



Sociodemographic Variations Associated with Acute Respiratory Tract Infections amongst Subjects Reporting to a Tertiary Care Centre

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Abstract

Background: Lower respiratory tract infections are primarily leading reason of death amongst children younger than 5 years of age in these developing nations like India. In the regions where immediate health facilities are not available like rural areas, pneumonias can prove fatal as compared to the urban areas where immediate facilities are present due to presence of tertiary hospitals. The present study was conducted with the aim to determine the incidence and sociodemographic variants of upper respiratory tract infections.

Materials and Methods: The present study was conducted in a prospective observational manner amongst subjects who were admitted to the Department of Pulmonary Medicine, Govt. Medical College, Patiala. All the routine investigations of all the subjects like chest X-ray, sputum cultures etc. were performed. Biopsy samples were also obtained from the respiratory tract. All the data was arranged in a tabulated form and analyzed using SPSS software. The data was expressed as percentage of total information.

Results: There were 29 (72.5%) subjects above 40 years of age. There were 30 (75%) males and 10 (25%) females in the study. Approximately 92.5% (n=37) subjects that belonged to poor income group.

Conclusion: From the above study we can conclude that acute respiratory tract infections are a common clinical entity. These are more commonly seen amongst males and that too amongst poor income group

Keywords: Clinical, Developing, Respiratory.

Introduction

Acute Infections of respiratory tract amongst all age groups are major worry in the developing nations like India.^{1,2} Lower respiratory tract

infections are primarily leading reason of death amongst children younger than 5 years of age in these developing nations like India.^{3,4} Health is the main matter of concern amongst the developing

nations like India. Mostly, pneumonia and bronchiolitis comprise the main lower respiratory tract infections. These along with the upper respiratory tract infections have some severe consequences on the health of the subjects especially when they occur simultaneously. In the regions where immediate health facilities are not available like rural areas, pneumonias can prove fatal as compared to the urban areas where immediate facilities are present due to presence of tertiary hospitals. About 90% of the deaths in the developing nations amongst children are due to pneumonia.⁵ Various methods are used to accurately detect the infectious organism of the respiratory tract such that specific antibiotics can be provided and the risk of super-infections is decreased. Sputum cultures, brush biopsy, laryngoscopy etc. are few such methods to detect these organisms. Contamination of sputum is the main drawback of sputum culture. Various methods have been developed to avoid this contamination and improve the outcome. The newer techniques that are employed for this purpose include transtracheal aspiration, bronchial swabbing and sputum wash technique.⁶ Examination of sputum is considered an unreliable method therefore efforts are being made to obtain the material for culture directly from the respiratory tracts through bronchoscopy. The present study was conducted with the aim to determine the incidence and sociodemographic variants of upper respiratory tract infections.

Materials and Methods

The present study was conducted in a prospective observational manner amongst subjects who were admitted to the Department of Pulmonary Medicine, attached to Govt. Medical College, Patiala. All the subjects with evidence of chronic bronchitis, bronchiectasis and pneumonias either clinically or radiographically were included in the study. Pregnant females, subjects with acute asthma, recent myocardial infarction, hemoptysis, pleural effusion or those taking any sort of antibiotics were excluded from the study. All the

demographic details of the subjects like smoking profile, dietary habits and socioeconomic status was recorded in a predesigned proforma. The study was approved by the Institutional ethical board and all the subjects were informed about the study and a written consent was obtained from them in their vernacular language. All the routine investigations of all the subjects like chest X-ray, sputum cultures etc. were performed. Biopsy samples were also obtained from the respiratory tract. All the subjects also underwent routine blood, urine and stool culture to rule out any other systemic condition. All the data was arranged in a tabulated form and analyzed using SPSS software. The data was expressed as percentage of total information.

Result

Table 1 shows the age distribution of the study subjects. There were no subjects between 0-10 years. There were 4 (10%) subjects between 11-20 years of age. There were 5 (12.5%) subjects between 21-30 years of age. There were 2 (5%) subjects between 31-40 years of age and 29 (72.5%) above 40 years of age.

Table 2 shows the gender distribution of the study. There were 30 (75%) males and 10(25%) females in the study. There was clear male predominance in the study population.

Table 3 shows the socioeconomic distribution of the study subjects. Approximately 92.5% (n=37) subjects that belonged to poor income group. There were 7.5% (n=3) subjects belonging to Middle income group. There was no candidate in high income group.

Table 1: Showing age distribution

Age Group	Frequency	Percentage
0-10 years	0	0
11-20 years	4	10
21-30 years	5	12.5
31-40 years	2	5
Above 40 years	29	72.5
Total	40	100

Table 2: Showing Gender distribution

Gender	Frequency	Percentage
Male	30	75
Female	10	25
Total	40	100

Table 3: Showing socioeconomic distribution

Gender	Frequency	Percentage
Poor income group	37	92.5
Middle income group	3	7.5
High income group	0	0
Total	40	100

Discussion

Acute respiratory tract infection is a leading and important cause for morbidity amongst children and adults. Children younger than 5 years of age suffer around 5 episodes of acute respiratory tract infections per year, approximately, thus making a total of 238 million attacks. In the States, hospital records that have high infant mortality rate have shown that around 13% of indoor patient deaths in wards are because of acute respiratory tract infections. The proportion of deaths due to acute respiratory tract infections in the community is quite high as many deaths occur at home. In India in the year 2008, around there were around 27.4 million cases of acute respiratory tract infections which gave an incidence rate of 2394 cases per lac of general population.⁷ Many risk factors have been implicated in respiratory tract infections which include climatic as well as non-climatic conditions like nutritional abnormality, poverty, poor living conditions, overcrowding, industrialization, misuse of antibiotics, lack of education and awareness and inadequacy of health care services. In a study conducted by Rahman⁸ in Bangladesh the prevalence of acute respiratory tract infection was found to be 58.7%. As per Perajapati et al.⁹ In Gujrat the prevalence of acute respiratory tract infection was found to be 22% and Gupta et al.¹⁰ found the prevalence of acute respiratory tract infection to be 4.5%.

According to a study by Pore et al.¹¹ there is significant association between respiratory tract infections and nutritional status, immunization condition, weaning, literacy status. In our study,

there were no subjects between 0-10 years. There were 4 (10%) subjects between 11-20 years of age. There were 5 (12.5%) subjects between 21-30 years of age. There were 2 (5%) subjects between 31-40 years of age. There were 29 (72.5%) subjects above 40 years of age. As per the study by Gupta et al.¹⁰ showed that the factor analysis like crowding, economic background, and sanitary conditions are important connections with the prevalence of acute respiratory tract infections. Subjects belonging to lower socio-economic group and mal-nourished subjects had the higher risk of respiratory episodes¹². According to the present study, approximately 92.5% (n=37) subjects that belonged to poor income group. There were 7.5% (n=3) subjects belonging to Middle income group. There was no candidate in high income group. There were 30 (75%) males and 10(25%) females in the study. There was clear male predominance in the study population. According to study by Singh and Nayar,¹³ the incidence of respiratory infections was found to be closely related to nutritional status, socio-economic class of the family and maternal literacy status.

Conclusion

From the above study we can conclude that acute respiratory tract infections are a common clinical entity. They are more commonly seen amongst males and that too amongst poor income group. This is majorly due to lack of awareness and health care facilities amongst the rural areas.

References

1. Liu L, Johnson HL, Cousens S, Perin J, Scott S, Lawn JE, et al. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *Lancet*. 2012; 379:2151-61.
2. Mulholland K. Childhood pneumonia mortality: a permanent global emergency. *Lancet*. 2007;370:285-9.

3. Campbell H. Acute respiratory infection: a global challenge. Arch Dis Child. 1995;73: 281.
4. Victora CG, Fenn B, Bryce J, Kirkwood BR. Co-coverage of preventive interventions and implications for child-survival strategies: evidence from national surveys. Lancet. 2005;366:1460-6.
5. Shanf. The Lancet;1984;2:87
6. Pollock HM, Hawkins EL, Bonner JR, Sparkman T, Bass JB. Diagnosis of bacterial pulmonary infections with quantitative protected catheter cultures obtained during bronchoscopy. Journal of clinical microbiology. 1983;17:255-9.
7. Park K (2011) Epidemiology of Communicable Diseases. Park's Textbook of Preventive and Social Medicine, (21 stedn), M/S Banarsidas Bhanot Publishers.
8. Rahman MM, Rahman AM (1997) Prevalence of acute respiratory tract infection and its risk factors in under five children. Bangladesh Med Res CouncBull 23: 47-50.
9. Prajapati B, Talsania N, Sonaliya KN (2011) A Study On Prevalence Of Acute Respiratory Tract Infections (ARI) In: Under Five Children in Urban And Rural Communities Of Ahmadabad District, Gujarat. National Journal of Community Medicine 2: 255-259
10. Gupta RK, Kumar A, Singh P (1999) Factor analysis of acute respiratory infections among under fives in Delhi slums. Indian Pediatr 36: 1146-1149.
11. Pore PD, Ghattargi CH, Rayate MV (2010) Study of risk factors of acute respiratory infection (ARI) in under fives in solapur. National Journal of Community Medicine 1: 64-67.
12. Kelsey MC, Mitchell CA, Griffin M, Spencer RC, Emmerson AM (2000) Prevalence of lower respiratory tract infections in hospitalized patients in the United Kingdom and Eire--results from the Second National Prevalence Survey. J Hosp Infect 46: 12-22.
13. Singh MP, Nayar S (1996) Magnitude of acute respiratory infections in underfive children. J Commun Dis 28: 273-278.