

Effect of Nuchal Cord on Perinatal Outcomes

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ABSTRACT

Aim: To determine the effect of nuchal cord on early neonatal outcomes and its comparison with neonates without nuchal cord.

Methods: This was a descriptive cross-sectional study and was conducted in duration of 18 months from Jan-2017 to June-2018 at Rahbar Medical & Dental College Lahore and its attached hospital. Patients having either primigravidity or multigravida and having singleton pregnancy were included. In group N; neonates with nuchal cord were included and in group W; neonates without nuchal cord were included. A total number of 60 patients were included. Neonatal outcomes were noted in terms of birth weight, APGAR score at 5 minutes and NICU admission. APGAR score and birth weight between neonates having nuchal cord and those without nuchal cord was compared using students t-test. While NICU admission rate was compared using chi-square test.

Results: Mean age of females at the time of delivery was 28.45 ± 5.78 years in group N and 29.12 ± 6.01 years in group W (p-value 0.66). Mean gestational age was 36.62 ± 1.51 weeks in group N and 36.59 ± 1.45 weeks in group W (0.93). Regarding neonatal outcomes, APGAR score after 5 minutes was 8.47 ± 0.49 in group N and 8.71 ± 0.43 in group W (p-value 0.04). Similar findings were found regarding birth weight, mean birth weight was 3.01 ± 0.29 kg in group N and 3.35 ± 0.42 kg in group W (p-value 0.009). NICU admission rate was reported in 6 (20%) neonates in group N and in 01 (3.3%) neonates in group W (p-value 0.04)

Conclusion: Presence of nuchal cord at the time of delivery is associated with higher incidence of neonatal morbidity in terms of APGAR score, ICU admission and NICU admission rate.

Keywords: Nuchal Cord, APGAR Score, Birth weight.

INTRODUCTION

Umbilical cord has very important role in fetal development and is its main lifeline^{1,2}. However, sometimes it is associated with some unwanted lesions which may be mechanical, structural and infectious. Umbilical cord entanglement is a routine finding during delivery³⁻⁵. It is hypothesized that this nuchal can cause compression of cord and can result in low birth weight and can cause adverse peri-partum outcomes. Nuchal cord is found in nearly 25% cases; it can occur during delivery or during labor due to fetal movement. It can be single or multiple and rate is high in males because of large cord size in male fetus^{5,6}. In more than 50% neonates' nuchal is resolved without intervention^{7,8}.

There is no need to worry if umbilical cord is wrapped around the neck, arm or shoulder during pregnancy. But it can create considerable disaster during delivery, when the fetus moves down, the cord is stretched resulting in reduced oxygen supply to fetus and hence permanent neurologic injury. The first signs of nuchal are variability in fetal heart rate during delivery⁹.

In present study we determined the frequency of nuchal cord and its effects on early neonatal outcomes.

METHODOLOGY

This was a descriptive cross-sectional study and was conducted in a duration of 18 months from Jan-2017 to June-2018. Patients having either primigravidity or multigravida and having singleton pregnancy were

included. Patients with still birth and having neonates with congenital anomaly were excluded. At the time of delivery incidence of nuchal cord was noted. Patients were divided into two groups on the basis of presence and absence of nuchal cord. In group N; neonates with nuchal cord were included and in group W; neonates without nuchal cord were included. A total number of 60 patients were included. Neonatal outcomes were noted in terms of birth weight, APGAR score at 5 mins and NICU admission. Data was entered in SPSS v23. APGAR score and birth weight between neonates having nuchal cord and those without nuchal cord was compared using students t-test. While NICU admission rate was compared using chi-square test.

RESULTS

Mean age of females at the time of delivery was 28.45 ± 5.78 years in group N and 29.12 ± 6.01 years in group W (p-value 0.66). Mean gestational age was 36.62 ± 1.51 weeks in group N and 36.59 ± 1.45 weeks in group W (0.93). Cesarean delivery rate was 8 (26.6%) group N and 9(30%) in group W (Table 1). Regarding neonatal outcomes, APGAR score after 5 minutes was 8.47 ± 0.49 in group N and 8.71 ± 0.43 in group W (p-value 0.04). Similar findings were found regarding birth weight, mean birth weight was 3.01 ± 0.29 kg in group N and 3.35 ± 0.42 kg in group W (p-value 0.009). NICU admission rate was reported in 6(20%) neonates in group N and in 1(3.3%) neonates in group W (p-value 0.04) [Table 2].

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Table 1: Baseline study variables

	Group N (n=30)	Group W (n=30)	P-value
Age	28.45±5.78	29.12±6.01	0.66
Gestational Age	36.62±1.51	36.59±1.45	0.93
Mode of delivery			
C-section	8(26.6)	9(30.0)	0.77
Vaginal	22(73.4)	21(70.0)	

Table 2: Comparison of neonatal outcomes.

	Group N (n=30)	Group W (n=30)	P-value
APGAR Score	8.47± 0.49	8.71 ±0.43	0.04
Birth Weight	3.01± 0.29	3.35 ± 0.42	0.009
NICU Admission			
Yes	6 (20.0)	01 (3.3)	0.04
No	24 (80.0)	29 (96.7)	

DISCUSSION

Nuchal cord is a routine presentation at the time of delivery. It is nearly reported in 25% neonates; single loop is found in 20% to 33% neonates. Incidence rate is 5.8% at 20 weeks of gestation period and 29% at 42 weeks of gestation¹⁰

In present study age of mothers were same in both groups; 28.45±5.78 years in group N and 29.12±6.01 years in group W. Joshi et al. also did not reported any significant difference in age of mothers at the time of delivery in nuchal cord versus without nuchal cord neonates.⁹ Begum et al. also reported similar findings¹¹.

Mean gestational age at delivery in present study was 36.62±1.51 weeks in group N and 36.59±1.45 weeks in group W. Taizon et al. reported gestational age 36.70±0.47 weeks in nuchal group and 36.60±0.50 weeks in neonates without nuchal cord.¹² While Alnakash et al. reported gestational age 38.27±1.03 weeks in nuchal cord group and 38.31±1.01 weeks in patients without nuchal cord¹³.

Regarding neonatal outcomes, APGAR score after 5 minutes of birth was 8.47± 0.49 in group N and 8.71 ±0.43 in group W. However, Taizon et al. reported insignificant difference in APGAR score.¹² Shrestha et al. and Kong et al. reported that APGAR score is same in nuchal versus without nuchal cord neonates.^{14,15} But other studies by Miser et al and Alnakash et al. reported lower APGAR score in nuchal cord patients¹³.

In present study, birth weight was more in group W, 3.35±0.42 kg versus 3.01± 0.29 kg in group N. Taizon et al. reported birth weight 3.60 ±0.34 kg in group N and 2.99 ±0.32 kg in normal neonates¹².

CONCLUSION

Presence of nuchal cord at the time of delivery is associated with higher incidence of neonatal morbidity in terms of APGAR score, ICU admission and NICU admission rate.

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