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FETAL OUTCOME;

EFFECTS OF NUCHAL CORD VS WITHOUT CORD AROUND THE NECK ON MODE OF DELIVERY

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ABSTRACT… Objectives: To compare the effect of nuchal cord versus without cord around the neck on mode of delivery and fetal outcome. **Study design:** Case control comparative study. **Period:** 1st August 2013 to 31st March 2014. **Setting:** Gyn /Obs Department at Sir Syed Hospital Karachi. **Material and Methods:** A comparative study was carried out on 2 groups of parturient ladies. The study group comprised of those ladies who at the time of delivery (vaginal delivery/caesarean-section) had clinically cord around the neck while the other group (control) did not have nuchal cord. Duration of labour, mode of delivery were noted. Perinatal outcome was measured in terms of Apgar score and NICU admission. High risk pregnancies were excluded from the study. **Result:** Incidence of nuchal cord at the time of delivery was 22.7%. A high rate of caesarean delivery observed in study group as compared to control group (70 % vs 40%) (P value 0.00006). Fetal heart rate irregularities & meconium stained liquor finding was not significantly different in two groups ($p< 0.161$) & ($p<0.169$) respectively. Similarly fetal outcome measured in terms of Apgar score at 1 & 5 min & NICU admission was also not significantly different between the two groups. **Conclusion:** A significant high rate of caesareans section rate was observed in the study group mainly due to fetal distress (FHR irregularities). This means cord around the neck is a risk factor & needs extra monitoring specially through intermittent CTG monitoring during labour so that fetal distress can be picked up early & emergency caesarean section can be performed to avoid fetal compromise.

Key words: Nuchal Cord, Caesarean Section, Apgar score

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INTRODUCTION

Nuchal cord is defined as the umbilical cord being wrapped 360 degree around the fetal neck.[1] Its presence is quite common at the time of birth &many studies have reported a frequency of about 18-25% of deliveries.[2-3] Many obstetricians often suggest it to be the cause of fetal distress during labour & thus find it to be responsible for increased risk of caesarean section & sometimes poor perinatal outcome.

The presence of nuchal cord can be diagnosed during antenatal period using ultrasound (US) examination, but the complications are unpredictable and unpreventable.

During labour and delivery it may partially or intermittently get obstruct, which can result in fetal hypoxia. A long umbilical cord can facilitate movements and descent of fetal head during delivery but has the potential to entangle around the neck, limb or torso.[4]

In the intrapartum period the only indication of umbilical cord being wrapped around the baby may be in the form of variable fetal heart rate decelerations on the cardiotocograph (CTG). These are generally timed with contractions as at that time the cord is stretched more tightly.[5]

Many obstetricians find it safe to perform an elective C-section on patients who at term show cord around the neck on ultra sound, while majority agree that doing caesarean section just for nuchal cord does not improve the perinatal outcome but only increases the un necessary maternal morbidity.

Since long time, nuchal cord is blamed for fetal heart rate variabilities, meconium stained liqour during labour & low Apgar score after birth but whether this is really the fact is still a debatable issue.

This study was therefore aimed to compare the mode of delivery and perinatal outcome between nuchal cord and no nuchal cord group in our setup and to observe that whether NC really affects the mode of delivery & perinatal outcome.

MATERIAL & METHOD

During this period, all the women who were admitted in the labour room with singleton, cephalic and term pregnancy (37-40weeks gestation) without any obstetric high risk factor were enrolled in the study.

Women with high risk obstetric factor e.g previous history of cesarean section, hypertension, diabetes, ante partum haemorrhage (APH), multiple pregnancy or mal presentation were excluded. Progress of labour was monitored on partograph. Fetus was monitored by auscultation FHS ½ hourly, intermittent CTG and presence or absence of meconium stained liquor. The ladies after successful vaginal delivery or who ended up in caesarean section because of non-progress of labour, failed induction or fetal distress were divided into two groups. The study group comprised of all those women who had nuchal cord at the time of delivery (vagina/caesarean-section), while the control group included those cases who did not have nuchal cord.

Labour outcome of both groups in terms of mode of delivery, CTG Irregularity, meconium stained liquor, Apgar score at 1and 5 min, NICU admission were noted and compared. Statistical analysis were performed using SPSS statistical software version 12.0.

RESULT

During the study period, 277 deliveries took place, out of which 63 cases had cord around the neck making it's incidence as 22.7%.

After the exclusion of high risk factors, a total of 165 patients were enrolled in the study.115 found to have no nuchal cord (control group) while the remaining 50 had cord around the neck (NC) (study group).

Most of the ladies were found in the age group between 20-30 years (82% in study group &68% in control group). Among these the majority in both the groups had parity between 2-4 Table-I.

Age	Study group (nuchal cord 50) N (%)	Control group (no nuchal cord 115) N (%)
20-30 years	41 (82%)	79 (69%)
31-40	09 (18%)	28 (24%)
>40	-	08 (7%)
Parity		
Primigravida	22 (44)	37 (32%)
P 2-4	23 (46%)	53 (46%)
>4	5 (10%)	25 (22%)
Gestational age		
1–40 weeks	45 (90%)	88 (77%)
>40 weeks	5 (10%)	27 (23%)

Table-I. Maternal biophysical profile

In study group 3/50 (6%) had instrumental delivery v/s 12/115 (10%) in control group (P=0.3685). Majority of women in the study group 35/50 (70%) had caesarean section as compared to 46/115 (40%) in control group (P= 0.0006). It was statistically a significant difference Table-II.

Intrapartum events	Study group n=50	Control group n=115	OR	95% CI	P value
Non reassuring CTG	18(36%)	55(47.8)	0.1636	0.3098-1.2156	0.1615
Meconium stained liquor	10(20%)	35(30.4)	0.5714	0.2571-1.2701	0.1697
Instrumental delivery	3(6%)	12(10.4)	0.5479	0.1476-2.0333	0.3685
Caesarean section	35(70)	46(40)	3.5000	1.7196-7.1238	.00006

Table-II. Intrapartum events

Non reassuring CTG was more commonly seen in control group 55/115 (48%) as compared to 18/50 (36%) in study group but statistically not significant (P= 0.1615) Table-II. Meconium stained liquor was seen in 10/15 (20%) in study group, while this was 35/115 (30.4%) in control group, which was again a non-significant finding (P= (0.1697) Table-II.

Neonatal record was checked in terms of Apgar Score at 1 and 5 minute and admission to NICU. Apgar score < 7 at one minute was observed 7/50 (14%) in study group as compared to 17/115 in control group (14.7) (Non-significant P= 0.8958) Table-III.

At 5 minute only 3/50 (6%) of study group had apgar score < 7, which is almost same 5/115 (4.3%) in control group, which is again statistically non-significant (P=0.6511). Finally NICU admission was observed in 4/50 (8%) neonates in the study group as compared to 17/115 (14.7%) in control group (statistically non-significant P=0.2368) Table-III.

A quiet higher rate of cesarean section was observed in nuchal cord group. Indications of cesarean section in the study group were mainly due to FHR irregularities Table-IV.

Indications	Number of cases
FHR irregularities	16
Meconium stained liquor	07
Non progress of labour	07
Failed induction	05

Table-IV. Indications of caesarean section in cases with nuchal cord

Apgar score..	Study group n=50	Control group n=115	OR	95%CI	P value
<7 at 1 minute	7	17	0.9384	0.3628-2.4276	0.8958
<7 at 5 minute	3	5	1.4043	0.3224-6.1170	0.6511
NICU admission	4	17	0.5013	0.1597-1.5739	0.2368

Table-III. Neonatal events between 2 groups

DISCUSSION

In our study, the incidence of nuchal cord at the time of delivery was 22.7 %. It is quite near to the incidence (22.85 %) observed in the in a study carried by Shrestha NS et al[6] at Khatmandu Medical College. In contrast, a higher incidence (33.7%) is reported by Schaffer L et al.[7] and Ghi T et al.[8] Comparatively a low incidence between5.3% to 10.9% is observed in Indian population.[9,10]

When the intra partum events were monitored, it was found that FHR irregularities were more common in control group 55/115 (47.8%) than in the study group 18/50 (36%) but statistically not significant. This finding correlates with that of Mastbattisia[11] and Carey et al[12], who found statistically no difference b/w the two groups, where as Sheiner et al[13] observed an increased rate of non-reassuring FHR pattern in the nuchal cord group.

In our study the meconium stained liquor was rather more common in the control group (30.4%) as compared to the study group 20%. Similarlly a lower incidence of meconium stained liquor in nuchal cord group was found in a study conducted by Farnaz et al[14] and others.[15] In contrast a recent study in 2014 conducted by Yum Narang et al[16] observed a significant increase in the incidence of meconium stained liquor in the nuchal cord group v/s without cord around the neck.

With regards to caesarean section, we observed a significantly higher rate of caesarean section in nuchal cord group (70%) as compare to the control group (40%). On the other hand a study in Bangladesh[17] reported significantly lower caesarean section rate (13.8%) in women whose fetuses had nuchal cord at the time of delivery.

Apgar score < 7 at 1 and 5 minute were not significantly different in both groups (p value 0.89 for Apgar at 1 min & P value 0.65 for Apgar at 5 min). Admission to neonatal unit was again not significantly different between the groups. These finding are similar in the study by Peregrine et al[2]

& begum et al[17] who observed that the presence of nuchal cord did not significantly affect the fetal out come with regards to Apgar score or NICU admission.

CONCLUSION

Our study concludes that nuchal cord is a common finding at term. We found a high rate of emergency cesarean section rate due to fetal distress in the nuchal cord group. Therefore during labour, close fetal monitoring is strongly suggested preferably by continuous fetal electronic heart rate monitoring. If FHR irregularities occur at frequent intervals, emergency cesarean delivery is conducted to avoid poor perinatal outcome.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Afsheen Memon	Data collection & analysis with articles	
2	Dr. Aisha Abdullah Sheikh	Drafting of the article and criticle revision	
3	Dr. Anisa Kamal	Collection of article and analysis/ composition literature search