



Umbilical cord length and it's significance on maternal and fetal outcome.



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Abstract: Human embryo develops in the womb of mother. The navel string is a conduit between the developing embryo or fetus and the placenta. Most umbilical cords are 50 to 60 cm in length and very few are abnormally short or long. A short cord is <35 cm and a long cord is >80 cm. **Objectives:** To assess the effect of long and short umbilical cord on maternal and fetal outcome. To find association between length of umbilical cord and Demographic variables of mother. **Methodology:** A quantitative research approach and Descriptive research design was adopted. The 100 Postnatal women were observed following delivery for examination of length of umbilical cord, any loop around neck, trunk, shoulder and number of loops of cord, knots of cord etc., at Narayana Medical College Hospital, Nellore. Fetal parameters recorded were sex, weight, length of the newborn and APGAR score at 1 and 5 min. The recorded parameters were analyzed with Descriptive and Inferential statistics. **Results:** Cord length varied from 28 to 110 cm. The mean cord length was 58 cm (± 10 cm). Maximum cases have cord length of 55 to 70 cm. Short-cord group was associated with significantly higher ($p < 0.05$) incidence of LSCS, cord hematoma, tachycardia and birth asphyxia. Knot and cord prolapsed increased with extremes of cord length ($p < 0.001$). **Conclusion:** Umbilical cord length varies considerably and factors controlling cord length are unknown. A number of abnormalities can affect the umbilical cord, which will affect both maternal and newborn outcome: Most of the umbilical cords are within normal length. Shorter cord was associated with an increased rate of CS, cord hematoma, birth asphyxia and tachycardia. Longer cord associated with cord complications like knot and cord prolapse. **Key words:** Umbilical cord, Maternal and Fetus.

Introduction: Human embryo develops inside the body of the mother. One of the important part of the fetoplacental unit is the umbilical cord. The umbilical cord is the lifeline of the fetus. The baby's life hangs by a cord as said by Ian Donald aptly tells the importance of the umbilical cord.

Most umbilical cords are 50 to 60 cm in length and very few are abnormally short or long. A short cord is <35 cm and a long cord is >80 cm. A short

cord may be associated with adverse perinatal outcome such as intrauterine growth retardation (IUGR), congenital malformation and intrapartum distress.

Short Umbilical Cord has been associated with fetal distress, umbilical cord rupture and hemorrhage, low Apgar scores. Short Umbilical Cord requires appropriate treatment for an optimal outcome. Short Cord may not be entirely prevented. However some



risk factors may be avoided, such as smoking and alcohol consumption during pregnancy. Also, maternal diabetes has to be kept under control to minimize the risk.

Long Umbilical Cord has been associated with excessive knotting of the cord, umbilical cord torsion and umbilical cord prolapse. An appropriate treatment is necessary for Long Umbilical Cord in order to have an optimal outcome. Long Umbilical Cord may not be entirely prevented. However, some risk factors may be avoided, such as smoking and alcohol consumption during pregnancy. Also, diabetes in the mother has to be kept under control, to minimize the risk.

Statement of the Problem:

“A study to assess the effect of long and short umbilical cord on maternal and fetal outcome.”

Objectives:

To assess the effect of long and short umbilical cord on maternal and fetal outcome.

To find out association between length of umbilical cord and demographic variables of mother.

Limitations:

- This study was delimited to intra natal mother above 37 weeks of gestations.
- This study is delimited to sample size of 100 intra natal mothers.

Research Approach: A quantitative research approach was adopted.

Research Design: Descriptive prospective research design.

Setting: The study was conducted in labour room of NMCH, Nellore.

Population: The population for the study was

Target Population: Pregnant mother. Who were above 37 weeks of gestations admitted in labour ward of NMCH.

Accessible Population: Pregnant mother who is in intranatal period in labour room of NMCH.

Sample: Pregnant mother who is in intranatal period in labour room of NMCH.

Sampling Technique: Non probability convenience sampling technique was used to select the samples for the study.

Sample size: Sample size of the study was 100 intra natal mother.

Criteria for sample selection.

Inclusion criteria: The antenatal who were:

- In intra natal period
- Both primi and multigravida.
- Willing to participate in study.

Exclusion Criteria: The adults who are

- Preterm deliveries;
- Multifetal gestation; and
- Babies with major congenital anomalies.

Variables:

Demographic variables:

Includes age, educational qualification, occupation, family income, gravida, parity, body mass index, habits, type of delivery and pregnancy with complication.

Research Variables: Maternal and fetal out come

Development of the tool:

Section – I:

It deals with demographic variables includes age, educational qualification, occupation, family income, gravida, parity, body mass index, habits, type



of delivery and pregnancy with complication.

Section– II: Measuring umbilical cord length

Section– III: length of umbilical cord with maternal and fetal outcome.

Plan for Data Analysis: The data was analyzed in terms of objectives of the study by using descriptive statistics and inferential statistics.

Results and discussion:

Demographic results, age of mothers 46(46%) were between 21-25 years and 5(5%) were more than 36 years, 48 (48%) mother belonged to gravid 2 and 28(28%) belonged to above gravid 2,34 (34%) mother belonged to primiparous and 66(66%) belonged to multiparous and 14 (14%) mother had GDM, 10(10%) had APH and 40 (40%) had PPH.

Table-1: Distribution of cases according to length of umbilical cord. N=100

Pregnancy with any complications	Fre (F)	Per (%)
Short cord - <30 cm	20	20
Normal - 31 – 100cm	72	72
Long cord - >101 cm	08	08
Total	100	100

Table-1: frame-up’s to length of umbilical cord, 20 (20%) of baby had short card, 72 (72%) had normal length of cord and 8 (8%) had long cord.

Table 2: Umbilical cord length and incidence of Cord complication N=100

Cord Length	Knot		Cord Prolapse		Cord Heamatoma		No Complications	
	F	P	F	P	F	P	F	P
	Short	-	-	6	6	8	8	6

Normal	10	10	8	8	14	14	40	40
Long	6	6	2	2	-	-	-	-

Table-2: stating the umbilical cord length and incidence of cord complication, baby with short cord 6 % had cord prolapse, 8% had cord hematoma, baby with normal length of cord 10 % had knot, 8% had prolapse, 14 % had cord hematoma and baby with long cord 6% had knot and 2 % had cord prolapse.

Table No – 3 Cord length and mode of delivery.

Cord Length	Vaginal		LSCS		Instrumental	
	F	P	F	P	F	P
Short	-	-	18	18	2	2
Normal	25	25	40	40	7	7
Long	4	4	4	4	-	-

Table-3: depicting the umbilical cord length and mode of delivery, baby with short cord 18 (18 %) delivered by LSCS, 2 (2%)instrumental delivery, baby with normal length of cord 25 (25 %) delivered by vaginal 40 (40%) LSCS and 7 (7%) by instrumental and baby with long cord 4(4%) delivered by vaginal and 4(4%) delivered by LSCS.

Table No 4 – Cord Length And Fetal Heart Rate N=100

Cord Length	Normal		Bradycardia		Tachycardia	
	F	P	F	P	F	P
Short	2	2	6	6	12	12
Normal	55	55	8	8	9	9
Long	6	6	2	2	-	-

Table-4: depicting the cord length and fetal heart rate, baby with short cord 2 (2 %) had normal heart rate, 6 (6%) had bradycardia and 12 (12%) had tachycardia, baby with normal length of cord 55 (55 %) had normal heart rate, 8 (8%) had bradycardia and 9 (9%) had



tachycardia and baby with long cord 6(6%) normal heart rate and 2(2%) had bradycardia.

Table-5: Cord Length and birth asphyxia

Cord Length	Still Birth		Early Neonatal Death		Normal	
	F	P	F	P	F	P
	Short	4	4	4	4	12
Normal	1	1	3	3	68	68
Long	-	-	-	-	8	8

Table-5: stating the cord length and birth asphyxia, baby with short cord 4(4 %) were still birth and 4 (4%) were early neonatal death, baby with normal length of cord 1(1%) was still birth, 3(3%) were early neonatal death and baby with long cord 8(8%) were normal.

Table-6: Cord Length and APGAR

Cord Length	0 - 3		4 - 6		7 - 10	
	F	P	F	P	F	P
Short	5	5	7	7	8	8
Normal	5	5	10	10	57	57
Long	-	-	2	2	6	6

Table-6: stating the cord length and APGAR, baby with short cord 5 (5%) had 0-3 score, 7(7%) had 4-6 score and 8(8%) had 7-10, baby with normal length of cord 5(5%) had 0-3, 10(10%) had 4-6 and 8(8%) had 7-10 and baby with long cord 2(2%) had 4-6 and (6%) had 7-10.

There is a significant association between the length of umbilical cord and socio demographic variables like gravida, parity, body mass index and pregnancy with other disorders at. There is socio demographic variables like age, education, occupation, family income, residence, type of family

and habits of mother had shown no significant association with the length of umbilical cord.

Conclusion: Most of the umbilical cords are within normal length. Shorter cord was associated with an increased rate of CS , cord hematoma and tachycardia. Longer cord associated with cord complications like knot and cord prolapse.

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