

To Study the Time of Separation of Umbilical Cord

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Abstract

Context: Umbilical cord is the lifeline of foetus. The usual time of separation of umbilical cord is 7 to 10 days. Some studies have shown that factors like sex, birth weight and mode of delivery affect the time of separation of umbilical cord.

Aims and objectives: The aim of this study is to investigate the time of separation of umbilical cord in the neonates and its relationship with various factors like sex, birth weight, gestational age and mode of delivery.

Methodology: Prospective study done at postnatal ward of KIMS, Hubli during May and June, 2018.

Results: A total number of 174 babies were enrolled in the study. Cord separation in order of frequency; 78 babies (44.8%) was between 4 to 6 days; for 59 babies (33.9%) between 7 to 10 days; for 21 babies (12.1%) after 10 days; for 16 babies (9.2%) between 0 to 3 days. The earliest day of cord separation was 2 days on which 6 babies (3.4%) had cord fall and two babies (1.1%) had cord separation as late as 18 days. The meantime of separation of umbilical cord was 7.02 days. There was no statistical significance for cord separation between neonates of different mode of delivery, sex, gestational age and birth weight.

Conclusion: The meantime of separation of umbilical cord was 7.02 days. No relation could be established between time of cord separation and mode of delivery, sex, gestational age and birth weight.

Keywords: Umbilical Cord; Cord separation.

Introduction

Umbilical cord is the lifeline of foetus. The prenatal survival of the fittest is dependent on adequate functioning of the cord. The cord shrivels and falls after birth. The usual time of separation of umbilical cord is 7 to 10 days [1]. Some studies have shown that factors like sex, birth weight and mode of delivery affect the time of separation of umbilical cord [2-4]. An unpublished data from our college has shown that various factors affect the time of separation of umbilical cord even in healthy children. The aim of this study is to investigate the time of separation of umbilical cord in the neonates

from postnatal ward of Karnataka Institute of Medical Sciences, Hubli and its relationship with various factors like sex, birth weight, gestational age and mode of delivery.

Materials and Methods

A prospective study was conducted for 2 months during May and June, 2018 in the postnatal ward of Karnataka Institute of Medical Sciences, Hubli. The Mothers admitted in postnatal wards were approached in the hospital and written consent was obtained for participating in the study. All term, preterm appropriate for gestational age and

post term healthy neonates born by either vaginal delivery or Caesarean section and weighing > 2 kg were included for the study. Neonates with either prenatal or postnatal morbidity were excluded from the study. Gestational age was calculated from the last menstrual period of the mother. The Mothers were instructed not to apply anything to the cord. Babies were regularly followed in the hospital during the stay and the time of separation of umbilical cord was noted. The Mothers of those babies whose umbilical cord did not separate during hospital stay were asked to report back after the separation of umbilical cord. Statistical analysis was done using mean, Standard Deviation, standard error of mean and Chi-square test.

Results

A total of 215 neonates met the inclusion and exclusion criteria and were taken for the study. Out of these, 14 babies could not be followed up as the parents did not return after discharge. A total number of 174 babies were enrolled in the study.

The earliest day of cord separation was 2 days on which 6 babies (3.4%) had cord fall (Table 1). Two babies (1.1%) had cord separation as late as 18 days.

Table 1: Frequency of cord fall at different days

Number of days	Frequency	Percent
2	6	3.4
3	10	5.7
4	13	7.5
5	34	19.5
6	31	17.8
7	17	9.8
8	17	9.8
9	17	9.8
10	8	4.6
11	6	3.4
12	4	2.3
13	2	1.1
14	2	1.1
15	3	1.7
17	2	1.1
18	2	1.1
Total	174	100
Mean days for cord separation		7.02
Standard error of mean		0.241
Standard deviation		3.181

Cord separation in order of frequency (Table 2); 78 babies (44.8%) was between 4 to 6 days; for 59 babies (33.9%) between 7 to 10 days; for 21 babies (12.1%) after 10 days; for 16 babies (9.2%) between 0 to 3 days.

Out of 174 newborns 103 were vaginal delivery, 71 were caesarean delivery. In all these babies cord fall ranged between 2 to 18 days. In majority of vaginal births cord got separated between 4 - 6 days (50.48%); between 7 to 10 days in 29.12%; between 0 to 3 days in 10.6% and after 10 days 9.7%. In babies born by Caesarean section cord got separated between 7 to 10 days in 40.84% followed by cord fall between 4 to 6 days in 36.61%; after 10 days in 15.49% and between 0 to 2 days in 7.04%. On evaluation the cord fall was between 4 to 6 days in 50.48% of babies born by vaginal deliveries with cord of 23 babies separating on 5th day. Among babies born by Caesarean section cord fall ranged between 7 to 10 days in 40.84% of babies (Table 3).

Twenty one (21) Preterm and 153 term babies were studied. Among the term babies, for maximum number of babies that is 71 (46.40%) cord separation was between 4 to 6 days; for 49 babies (32.02%) between 7 to 10 days; for 19 babies (12.41%) >10 days and between 0 to 3 days for 14 babies (9.15%).

Table 2: Distribution of frequency of cord fall

Cord separation	Frequency	Percentage
0 - 3 days	16	9.2
4 - 6 days	78	44.8
7 - 10 days	59	33.9
>10 days	41	12.1
Total	174	100
Cord separation	Frequency	Percentage

Table 3: Mode of delivery range cross tabulation

Cord separation	Vaginal delivery	Caesarean section
0 - 3 days	11	5
4 - 6 days	52	26
7 - 10 days	30	29
>10 days	10	11
Total	103	71

Pearson Chi - square: Value - 5.275 (0 cells (0%) have expected count less than 5); df - 3; Asymp. Sig. (2-sided) .153

Table 4: Gestational age range cross tabulation

Cord separation	Preterm	Term
0 - 3 days	2	14
4 - 6 days	7	71
7 - 10 days	10	49
>10 days	2	19
Total	21	153

Pearson Chi - square: Value - 2.159 (2 cells (25%) have expected count less than 5); df - 3; Asymp. Sig. (2-sided) .540

Table 5: Sex cross tabulation

Cord separation	Male	Female
0 - 3 days	7	9
4 - 6 days	35	43
7 - 10 days	32	27
>10 days	14	7
Total	88	86

Pearson Chi - square: Value - 3.805 (0 cells (0%) have expected count less than 5); df - 3; Asymp. Sig. (2-sided) .283

For 10 (7.61%) preterm babies cord separation was between 7 to 10 days; for 7 babies (33.33%) between 4 to 6 days; for 2 babies (9.52%) between 0 to 3 days and for 2 babies (9.52%) after 10 days (Table 4).

Eighty eight babies were males and 86 were females in our study. Out of 88 male babies cord got separated between 4 to 6 days for 35 babies (39.77%); between 7 to 10 days for 32 babies (36.36%); after 10 days for 14 babies (15.9%) and between 0 to 3 days for 7 babies (7.95%). Cord separation for 43 female babies (50%) was between 4 to 6 days; for 27 babies (31.39%) between 7 to 10 days; for 9 (10.46%) between 0 to 3 days and for 7 babies (8.13%) after 10 days (Table 5).

Among 174 babies studied 145 were normal birth weight. For 63 babies (43.44%) of normal birth weight cord separation ranged from 4 to 6 days; 53 babies (36.55%) from 7 to 10 days; 15 babies (10.34%) more than 10 days and for 14 babies (9.655%) between 2 to 3 days. 29 low birth weight babies were studied among which cord separation for 15 babies (51.72%) was between 4 to 6 days; for 6 babies (20.68%) between 7 to 10 days; for 6 babies (20.68%) more than 10 days; 2 babies (6.89%) between 0 to 3 days (Table 6).

Discussion

According to study the meantime of separation of umbilical cord was 7.02 days. For maximum number of babies 78 (44.8%) babies cord separation ranged between 4 to 6 days. On application of Chi square test for mode of delivery and time of umbilical cord separation, there is no relation between mode of

Table 6: Birth weight cross tabulation

Cord separation	Low birth weight	Normal weight
0 - 3 days	2	14
4 - 6 days	15	63
7 - 10 days	6	53
>10 days	6	15
Total	29	145

Pearson Chi - square: Value - 4.505 (2 cells (25%) have expected count less than 5); df - 3; Asymp. Sig. (2-sided) .212

delivery and time of cord separation. Similarly no relation could be established between birth weight of the baby, gestational age and sex of the baby with the time of separation of umbilical cord.

Conclusion

We conclude that the meantime of separation of umbilical cord was 7.02 days. No relation could be established between time of cord separation and mode of delivery, sex, gestational age and birth weight.

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Conflict Of Interest: Nil

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