Association of Father's Smoking and Neonatal Respiratory Morbidities

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Abstract

First 28 days are the most vulnerable period for every neonate. Children usually suffered from respiratory illness. Therefore it is important to observe the prevalence of neonatal respiratory sickness. However, the disease profile among the neonates in rural areas is not exactly known. Many fathers in the rural area used smoke-producing tobacco. Therefore it is important to identify any relation of passive smoking with neonatal respiratory morbidities at the grass-root level. This study was conducted to estimate the frequency and to determine the pattern of respiratory illness of neonate and also to assess the impact of fathers smoking on the magnitude of acute respiratory tract infections (ARI) of newborns. This was a descriptive type of cross sectional study. It carried out on 62 neonates for 180 days, who attended the Tungipara UHC, Gopalganj in Bangladesh between January to June 2018. Data were collected through face-to-face interviews, physical examination, relevant investigations, and data were collected by semi structured questionnaire for respiratory illness. In this observational study, out of 62 neonates, from 1st day to 28 days of age. Diseases of the respiratory system topped the list (32%). Upper respiratory tract illnesses (URTI) were 22.5% as against only 9.5% of lower respiratory tract illness (LRTI). Most (47%) newborns were 28 days aged and 2nd most common (17.5%) was 15 days. The cumulative frequency was 37 percent up to 15 days of age. In the case of the father's occupation, most (19%) were in the private service. About one third (29%) fathers were engaged in business, whereas 18% done small business among them. However, it is a village area their cultivator was only 05 fathers. Consequently parent's education more than half (51.5%, 59.5%) were up to class 8. Nearly one-fifth of the fathers studied more than 12 classes. One-tenth of the fathers had no history of schooling and it was 1.5% of mothers. Most (32%) came in the OPD due to RTI and other than the respiratory problem was 26%. Among them, 42% did not require any treatment. In the inferential statistics fathers, smoking was responsible for neonatal respiratory illness. (Fisher's exact test 21.87 df 4 P 001). The respiratory illness affected more by second hand smoking whose fathers smoked tobacco. There need more grass-root level, multicentric, control-based study to find out the real picture of neonate respiratory morbidity, and other illness.

Keywords: *Father's smoking, ARI, neonate, tungipara.*

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INTRODUCTION

There 16 million people live in Bangladesh. As the majority (61%) of the population of Bangladesh live in rural areas, most deliveries take place at home, carried out by untrained persons or trained traditional birth attendants. Existing facilities are not adequate for neonatal care in Bangladesh, other than the tertiary care hospitals. In this country, health service delivery in rural areas is governed differently than in urban areas, which poses distinctive challenges in access to and utilization of maternal and newborn health services. The neonatal mortality rate in

Bangladesh is 23 per 1K live birth (2018).[1] 1st month is the most vulnerable period for every neonate. During this time they are likely to suffer from different acquired conditions. Consequently, more than two-thirds of these newborn dies with or without proper treatment.[2]

The disease profile among the neonates in village areas is not exactly known. There are very few studies as well as data are available from rural Bangladesh regarding this. The figures available are mostly tertiary level hospital-based. The commonest illness for which newborn is admitted in the neonatal ward is a respiratory illness (37%), neonatal jaundice (30.71%) followed by perinatal asphyxia (21.98%), low birth weight (13.25%), septicemia (9.06%), bronchiolitis, pneumonia, infant of a diabetic mother, hemorrhagic disease of the newborn, meconium aspiration syndrome, congenital abnormalities, etc.[3]

The aim of this study was to determine the socio-demography, prevalence, and pattern of respiratory illness of neonate in the rural area of Bangladesh. It also investigated whether there was any relation between respiratory morbidity of neonates and 2nd hand smoking by father's cigarette smoke

MATERIAL AND METHOD

This was a descriptive type of cross-sectional study. This study was conducted in the Tungipara Upazilla Health Complex (UHC), Gopalganj, Bangladesh. The study duration was from January 2018 to June 2018. The study population was neonate selected from children attending the Pediatrics OPD of UHC, Tungipara, Gopalganj. The sample size was 62 neonates, selected from 1002 children were separated purposively for the inferential research article. Sample Size Calculation from $n = Z^2 pq/d^2$ (Z= 1.96 from 95% CI, Degree of precision was 5%, p=50%). These neonate attending pediatric OPD of Tungipara UHC included after receiving consent from their guardian during the study period. Data were collected by face to face interview, physical examination, relevant investigation. Variable was age, parent's education status, and father's smoking habit. Respiratory illness-URTI like cough, common cold, cough-common cold, cough-common cold-fever, common cold-fever, cough-fever, nasal blocked and LRTI were Broncheolitis, Bronchopneumonia, neonatal jaundice, erythema toxicum, etc were included. The data collection instrument was a semi-structured questionnaire and a chaque list. It had multiple parts, Initial part, i) particulars of the patients ii)

sociodemographic information 2rd part was i) parents complaints on respiratory problems. 3rd part was i) physical examination a. General b. System wise. Study tools- stethoscope, torchlight, tongue depressor, auroscope.

RESULTS

This was an observational study. This study was conducted in the Tungipara Upazilla Health Complex (UHC), Gopalganj, Bangladesh. The study population was neonate selected from children attending the Pediatrics OPD of UHC. The sample size was 62 neonates.

Table-I shows that 47% of the neonate were 28 days aged 17.5% was 15 days. Cumulative proportions of age up to 15 days were 36.5% and age upto 24 days were 53%.

Table-I : Age of 62 neonate in days (n-62)

	Age of Neonates (Days)	Frequency of cases	Percent	Cumulative percent
1	01	01	1.5	1.5
2	07	01	1.5	03
3	09	06	9.5	12.5
4	12	04	6.5	19
5	15	11	17.5	36.5
6	18	02	03	39.5
7	21	06	9.5	48
8	23	02	03	51
9	24	02	03	53
10	28	29	47	100
	Total	62	100	100

Figure-I: shows the level of father's education 51% were completed class VIII, 18% fathers were completed XII and above; and 10% had no education.
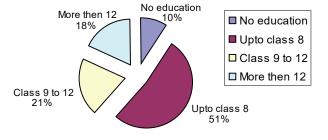

Fig.-1: Education status of father, of neonates

Figure-I, shows (n-20) 32% neonates suffered from RTI and 11 neonate suffered from other than RTI. 31 children were in normal condition.

In table-II, this non parametric test shows neonates were more sufferers (26%) whose fathers were smokers. (Fisher's exact test 21.87 df 4 P 001).
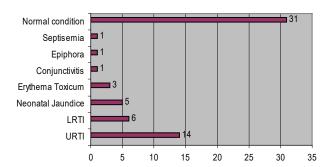

Fig.-2: Frequency for respiratory morbidities (n-62).

Table II: Fisher's exact test for 62 neonate

	Father's smoking habit	Clinical conditions		
		Respiratory Problems (%)	Other then Respiratory (%)	Total
1	No smoking habit	32 (51.5)	06 (9.5)	38 (61)
2	Smoker	05 (08)	16 (26)	21 (34)
3	Other than smoking habit	02 (3)	01 (1.5)	03 (5)
	Total	**39(60)**	**23(40)**	**62(100)**

DISCUSSION

In this observational study, conducted in a grass root level area, out of 62 neonates, age variability was 01 to 28 days (Table-1). Upper respiratory tract illnesses (URTI) were 22.5% as against only 9.5% of lower respiratory tract illness (LRTI) (Barchart-1). In this study there 62 cases were found variable morbidities of a neonate. ARI is the number one problem. The overall prevalence of respiratory illness was found to be 32% (Barchart-1). A near about incidence of 6.7% was found by Kumar A et al.,(2) 22.4% admission with a respiratory problem. Swarnkar K et al.,[3] found that 16.37% of admission was ARI. Santosh S et al., found an incidence of 13.7%.4 Haque A et al.,[5] found a very high incidence of 34.1% among the admitted babies. Therefore the last one was near to similar to our study whereas previous study two was a lower prevalence than the new study.

While evaluating the causes of respiratory problems, upper RTI was the most common cause (22.5%). URTI was also found to be a common cause in many studies.[2,3,5] Kumar A and Bhat BV,[6] found an incidence of 42.7% which is similar to our study. Swarnkar K et al.,[3] found it to be 40.7%. The second important cause of the respiratory illness was LRTI bronchiolitis and pneumonia, which was found to be 9.5%. Similarly, bronchiolitis was found to be

the second cause of respiratory distress with an incidence of 24.35% by Dutta A et al.,[7] But Mathur NB et al.,[8] in a study done in 2003, found bronchiolitis to be the commonest cause of respiratory distress in newborns with a very high incidence of 68.7%.

In this study there septicemia, epiphora, conjunctivitis were 1.5% (Bargraph-1), 5% neonates suffered by erythema toxicum, neonatal jaundice was 8%. There another study was done by N.Islam in Bangladesh, their commonest illness for which newborn is admitted in the neonatal ward is a respiratory illness (37%), neonatal jaundice (30.71%) followed by perinatal asphyxia (21.98%), low birth weight (13.25%), septicemia (9.06%), bronchiolitis, pneumonia, infant of a diabetic mother, hemorrhagic disease of the newborn, meconium aspiration syndrome, congenital abnormalities, etc.(1) This is not similar of disease prevalence but near to similar of respiratory illness.

In this study, passive smoking from dried wood found 37% of cases (Table-2). In the non-parametric analysis, we found those newborns were more vulnerable to ARI whose fathers were a smoker. It indicates that there is a correlation between a father's smoking and a newborn's respiratory illness. Those neonates suffered respiratory sickness more whose fathers were a smoker. We found that lower respiratory tract infection is the 2nd most common

illness of neonates. Its prevalence was 9.5% and bronchiolitis was 8% and bronchopneumonia was 1.5% (Table-2). The prevalence was found to be 9.3%,10.7%, and 13.5% by S.warnkar K et al.,(12), Kumar A et al.,[2] and Dutta A et al.,[7] respectively. However, Mathur et al.,(8), in their study found that neonatal bronchopneumonia was 4% of the cases.

CONCLUSIONS

The respiratory illness affected more by 2nd hand smoking whose fathers smoked tobacco. There need more grass-root level, multicentric, control-based study to find out the real picture of neonate respiratory morbidity, and other illness.

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