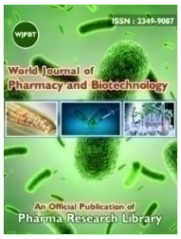

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A Study on Screening of Risk Factors Profile for Respiratory Infections in Pediatrics and Its Treatment Pattern in a Tertiary Care Hospital

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A B S T R A C T

Microorganisms gain entry to the respiratory tract by inhalation of droplets and invade the mucosa. Epithelial destruction may ensue, along with redness, edema, hemorrhage and sometimes an exudate. Initial symptoms of a cold are runny, stuffy nose and sneezing, usually without fever. Other upper respiratory infections may have fever. Children with epiglottitis may have difficulty in breathing, muffled speech, drooling and stridor. Children with serious laryngotracheitis (croup) may also have tachypnea, stridor and cyanosis. The prospective observational study was carried out for a period of 6 months. The study was conducted in Pediatrics department in a tertiary care hospital. The present study aimed to assess screening of risk factors profile for respiratory infections in pediatrics and its treatment pattern in a tertiary care hospital. Difficulty breathing clinical symptom patients were more 28(22.4%) as compared to other clinical symptoms 88-91. Private Medical Practitioner visited patients were more 51 (40.8%) as compared to other treatment centers. Tablet dosage form prescribed patients were more 93 (74.4%), as compared to syrup dosage form prescribed patients 32 (25.6%). Corticosteroids prescribed patients were more 45 (36%) as compared to other prescribed drugs for Respiratory infections. Study clearly highlighted the various types of clinical presentations, risk factors and different types of LRTI in children less than 5 years of age. Understanding a clear knowledge of the etiology and bacterial pathogens clearly provides guidance for the physician in management and clinical outcome. From the result of this study, we can conclude that there are some modifiable risk factors for LRTI like family history, past history, immunization status, and malnutrition. The risk factors can be tackled through effective health education of community, leading to a healthy society.

Keywords: Microorganisms, upper, lower respiratory infections, bacterial pathogens, immunization status and treatment

A R T I C L E I N F O

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C O N T E N T S

1. Introduction

Upper Respiratory Infections: Common Cold, Sinusitis, Pharyngitis, Epiglottitis and Laryngotracheitis.

Etiology: Most upper respiratory infections are of viral etiology. Epiglottitis and laryngotracheitis are exceptions with severe cases likely caused by Haemophilus influenzae type b. Bacterial pharyngitis is often caused by Streptococcus pyogenes.

Pathogenesis: Organisms gain entry to the respiratory tract by inhalation of droplets and invade the mucosa. Epithelial

destruction may ensue, along with redness, edema, hemorrhage and sometimes an exudate.

Clinical Manifestations:

Initial symptoms of a cold are runny, stuffy nose and sneezing, usually without fever. Other upper respiratory infections may have fever. Children with epiglottitis may have difficulty in breathing, muffled speech, drooling and stridor. Children with serious laryngotracheitis (croup) may also have tachypnea, stridor and cyanosis.

Microbiologic Diagnosis: Common colds can usually be recognized clinically. Bacterial and viral cultures of throat swab specimens are used for pharyngitis, epiglottitis and laryngotracheitis. Blood cultures are also obtained in cases of epiglottitis[1-15].Prevention and Treatment: Viral infections are treated symptomatically. Streptococcal pharyngitis and epiglottitis caused by H influenzae are treated with antibacterials. Haemophilus influenzae type b vaccine is commercially available and is now a basic component of childhood immunization program.

Lower Respiratory Infections: Bronchitis, Bronchiolitis and Pneumonia

Etiology: Causative agents of lower respiratory infections are viral or bacterial. Viruses cause most cases of bronchitis and bronchiolitis. In community-acquired pneumonias, the most common bacterial agent is Streptococcus pneumoniae. Atypical pneumonias are cause by such agents as Mycoplasma pneumoniae, Chlamydia spp, Legionella, Coxiella burnetti and viruses. Nosocomial pneumonias and pneumonias in immunosuppressed patients have protean etiology with gram-negative organisms and staphylococci as predominant organisms.

Pathogenesis:

Organisms enter the distal airway by inhalation, aspiration or by hematogenous seeding. The pathogen multiplies in or on the epithelium, causing inflammation, increased mucus secretion, and impaired mucociliary function; other lung functions may also be affected. In severe bronchiolitis, inflammation and necrosis of the epithelium may block small airways leading to airway obstruction. Clinical Manifestations: Symptoms include cough, fever, chest pain, tachypnea and sputum production. Patients with pneumonia may also exhibit non-respiratory symptoms such as confusion, headache, myalgia, abdominal pain, nausea, vomiting and diarrhea.

Microbiologic Diagnosis:

Sputum specimens are cultured for bacteria, fungi and viruses. Culture of nasal washings is usually sufficient in infants with bronchiolitis. Fluorescent staining technic can be used for legionellosis. Blood cultures and/or serologic methods are used for viruses, rickettsiae, fungi and many bacteria. Enzyme-linked immunoassay methods can be used for detections of microbial antigens as well as antibodies. Detection of nucleotide fragments specific for the microbial antigen in question by DNA probe or polymerase chain reaction can offer a rapid diagnosis.

Prevention and Treatment: Symptomatic treatment is used for most viral infections. Bacterial pneumonias are treated with antibacterials. A polysaccharide vaccine against 23 serotypes of Streptococcus pneumonia is recommended for individuals at high risk.

2. Materials and Methods

The prospective observational study was carried out for a period of 6 months. The study was conducted in Pediatrics department in a tertiary care hospital. A written and informed consent was obtained from the recruited patients. A Total of 125 patients were enrolled in the study.

Study Design: It was Prospective observational study.

Study Period: The Present study was conducted for a period of six months.

Study site: The Present study was conducted in Pediatrics department of a tertiary care hospital.

Sample size: It was 125 Patients.

Inclusion criteria

- Patients with respiratory abnormalities.
- Patients of either sex, diagnosed with respiratory abnormalities.
- Patients who are willing to give consent.
- Patients receiving treatment for respiratory abnormalities.
- Patients with clinical profile of respiratory abnormalities.

Exclusion criteria

- Patients below 18 years.
- Patients who were not willing to join in the study.
- Patients who are not diagnosed with respiratory abnormalities.
- Special population including pregnant women and lactating women.
- Psychiatric abnormalities.

Institutional ethics committee (IEC) consideration:

The research protocol was submitted to ethical committee and ethical Committee was permitted to perform the research work in Pediatrics department.

Patient data collection and management:

The data collection form contains information regarding age, sex, BMI, diagnosis, past medical history, laboratory data, and diagnostic results. The information about risk factors, clinical laboratory reports, treatment, dose and frequency of administration and duration of therapy was collected from the patients treatment chart.

Statistical analysis:

The data was represented as percentages. The $P<0.05$ was considered to indicate a statistically significant difference.

3. Results and Discussion

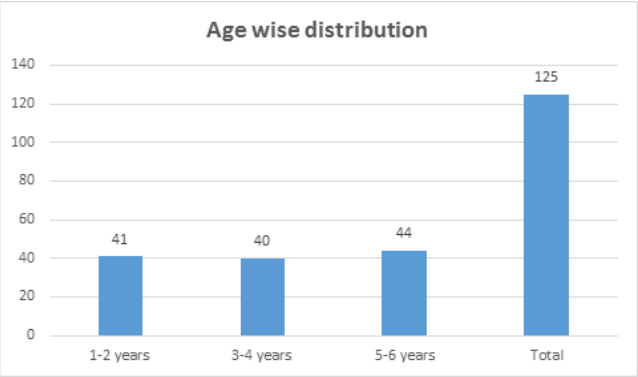

Figure 1: Age wise distribution

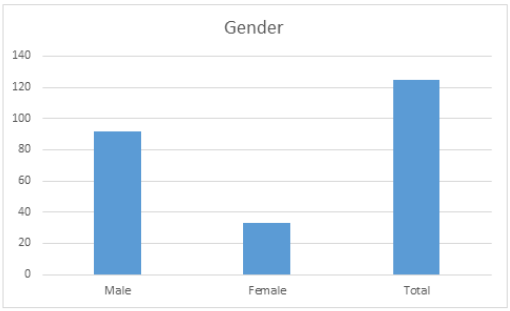

Figure 2: Gender

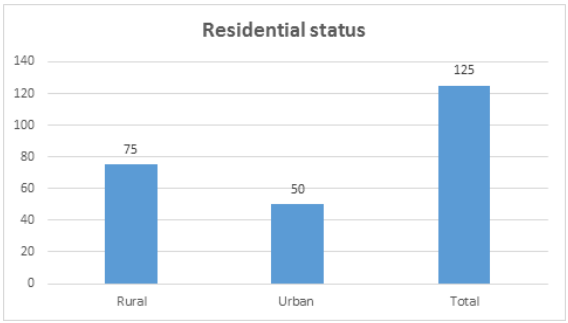

Figure 3: Residential status

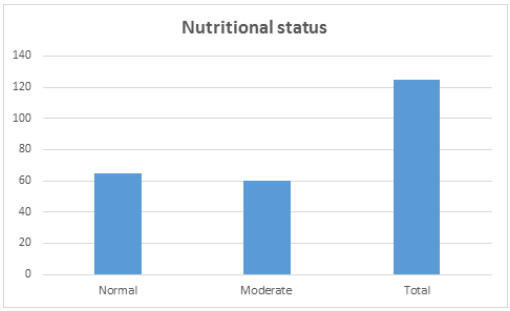

Figure 4: Nutritional status

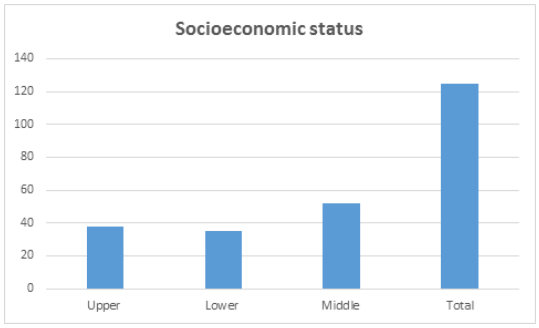

Figure 5: Socioeconomic status

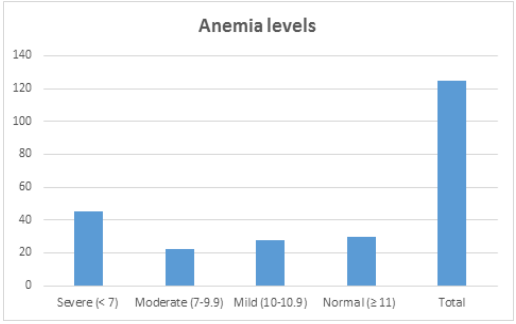

Figure 6: Anemia levels

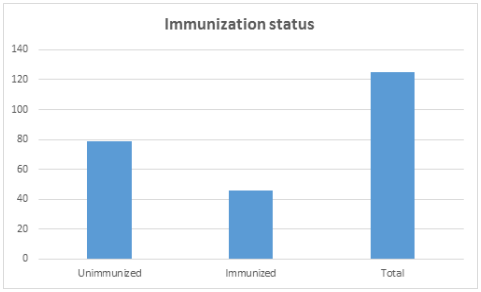

Figure 7: Immunization status

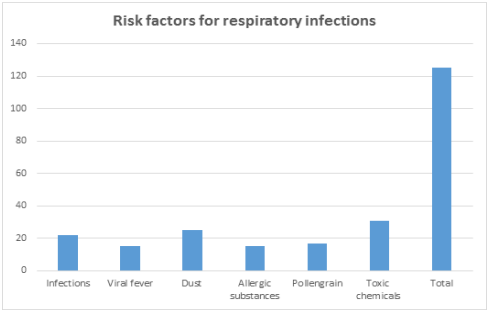

Figure 8: Risk factors for respiratory infections

Discussion

- In our study 5-6 years age patients were more 44 (35.2%) as compared to other age groups.
- In our study male patients were more 92 (73.6 %) as compared to female patients were 33 (26.4%).
- Rural area patients were more 75 (60%) as compared to urban area patients 50 (40%).
- Nutritional status of patients were normal patients were more 65 (52%) as compared to moderate patients 60 (48%).
- Middle socioeconomic patients were more 52 (41.6%) as compared to other socioeconomic status of patients.
- Severe (< 7) anemia patients were more 45 (36 %) as compared to other anemia groups.
- Unimmunized patients were more 79 (63.2%) as compared to Immunized patients 46 (36.8%).
- Toxic chemicals risk factor patients were more 31 (24.8%) as compared to other risk factor patients.
- Frequency of Respiratory infections includes 1-2 episodes patients were more 48(38.4%) as compared to other Frequency of Respiratory infections.
- URTI patients were more 75 (60%) as compared to LRTI patients 50 (40%).
- Difficulty breathing clinical symptom patients were more 28(22.4%) as compared to other clinical symptoms[86-91].
- Private Medical Practitioner visited patients were more 51 (40.8%) as compared to other treatment centers.
- Tablet dosage form prescribed patients were more 93 (74.4%), as compared to syrup dosage form prescribed patients 32 (25.6%).
- Blood test patients were more 36(28.8%) as compared to other lab test patients

Table 1: Age wise distribution

S.No	Age	Total (N=125)	Percentage
1.	1-2 years	41	32.8
2.	3-4 years	40	32
3.	5-6 years	44	35.2
	Total	**125**	

Table 2: Gender

S.No	Gender	Total (N=132)	Percentage
1.	Male	92	73.6
2.	Female	33	26.4
	Total	**125**	

Table 3: Residential status

S.No	Residential status	Total (N=132)	Percentage
1.	Rural	75	60
2.	Urban	50	40
	Total	**125**	

Table 4: Nutritional status

S.No	Nutritional status	Total (N=132)	Percentage
1.	Normal	65	52
2.	Moderate	60	48
	Total	**125**	

Table 5: Socioeconomic status

S.No	Socioeconomic status	Total (N=125)	Percentage
1.	Upper	38	30.4
2.	Lower	35	28
3.	Middle	52	41.6
	Total	**125**	

Table 6: Anemia levels

S.No	Anemia levels	Total (N=125)	Percentage
1.	Severe (< 7)	45	36
2.	Moderate (7-9.9)	22	17.6
3.	Mild (10-10.9)	28	22.4
4.	Normal (≥ 11)	30	24
	Total	**125**	

Table 7: Immunization status

S.No	Immunization status	Total (N=125)	Percentage
1.	Unimmunized	79	63.2
2.	Immunized	46	36.8
	Total	**125**	

Table 8: Risk factors for respiratory infections

S.No	Risk factors	Total (N=125)	Percentage
1.	Infections	22	17.6
2.	Viral fever	15	12
3.	Dust	25	20
4.	Allergic substances	15	12
5.	Pollengrain	17	13.6
6.	Toxic chemicals	31	24.8
	Total	**125**	

4. Conclusion

The etiologic agent of upper respiratory tract infections varies according to the age group of patients. This must be considered for appropriate laboratory evaluation and clinical management, which must be aligned for a better outcome. Sensibility and specificity of rapid antigen test to detect *S. pyogenes* showed satisfactory results in the analyzed periods in the study. ARI is the most common illness among hospitalized children under five years of age. Among them, the most common presenting complaints are fever and cough. Stunting, wasting and anemia are common among these children. In our study 5-6 years age patients were more 44 (35.2%) as compared to other age groups[92-96]. URTI patients were more 75 (60%) as compared to LRTI patients 50 (40%). Study clearly highlighted the various types of clinical presentations, risk factors and different types of LRTI in children less than 5 years of age. Understanding a clear knowledge of the etiology and bacterial pathogens clearly provides guidance for the physician in management and clinical outcome. From the result of this study, we can conclude that there are some modifiable risk factors for LRTI like family history, past history, immunization status, and malnutrition. The risk factors can be tackled through effective health education of community, leading to a healthy society

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