40	0	6/10,9/10	0	0
					2	17	51.4	12.6	200	4.8	0.01	133	68/44	0	42	0		0	0
					3	16.1	49	10.8	196	8.2	0.01	148	76/50	0	45	0		0	0
136	1	38.6	2.99	UCM	1	15.9	57.4	12.9	210	1.8	0.01	130	58/40	0	40	0	7/10,9/10	0	0
					2	14.6	50.1	18.6	202	3.4	0.01	138	58/42	0	42	0		0	0
					3	13.7	47	6.7	189	8.1	0.01	118	68/46	0	45	0		0	0
137	0	35.8	2.27	UCM	1	18.9	57.1	18.5	190	1.3	0.01	123	60/40	0	46	0	7/10,9/10	0	0
					2	18	56	14.3	176	2.5	0.01	138	62/42	0	45	0		0	0
					3	17.1	51	8.9	163	8.9	0.01	142	68/50	0	47	0		0	0
138	1	38.4	3.29	UCM	1	18.6	57.8	12.9	210	2	0.01	120	60/40	0	41	0	7/10,9/10	0	0
					2	18.1	56	18.6	202	4.8	0.01	133	62/42	0	48	0		0	0
					3	16.9	52.4	6.7	189	8.3	0.01	148	68/50	0	52	0		0	0
139	0	38.4	4.1	UCM	1	18.9	57.4	11.5	196	1.3	0.01	128	66/40	0	40	0	6/10,9/10	0	0
					2	17.6	54.1	14.8	186	2.5	0.01	133	68/44	0	42	0		0	0
					3	16.8	51	6.8	190	8.9	0.01	148	76/50	0	45	0		0	0
140	1	38.6	3.58	UCM	1	19.8	57.1	19.3	190	1.7	0.01	130	58/40	0	46	0	7/10,9/10	0	0
					2	18	54.9	12.6	176	2.1	0.01	138	58/42	0	45	0		0	0
					3	16.4	52	10.8	163	8.2	0.01	118	68/46	0	47	0		0	0
141	0	38.9	2.36	UCM	1	19.8	58.6	18.5	210	2.8	0.01	123	66/40	0	40	0	7/10,9/10	0	0
					2	17.5	56.7	14.3	202	4.8	0.01	138	68/44	0	42	0		0	0
					3	15.8	51	8.9	189	8.2	0.01	142	76/50	0	45	0		0	0

S. No.	Gender	Gestational Age (wks)	Weight (kgs)	Intervention	Day of life	Hemoglobin (gm%)	Packed Cell Volume (%)	White Blood Cells (T/mm3)	Platelets (T/mm3)	Serum Total Bilirubin (mg/dl)	Serum Direct Bilirubin	Heart Rate (bpm)	Blood Pressure (mm)	Congestive Cardiac Failure	Respiratory Rate	Need for Blood Transfusion	APGAR	Respiratory Failure	Mortality
142	0	38.4	2.63	UCM	1	18.9	57.6	18.5	210	2	0.01	120	62/36	0	41	0	7/10,9/10	0	0
					2	18	55.6	14.3	202	4.8	0.01	133	62/40	0	48	0		0	0
					3	17	52.1	8.9	189	8.3	0.01	148	68/50	0	52	0		0	0
143	1	38.6	3.6	ECC	1	13.5	50.1	16.3	208	1.3	0.01	123	60/40	0	40	0	6/10,9/10	0	0
					2	10.8	34.3	18.5	200	2.5	0.01	138	62/42	0	42	0		0	0
					3	10.5	31.2	10.6	196	8.9	0.02	142	68/50	0	45	1		0	0
144	1	37	2.08	UCM	1	19.5	57.4	12.9	210	1.3	0.01	130	58/40	0	46	0	6/10,9/10	0	0
					2	18.4	54.4	18.6	202	2.5	0.01	138	58/42	0	45	0		0	0
					3	17.3	52.7	6.7	189	8.9	0.01	118	68/46	0	47	0		0	0