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Original Article

Pattern and Frequency of Respiratory Illnesses at Emergency Department of a Tertiary Care Pediatric Health Facility of Karachi, Pakistan

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Abstract

Background: Respiratory ailments contribute a major chunk of pediatric emergency visits, morbidity and mortality. Knowledge of Burden and pattern of diseases at any setting may help in provision of effective health services. Therefore, this study was conducted to estimate the burden and pattern of respiratory ailments at emergency department of a leading public sector pediatric health facility.
Objective: To determine the patterns and frequency of respiratory illnesses among pediatric patients visiting the emergency (ER) department of National Institute of Child Health (NICH), Karachi Pakistan.
Study type, settings & duration: The Retrospective observational study was conducted at Emergency Department of National institute of Child health (NICH), Karachi from January to December 2017.
Methodology: In this retrospective study, a pre designed questionnaire was used for data collection after the approval from Institutional ethical review board of National Institute of child health, Karachi. Patient's data was obtained from patients files and was entered on SPSS version 21. Frequencies and percentages were calculated for qualitative variables while mean and standard deviation were calculated for quantitative variables.
Results: Total 22364 patients visited the ER of NICH during the study period, 49.7% were males and 50.3% females. Mean age was 7.82 years and mean weight was 18.95 Kgs. Pneumonia was the leading respiratory ailment (37.26%) among the subjects followed by viral Upper respiratory tract infections (URTIs) (20.83%) and Bronchiolitis (19.28%). Majority (78%) patients were treated in indoor room, 13% patients were treated in resuscitation room while 9% patients were treated and discharged from outdoor station.
Conclusion: Pneumonia remains the major cause of pediatric visits and most of the respiratory ailments require indoor treatment, hence need increased space for emergency treatment facilities.
Key words: Emergency room, pneumonia, pediatric, respiratory ailments.

Introduction

Respiratory infections result into serious clinical presentations among children.[1,2] Underlying causes could be microorganisms or aspirated food or gastric acid.[3]

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Authors Contribution

AR & MAG conceptualized the project. AR, HB & MN did the data collection. AR also did the literature search & statistical analysis. AR, MAG, TML, HB, & SB did the drafting, revision & writing of manuscript.

Pediatric population in developing countries is badly affected by respiratory illnesses and these illnesses are 30% contributor of the global pediatric mortality in developing countries and 12% in developed world.[4]
Further, these respiratory illnesses cause 27.5% of burden at pediatric emergency room in developing countries.[4]

Pneumonia is still leading cause of morbidity and mortality in children especially under five years of age in Pakistan.[5]

Despite various programs like integrated management of neonatal and childhood illnesses (IMNCI), separate pediatric emergency facilities are rare in Pakistan.[6,7] National Institute of Child Health (NICH) Karachi is one of the leading pediatric tertiary care hospitals having very busy pediatric emergency department. It does not only cater the patients from Karachi metropolitan city of more than

twenty million population but also patients from interior Sindh and Baluchistan province.[8]

Despite the introduction of pneumococcal vaccine in EPI (Expanded program of immunization) schedule, the pneumonia cases in ER do not show significant reduction in the burden due to poor immunization coverage.[9] Respiratory diseases on their onset are not only a great burden on health system but they also cause leave from school among children and leave from work among adults. Hence, they are equally detrimental to our resources, education and economy.[10]

Being a biggest referral center, the most complicated respiratory illnesses including pneumonia, acute asthma and wheezy children are referred to NICH and most of them require admission. Apart from serious illnesses, less serious respiratory illnesses like upper respiratory infections, viral infections, bronchiolitis, acute suppurartive otitis media, acute tonsillitis and pharyngitis also land in emergency department adding in burden hours. Keeping above facts in mind, this study was designed to quantify the burden and pattern of respiratory ailments at pediatric emergency of NICH.

Methodology

This Retrospective observational study was conducted at Emergency Department of National Institute of Child Health (NICH), Karachi from January 2017 to December 2017. In this study, pre designed Performa were filled from files of the patients visiting ER of NICH.

Data of children aged 3 months to 12 years who visited emergency department of NICH and were diagnosed with any kind of respiratory illness were included

Children with congenital anomalies and co-morbid conditions e.g. congenital heart disease were excluded.

Data was entered on SPSS version 21. Frequencies and percentages were calculated for qualitative variables while mean and standard deviation were calculated for quantitative variables.

NICH is 500-bed hospital and houses a 50-bed emergency (ER) department.

The ethical approval was taken from Institutional Ethical Review Board (IERB) of National Institute of Child Health (NICH), Karachi.

Results

A total of 22364 patients visited the ER of NICH during the study period, 49.7% of the subjects were males while 50.3% were females. Mean age was 7.82 years, while mean weight was 18.95 Kgs. About (77.2%) mothers and (64.7%) fathers were uneducated and had not received any formal education and 64.1% belonged to lower income group i.e. Up to Rs: 10000/Month. Un-skilled workers were 46.7%.Predominant ethnicity was Urdu speaking (28.7%) followed by Pashto speaking (27.5%) (Table-1).

Table1: Demographic characteristics of the pediatric patients with respiratory illnesses (n=22364) visiting emergency department of tertiary care children hospital of Karachi.

Variable	*Frequency (n)*	*Percentage %*
Gender		
Male	11115	49.7
Female	11249	50.3
Mean±S.D		
Age(years) 7.82±3.55		
Weight (Kg) 8.95±7.91		
Education of father		
Illiterate	14447	64.6
Primary	5098	22.8
Matric	2415	10.8
Inter	268	1.2
Graduate	136	0.61
Education of Mother		
Illiterate	17265	77.2
Primary	3891	17.4
Matric	805	3.6
Graduate	403	1.8
Occupation of the father		
Govt. servant	671	3.00
Private job	3889	17.39
Own business	1467	6.56
Skill worker	5099	22.80
Un skilled	10444	46.70
Retired / jobless	794	3.55
Mother tongue		
Urdu	6418	28.7
Sindhi	4160	18.6
Punjabi	1342	6.0
Pashto	6150	27.5
Balouchi	671	3.0
others	3623	16.2
Family Income		
Up to 10000	14335	64.1
> 10000-,20000	7224	32.3
> 20000-50000 &>	805	3.6

Pneumonia was the leading respiratory ailment (37.26%) followed by the viral URTI (20.83%), Bronchiolitis (19.28%), Pharyngitis (5.83%), Wheezy Child (5.23%), Tonsillitis (4.23%), and Acute Asthma (2.21%) (Table-2).

Majority (78%) patients were treated in indoor room, 13% patients were treated in resuscitation room while 9% patients were treated and discharged from outdoor station (Figure).

Table-2: Frequency and pattern of different respiratory illnesses among pediatric patients visiting Emergency department of tertiary care children hospital of Karachi.

Disease	Frequency	%
Pneumonia	8335	37.26
Viral urti	4660	20.83
Bronchiolitis	4314	19.28
Pharyngitis	1304	5.83
Wheezy child	1171	5.23
Tonsilitis	948	4.23
Acute asthma	495	2.21
Stridor	209	0.93
Pleural effusion	206	0.92
Croup	180	0.80
Status asthmaniasis	174	0.77
Otitis media	153	0.68
Foreign body	94	0.42
Earache	87	0.38
Pneumothorax	34	0.15
Total	22364	100.00

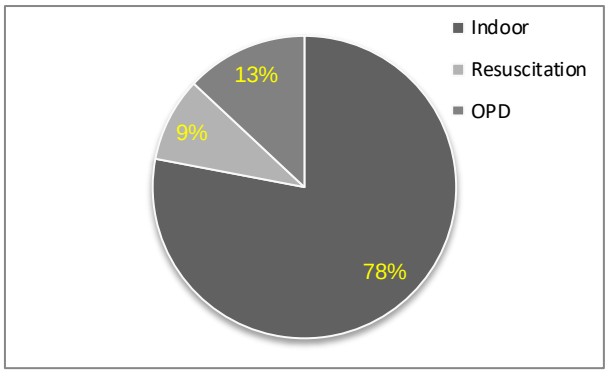

Figure: Triage trajectory.

Discussion

Pneumonia still remains Predominate disease among the respiratory tract infections deadly affecting children less than 12 year of age. Respiratory infections are precursors of 30-50% OPD visits and 20-30% of pediatric admissions in developing countries including Pakistan. In our study pneumonia also remained leading cause (37.26%) among respiratory illnesses reported at emergency department of NICH, Similar findings of Pneumonia frequency i.e. 30% was reported in a study conducted in Kolkata, India while in another study conducted in Zia Uddin University Hospital of Karachi found 62.93% of admitted children were affected with respiratory illnesses but that study included children admitted in all departments of the hospital.[10,11]

Viral Respiratory infections are also a major contributor of pediatric admission, mortality and morbidity.[12] According to our study results, viral upper respiratory tract infections were found to be 21% while a study from Iran has reported as (40.7%) and a study from Sao Paulo has reported viral infections as 30%.[13,14]

Patients presenting to emergency department are triaged according to the severity of disease and age of the patient.[15-17] Patients visiting ER of NICH are referred from other local hospitals in serious conditions therefore most of the patients require hospital stay to stabilize hence 78% patients among study subjects received inpatient care although it may be for a shorter period of less than 24 hrs. Severity of respiratory infections determines the need for hospitalization. More younger the children, there are more chances of infections and co-infections resulting into severe conditions but as the exposure increases with age outcomes are less severe therefore children have increased rate of hospitalization or inpatient treatment as compared to adults.So our results are consistent with studies conducted so far.[18-22]

Secondly, increased inpatient treatment at ER is due to unavailability of space in ICU and ventilators instantly because there is huge burden of patients.

Another reason off course is that NICH is a referral hospital therefore patients referred here in complicated condition and it takes time to attain stability and subsequent shifting to appropriate ward or discharge from hospital.

Pneumonia remains the major cause of pediatric visits and most of the respiratory ailments require indoor treatment, resulting into significant increases in disease burden. Therefore, vaccine coverage and knowledge of parents about preventive strategies should be stressed upon to gain tangible benefits.

Public awareness regarding the vaccination of respiratory diseases including Pneumonia, Haemophilus influenza B should be increased. There should be campaigns regarding hygiene and early vaccination. Community studies on respiratory ailments will not only reflect the exact situation on the ground but they will also increase the public awareness about these diseases.

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Conflict of interest: None declared.

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