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ORIGINAL ARTICLE

Pattern of Respiratory Diseases in Pediatric Unit of a 250 Bedded District Level General Hospital in Bangladesh

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Abstract

Background: The morbidity and mortality of under five children due to respiratory illness still not in acceptable range in spite of multiple ongoing national programs including IMCI. **Objective:** The present study was intended to explore the pattern of respiratory illnesses and their hospital outcome seen in admitted children admitted with respiratory illnesses. **Methodology:** This present retrospective study was conducted in children up to 12 years of age admitted with acute respiratory illness in pediatric unit of 250 bedded Jashore General Hospital, Jashore, Bangladesh from February 2019 to January 2020. All children between the age limit with acute respiratory illness were included in the study. Data were collected from treatment file and admission register. **Results**: A total of 7,484 patients were admitted in pediatric unit. Among them 840 cases (11.2%) were admitted with respiratory illnesses and bronchopneumonia contributing the majority cases 410(48.8%), followed by bronchiolitis 190(22.6%), childhood asthma 110(13.1%), wheezy child 70(8.4%), URTI 45(5.3%), laryngomalacia 12(1.4%) and tuberculosis 3(0.4%). Males were predominant in every group. Majority of respiratory diseases were from poor socioeconomic background and found lately referred. **Conclusions:** In conclusion respiratory illnesses contributes to most common cause of admission in pediatric unit of district level hospital. [*Journal of Current and Advance Medical Research, July 2020;7(2):50-54*]

Keywords: morbidity; mortality; respiratory illnesses; under five children

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Introduction

Respiratory illness is the important indication for admission in pediatric hospitals[1]. In children respiratory illness form a substantial disease burden in emergency care, outpatients and hospitalized patients. Respiratory symptoms comprise 27.5% of pediatric emergency department visits[2]. It remain a major cause of morbidity and mortality in children[3,4]. In the developing world, respiratory tract infections along with diarrheal diseases constitute the major causes childhood morbidity and mortality particularly in under five age group[5]. Globally, a systematic review found Pneumonia, a respiratory illness, as the leading cause of morbidity and mortality in children aged below 5 years[6].

The spectrum of respiratory illness is wide and includes diseases of upper and lower airways, communicable and non-communicable types. The variation in pattern of morbidity mortality of respiratory illness may be affected by different environmental and climatic variation in different parts of the world[7]. Apart from pneumonia, children may suffer a variety of respiratory illness ranging from common cold, nasopharyngitis, laryngitis, sinusitis, bronchiolitis, tonsillopharyngitis, asthma, tuberculosis, foreign body aspiration etc. Some of these cases may require hospital admission based on its severity. The spectrum of illness in a given locality may differ from another. In Bangladesh, acute respiratory tract infections (ARI) alone is responsive 38.8% of total Paediatric hospital admission and among the 1,82,936 under-five childhood deaths in Bangladesh, 14% were due to pneumonia[8,9].

The two most common causes of ARI in children below 2 years of age are bronchiolitis and community acquired pneumonia (CAP)[10]. Prevalence of childhood asthma is substantial and asthma has often been treated as pneumonia and under-diagnosed in developing countries[11]. Bangladesh is no longer any exception of them with low prevalence.

Nevertheless, much of the data is extrapolated from geographical regions elsewhere with different demographics and there is paucity of epidemiological data on children admitted with respiratory complaints in the context of Bangladesh.

The present study intended to explore the pattern of respiratory illnesses seen in Hospitalize children in a district level of Bangladesh.

Methodology

The present retrospective observational study was conducted in children up to 12 years of age admitted with acute respiratory illness in pediatric unit of 250 bedded Jashore General Hospital from February 2019 to January 2020. All children between the age limit with acute respiratory illness were included in the study. A standardized questionnaire was formulated and pretested. Data were collected from treatment file and admission register and analyzed using SPSS version 22.

Results

A total of 7,484 patients were admitted in pediatric unit during February 2019 to January 2020.

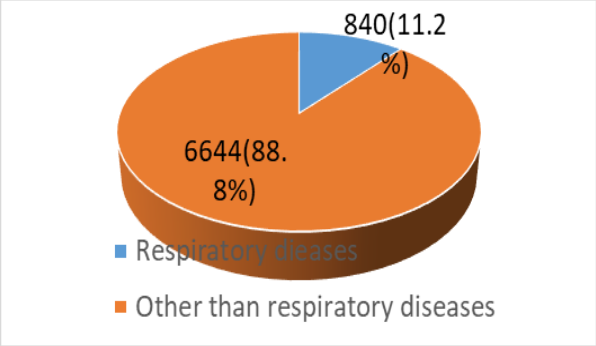

Figure I: Distribution of admitted patients in pediatric unit (n= 7484)

Among them 840(11.2%) cases were admitted with respiratory illnesses and bronchopneumonia contributing the majority cases 410(48.8%), followed by bronchiolitis 190(22.6%), childhood asthma 110(13.1%), wheezy child 70(8.4%), URTI 45(5.3%), laryngomalacia 12(1.4%) and tuberculosis 3(0.4%) (Table 1).

Table 1: Distribution of respiratory diseases (n=840)

Respiratory diseases	Number	Percent
Bronchiolitis	190	22.6
Childhood Asthma	110	13.1
Laryngomalacia	12	1.4
Bronchopneumonia	410	48.8
TB	3	0.4
URTI (Upper Respiratory Tract Infections)	45	5.3
Wheezy Child	70	8.4
Total	840	100

Males were predominant in every group. Majority of respiratory diseases were from poor socioeconomic background. Less than 5 years children constituted the majority patients (Table 2).

Table 2: Baseline characteristics of Study Population with Respiratory Diseases (n=840)

Baseline characteristics		Bronchopneumonia (n=410)	Bronchiolitis (n=190)	Asthma (n=110)	Wheezy Child (n=70)	TB (n=3)	URTI (n=45)	Laryngomalacia (n=12)
Age	<2m	70(17.1)						7(58.3)
	2m-2y	202(49.3)	190(100.0)		43(61.4)		13(28.9)	5(41.7)
	2y-5y	118(28.7)		91(72.7)	27(38.6)	2(66.7)	25(55.5)	
	>5y	20(4.9)		19(17.3)		1(33.3)	7(15.6)	
Sex	Male	295(71.9)	152(80.0)	69(62.7)	41(58.6)	2(66.7)	26(57.8)	7(58.3)
	Female	115(28.1)	38(20.0)	41(37.3)	29(41.4)	1(33.3)	19(42.2)	5(41.7)
Residence	Urban	112(27.3)	72(37.9)	29(26.4)	13(18.6)	1(33.3	9(20.0)	7(58.3)
	Rural	298(72.7)	118(62.1)	81(73.6)	57(81.4)	2(66.7)	36(80.0)	5(41.7)
Socioeconomic	Poor	267(65.1)	133(70.0)	59(53.6)	52(74.3)	3(100)	41(91.1)	11(91.7)
	Middle	136(33.2)	52(27.4)	44(40.0)	13(18.6)		4(8.9)	1(8.3)
	High	7(1.7)	5(2.6)	7(6.4)	5(7.1)			

Table 3: Distribution of Study Population according to Way of Discharge from Hospital

Outcome	Bronchopneumonia	Bronchiolitis	Asthma	Wheezy Child	TB	URTI	Laryngomalacia
DA	**291(71.0)**	**161(84.7)**	**98(89.1)**	**70(100)**	**3(100)**	**45(100)**	**12(100)**
DOR	**69(16.8)**	**13(6.8)**	**5(4.6)**				
DORB	**17(4.1)**	**11(5.8)**	**3(2.7)**				
Referred	**17(4.1)**	**3(1.6)**	**4(3.6)**				
Death	**16(4.0)**	**2(1.1)**					
Total	**410(100)**	**190(100)**	**110(100)**	**70(100)**	**3(100)**	**45(100)**	**12(100)**

Pneumonia and bronchiolitis cases peaked during autumn and late autumn whereas asthma was common during late autumn and winter seasons (Figure II).

Majority of Pneumonia patients (71%) were discharged with advised (DA), (4.1%) got discharge on risk bond (DORB), 16.8% discharged on request (DOR) and (4.0%) cases died. Among acute Bronchiolitis (84.7%) got DA, DOR and DORB were (6.8%) & (5.8%) respectively. Mortality of Acute Bronchiolitis were (1.1%). Among Asthma patients 89.1% cases got DA and 4.6% cases were discharged on request. Among TB (100%) patient got DA (Table 3).

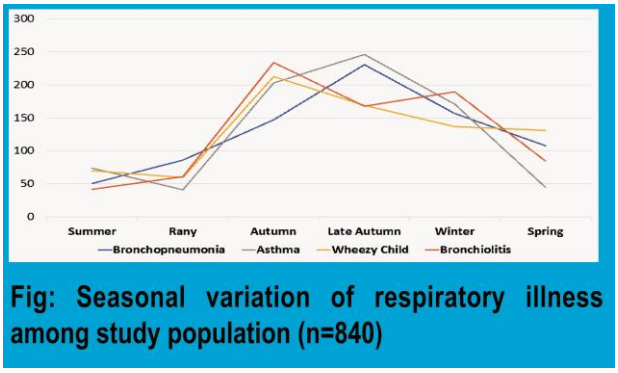

Figure II: Seasonal Variation of Respiratory Illness among Study Population (n=840)

Discussion

Respiratory illness is the important indication for admission in Pediatric Unit of District level General Hospital. In this study total admission on respiratory illness was 11.2%. Akbar et al[8] found respiratory tract infections alone is responsive 38.8% of total pediatric hospital admission. In a study of admissions in hospitals in Hong Kong respiratory disorders constituted 37.5% of all diagnosis[13]. In this study lower incidence of admission due to respiratory illness might be due to majority dengue occurrence in the study period.

The study showed predominant among respiratory diseases were due to bronchopneumonia comprises 410(48.8%), acute bronchiolitis 190(22.6%), bronchial asthma 110(13.1%), wheezy child 70(8.4%) and URTI 45(5.3%). Begum et al[14] found similar results in a tertiary care Pediatric Unit of Bangladesh. Some cases of Bronchiolitis were incorporated in the Wheezy child group and due to availability of nebulization with bronchodilator practice in the community might be cause of the lower Bronchiolitis admission rate in this study. Nagaraj et al[1] in India found Acute Bronchiolitis (33%) followed by Broncho pneumonia (25.3%) and Asthma (16.3%). Das et al[15] found similar result in his study.

In developing countries Bronchiolitis and Bronchopneumonia are the major contributing respiratory illness. Overcrowding, poor sanitation, poverty are main risk factors for Broncho-pneumonia. Broncho-pneumonia was common among under 5 children and a large number of Pneumonia occurred during neonatal period. Nagaraj et al[1] found highest number of patients of respiratory illness belonged to less than 6 month age group. The cause was unknown, it might be decreased practice of breast feeding the major predisposing factor for respiratory illness. In this study majority of Pneumonia and Bronchiolitis were found during autumn and late Autumn whereas asthma were common in late autumn and winter, similar to the results found in in the study of Begum et al[14].

The respiratory cases were belonged to poor socio economic status. Nagaraj et al in India found more number of respiratory cases during November (23.6%) and December (26.6%) which is the beginning of winter of that area[1]. Earlier study done in Nigeria recorded similar peak period in November[5]. The drastic change in temperature and cold weather are the contributing factors for seasonal variation of respiratory illness.

According to various studies respiratory illness are the most common cause of morbidity and mortality in under five children. In this current study mortality was also higher in Pneumonia[8,9,12]. There is a limitation of the study. This present study was done on previously recorded data.

Conclusion

In conclusion respiratory illnesses are responsible for most of admissions in pediatric unit of district level hospital. Bronchopneumonia still remains the leading cause of mortality in under-five children.

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