



OBSERVATIONAL STUDY FOR STUDY OF RISK FACTORS ASSOCIATED WITH ACUTE RESPIRATORY TRACT INFECTION IN CHILDREN BETWEEN 1 MONTH TO 5 YEARS

Paediatrics

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ABSTRACT

Observational study for study of risk factors associated with acute respiratory tract infection in children between 1 month to 5 years. **Background:** Acute respiratory tract infections are among the major cause of morbidity and mortality among children in developing countries accounting for 40% of mortality in children under 5 years of age. **Material and methods:** An observational study was conducted in G.G. Hospital Jamnagar over a period of 12 months. Total 150 patients of acute respiratory tract infection were taken between the age group 1 month to 5 years as per inclusion and exclusion criteria, as per format and flow chart. Assessment of various risk factors done. Results were analyzed by standard tests. Objective: To find out the risk factors and its outcome associated with acute respiratory tract infection in children between 1 month to 5 years. **Results:** Out of 150 patients, 58% were males, 59% were residing in rural area, 60% were pre term and low birth weight, 7.3% had history of meconium aspiration syndrome, 25% having malnutrition, 47% receiving incomplete immunization, 61% had anemia and 33% were from lower socioeconomic class having lower education. 28% were not given predominant breastfeeding and 28% were associated with bottle feeding. **Conclusion:** Various risk factors like socioeconomic, natal, environmental, nutrition etc are strongly associated with incidence of Acute respiratory tract infections and have impact on outcome and survival of patients.

KEYWORDS

Acute respiration tract infection, Malnutrition, immunization

INTRODUCTION:

Acute respiratory tract infection are among the major cause of morbidity and mortality among children in developing countries, accounting for about 40% of mortality in children under 5 years of age. Hospitalization for acute respiratory infection in young children poses a substantial burden on health services, especially in developing countries. According to WHO, Acute RTI is leading cause of under 5 childhood morbidity in the world with nearly 160 million episodes each year of which India accounts for a bulk of 45 million. The mortality burden is 2.1 million per year globally out of which India account for around 400,000 deaths per year.¹

Acute respiratory tract infection is defined as an acute onset of respiratory symptoms including cough, rhinorrhea, fast breathing, chest wall in drawing & wheeze of <14 days duration. (WHO)²

Etiology of acute RTI in developing countries is predominantly bacterial to non-bacterial in developed countries. Moreover, there is also a variation in the incidence of acute RTI in rural and urban areas among the developing countries. various risk factors like socioeconomic, natal, environmental etc. play major role in incidence of acute respiratory tract infections. Early detection and treatment help in better prognosis. Proper Education of society and well directed health programs helps in prevention of many respiratory tract infections.³

AIMS AND OBJECTIVES:

1. To find out the risk factors associated with acute respiratory tract infection (RTI) in children and its outcome (1 month – 5 years).
2. To study various socio-demographic, environmental, natal and nutritional risk factors, their association with acute respiratory tract infection.
3. To categorize the studied risk factors as definite, probable, and possible according to their association with acute RTI.
4. To find out the association of risk factors with outcome of disease.

MATERIAL AND METHOD:

Sample Size And Study Population:

Type of study: Cross sectional study

Sample Size: 150 Cases

Period of studies: 12 months

Inclusion Criteria:

1. Patients in age group 1 month to 5 years having respiratory tract symptoms.

Exclusion Criteria:

1. Less than 1 month and more than 5 years of age.
2. Parents/guardians not willing to enrol the child.
3. Respiratory distress due to other proven causes like metabolic, CNS etc.

RESULTS:

Table 1 Relation Of Malnutrition Among Different Age Groups In Patients Of Acute Respiratory Tract Infection (N=150)

Age group	Malnutrition in RTI Patients		
	Yes	No	Total
1 month to 12 months	10 (15%)	58 (85%)	68
1 year to 3 years	22(38%)	36(62%)	58
3 years to 5 years	05(21%)	19(79%)	24
Total	37(25%)	113(75%)	150

$\chi^2 = 9.312$ df= 2 p value=.009(significant)

It is evident from table 1 that in our study relation of malnutrition with lower respiratory tract infection among different age group was found statistically significant ($p < 0.05$).

Table 2 Age Wise Distribution Of Patients (N=150)

Age Group	No. of patient	Percentage
1 month to 12 months	68	45.3%
1 years to 3 years	58	38.6%
3 years to 5 years	24	16%

Table 4 shows that most common age group (45.4%) of patients in our study is 1-12 months i.e. infant age group.

In this age group the prevalence of ARI is maximum as infants more than 6 months are gradually weaned from breast milk and started on family food.

Table: 3 Relation Of Immunization Status In Patients Of ARI (N=150)

Immunization status	Gender		Duration of stay		Total
	Male	Female	< 5days	>5 days	
Complete	50(33)	29(19)	49(62)	30(51)	87
Incomplete	37(25)	34(23)	30(42)	41(70)	63
Total	87	63	79	71	150

$\chi^2 = 5.8$, $df = 1$ p value = .001 (significant)

Table 3 shows out of 150, Total 79 (53%) of patients are immunized, while 71(47%) are incompletely immunized (Unimmunized and partially immunized). There is significant difference between duration of stay in both groups. Those who are not immunized completely have longer stay in hospital with poor outcome.

DISCUSSION

This observational cross – sectional study was carried out in a tertiary care level hospital to find out association of risk factors of ARI among children aged 1 month to 60 months.

□ Total 150 children were enrolled in this study. Detailed history of exposure to various risk factors like socio – demographic, environmental, natal and nutritional factors were taken on the basis of predesigned proforma.

□ Out of total 150 patients, 4 patients expired during the course hospitalization, all of them were associated with common risk factors like malnutrition, low birth weight and inadequate immunization. This explains the importance of immunization, proper nutrition, preterm care in survival of sick hospitalized patients.

□ Out of 150, total 62(41%) pt had various degree of anemia. This was **statistically significant** .(p value<0.05)

□ There was statistically **significant association**(p value<0.05) between lack of predominant breast feeding and duration of stay. Among 42 patients who were not given predominant breast feeding, 24 (57%) had duration of stay in hospital for more than 5 days.

□ Out of 150 patients, total 37(25%) were suffering from various grades of malnutrition. And from our study the relation of malnutrition with ARI and its outcome is found to be **statistically significant**. (p <0.05)

□ Out of 150 patients, 79(53%) patients were completely immunized, while 40(27%) males and 31(20%) females, Total=71(47%) were partially immunized or not immunized at all. The status of immunization with its outcome is **statistically significant** (p value<0.05). Incomplete immunized patients have longer duration of hospital stay as compared to fully immunized patients.

□ In the present study we could derive the risk factors as definite, probable and possible categorized according to their occurrence and p value.

CONCLUSION

We studied the relation of socio-demographic, environmental, natal and nutritional risk factors and their association with ARI in children (1 month- 60 months).

- From this study, we have derived the association of acute ARI as
- **Definite Risk Factors:** Anemia, Exposure to biomass fuel, lack of predominant breastfeeding, passive smoking, Presence of Malnutrition, preterm delivery, low birth weight and H/O meconium aspiration at birth.
- **Possible Risk Factors:** incomplete immunization.
- **Probable Risk Factors:** bottle feeding, Prolactal feeding, no birth spacing and h/o exposure to kerosene lamps.
- From this study we find that the education of parents is of utmost importance as mothers are primary health care provider in family.
- Since these risk factors are potentially preventable, health policies targeted at reducing their prevalence provide a basis for decreasing the burden of ARI in children.

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