ORIGINAL ARTICLE

Frequency of Contributory Factors for Pneumonia in Hospitalized Children 2-60 Months of Age

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ABSTRACT

Background: One of the largest infectious sources of death in children under the age of 5 years is Pneumonia. By monitoring its contributory factors, incidence of pneumonia can be decreased.
Aim: To delineate the frequency of contributory factors for pneumonia in children 2 to 60 months of age.
Methods: This cross sectional analysis was done in the department of Pediatrics, King Edward Medical University (Mayo Hospital), Lahore from December 2017 to March 2018. This analysis was ratified by institutional review board (IRB). We conducted a validated survey consisting of 124 children 2 to 60 months of age, satisfying the IMNCI criteria of pneumonia which were counted in by non-probability convenience sampling. The contributory factors were noted. The data were put in SPSS 20 for statistical analysis. Frequency tables were formulated to decide the contributory factors for pneumonia.
Results: Among 124 study population, 34.7% mothers were illiterate and 73.4% belonged to lower socio-economic status. Regarding contributory factors, 87.1% had overcrowding, 66.9% used non-liquefied petroleum gas, 65.3% were not exclusively breast fed, 29.8% had malnutrition, 55.6% had history of contact with patients suffering from acute respiratory illness, and 54.8% had self-use of antibiotics at home prior to admission.
Conclusion: Lack of exclusive breastfeeding, overcrowding, use of non-liquefied petroleum gas, history of contact with patients suffering from acute respiratory illness, and self-use of antibiotics were found to be the contributory factors for pneumonia.
Keywords: Knowledge, Risk Perception, Measles, Mothers, Children

INTRODUCTION

Pneumonia is the single most common infectious reason of death in children globally. Pneumonia caused deaths of 920 136 children under the age of 5 in 2015, holding 16% of total deaths of children under age of 5 years. The effects of Pneumonia on families and children are worldwide, but are most dominant in sub-Saharan Africa and South Asia. Children can be secured and treated from pneumonia with low-cost medication and simple preventive measures[1].

For a large number of pneumonia risk factors including malnutrition, household air pollution, low socioeconomic status, lack of breastfeeding, poor access to medical healthcare, low maternal education, and concomitant illnesses[2], evidence is present in published literature. Almost 50 conditions that have been described in the published literature, may enhance the risk of evolving pneumonia. The quality of evidence and the strength of the association between nineteen risk factors and severe acute lower respiratory tract infection in children under the age of 5 years have been gauged by a latest systematic review with meta-analysis[3]. Seven risk factors, in the studies analyzed, were revealed to be associated as Low birth weight, Household overcrowding, Household air pollution, Inappropriate immunization, Human immunodeficiency virus (HIV) infection, Malnutrition and Non-exclusive breastfeeding[4,5]. The objective of this study was to determine the frequency of the contributory factors in children 2 to 60 months of age for community-acquired pneumonia.

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MATERIAL & METHODS

This cross sectional analysis was done in the department of Pediatrics, King Edward Medical University (Mayo Hospital), Lahore from December 2017 to March 2018. This analysis was ratified by institutional review board (IRB). We conducted a validated survey consisting of 124 children 2 to 60 months of age, satisfying the IMNCI criteria of pneumonia (Chest retractions OR Tachypnea; Respiratory rate equal to or greater than 40 per minute in children of the age of 12 to 60 months, Respiratory rate equal to or greater than 50 per minute in children of the age of 2 to 12 months) which were counted in by non-probability convenience sampling. The contributory factors were noted. The data were put in SPSS 20 for statistical analysis. Frequency tables were formulated to decide the contributory factors for pneumonia.

RESULTS

Table I: Demography of children (n=124)

Variable	n
Maternal education	
Illiterate	43(34.7)
Primary	27(21.8)
Secondary	35(28.2)
Higher Secondary	13(10.5)
Bachelor	4(3.2)
Masters	2(1.6)
Socioeconomic status	
Lower (<Rs.15,000/- per month)	91(73.4)
Middle (Rs.15,000 to 40,000/- per month)	18(14.5)
Upper (Rs.>40,000/- per month)	15(12.1)
Total	124 (100)

Total 124 children fulfilling IMNCI case definition of Pneumonia participated in the study. Most of the mothers (34.7%) were illiterate and 73.4% belonged to lower socio-economic status (Table I). Regarding contributory factors, 87.1% had overcrowding, 66.9% used non-liquefied petroleum gas, 65.3% were not exclusively breast fed, 29.8% had malnutrition, 55.6% had history of contact with household members suffering from acute respiratory infection, and 54.8% had self-use of antibiotics at home prior to admission in hospital. (Table II).

Table II: Frequency of contributory factors for pneumonia (n=124)

Variable	n
House hold crowding	
>4 individuals living in the same room	108(87.1)
≤4 individuals living in the same room	16(12.9)
Household fuel	
Liquefied petroleum gas	28(22.6)
Non-liquefied petroleum gas	83(66.9)
Wood	13(105%)
Exclusive breastfeeding for 6 months	
Yes	43(34.7)
No	81(65.3)
Previous respiratory disease and allergy	
Yes	54(43.5)
No	70(56.5)
Has malnutrition	
Yes	37(29.8%)
No	87(70.2%)
Any clinical evidence of rickets	
Yes	12(9.7)
No	112(90.3)
Contact with household member with acute respiratory illness	
Yes	69(55.6%)
No	55(44.4%)
Vaccination status appropriate for age according to EPI	
Yes	96(77.4%)
No	28(22.6%)
Delay in seeking health care for >3 days	
Yes	21(16.9%)
No	103(83.1%)
Self-use of antibiotics at home	
Yes	68(54.8)
No	56(45.2)
Prematurity	
Yes	10(8.1)
No	114(91.9)
Birth weight	
Low	27(21.8%)
Normal	97(78.2%)
Any congenital heart disease	
Yes	2(1.6%)
No	122(98.4%)

DISCUSSION

In present study, most of the mothers (34.7%) were illiterate and 73.4% belonged to lower socio-economic status. However, on the happening of pneumonia in children, Karki et al[5] did not show any association with the socio-economic status of family or literacy of mothers. These outcomes are similar to one study, [4] whereas many others have found low socioeconomic status and other measures of low educational status to be connected with risk of pneumonia in children.[6] Variances which are noted in the studies may be explained by the methodological issues, misclassification or small sample size.

In present study, we noted 87.1% 66.9% non-liquefied petroleum gas use, lack of exclusive breast feeding in 65.3%, history of contact with household members suffering from acute respiratory illness in 55.6%, and self-use of antibiotics at home prior to admission in hospital (54.8%) as contributory factors. Karki et al[5] found no connections of joint families living in the same house to be associated with pneumonia. Household overcrowding was found considerably related with acute respiratory tract infection in the study which was done by Savitha.[7] While similarly to us, an increased risk of aforementioned factors have been shown by many other studies.[6] Once again, the variances may be because of methodological issues or small sample size. Previous local data also endorse our results showing partial or lack of breast feeding, parent's level of literacy, inappropriate immunization, malnutrition, history of acute respiratory disease in household members and use of fuel other than cooking gas as contributory factors for pneumonia[8,9].

Present study was hospital-based and it has definite confines. These outcomes may get advantage from further studies based on population and not represent all cases of pneumonia in the community.

CONCLUSION

Lack of exclusive breastfeeding, household overcrowding, use of non-liquefied petroleum gas, history of contact with patients suffering from acute respiratory disease, and self-use of antibiotics at home were noted to be the contributory factors for pneumonia.

Conflict of interest: The authors proclaim that there is no conflict of interests.

REFERENCE

1. http://www.who.int/mediacentre/factsheets/fs331/en/
2. Moustaki M, Nicolaidou P, Stefos E, Vlachou V, Patsouri P, Fretzayas A. Is there an association between wheezing and pneumonia? Allergol Immunopathol 2010; 38:4–7.
3. Banstola A. The Epidemiology of hospitalization for pneumonia in children under 5 in the rural western region of Nepal: A Descriptive study. PLos ONE 8 (8): 2013; e71311
4. Dickens Onyango, Gideon Kikuvi, Evans Amukoye, Jared Omolo. Risk factors of severe
5. Pneumonia among children aged 2-59 months in western Kenya: a case control study. The Pan African Med J 2012;13:45.
6. Karki S, Fitzpatrick AL, Shrestha S. Risk Factors for Pneumonia in Children under 5 Years in a Teaching Hospital in Nepal. Kathmandu Univ Med J 2014;48(4):247-52.
7. IgorRudan, Boschi-Pinto C, Harr ZKM. Epidemiology and etiology of Childhood pneumonia, Bull World Health Organ 2008; 86(5): 408–16.
8. Savitha MR, Nandeeshwara SB, Kumar MJP, Farhan-ul- haque, Raju CK. Modifiable risk factors for acute lower respiratory tract infection. *Indian J Paediatr* 2007 May; 74(5):477-82.
9. Ahmad I, Shaheen N, Khan S. Risk factors for pneumonia among hospitalized children between 2 months to 5 years. J Med Sci 2011;19(2):89-94.
10. Shah SAA, Bashir F, Ghafoor T, Amin MU, Choudhry MA. Pneumonia; frequency of under nutrition in children under 5 years of age. Professional Med J 2007;14(3):390-