



A STUDY ON CLINICAL SPECTRUM OF INFLUENZA-LIKE ILLNESS(ILI)/ACUTE RESPIRATORY INFECTIONS(ARI) IN HOSPITALISED PAEDIATRIC PATIENTS IN A TERTIARY CARE CENTRE - A RECENT EXPERIENCE AND A PREVENTABLE PANIC IN FUTURE

Paediatrics

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ABSTRACT

Influenza virus is a common human pathogen that caused respiratory illness and death over the past century. The first case of 2009 pandemic influenza A virus infection in India was reported in May, 2009. The morbidity associated with influenza viral infection can range from subclinical illness to multi system involvement. India accounts for 20% of global childhood deaths from respiratory infections. A study on clinical spectrum of influenza-like illness(ILI)/acute respiratory infections(ARI) in hospitalised paediatric patients in a tertiary care centre. Cross-sectional observational study was done among admitted patients. RT-PCR testing was used to confirm infection. Laboratory investigations CBC, ESR, CRP, creatinine, chest xray was done. The median duration of diagnosis of infection was five days while median time of six days reported for hospital stay. Fever (93.4%), cough (86.7%), runny/stuffy nose(60%) were the most common presenting complaints. Influenza A & B were found to have fever (87.6%), cough (49.77%), sore throat (27%) etc. Males(58.7%) more affected than females(41.3%). Influenza virus and RSV infections are more in males than females. Specimens positive for influenza A & B virus(33.3%) and 53.33% for RSV cases. All the reported influenza positive patients received oseltamivir. Majority of children recovered well without complications. Influenza is an important cause of hospitalization among children during outbreaks of influenza. The present study reveals both Influenza A and B are prevalent in Raichur with considerable activity along with other viral causes. Early detection of influenza infection is important to initiate oseltamivir therapy early in course of illness to prevent complications, reduce morbidity and mortality. None had received influenza vaccines in the past.

KEYWORDS

Epidemiologic information, influenza virus; RT-PCR; ILI; ARI.

INTRODUCTION:

Influenza virus is a common human pathogen that has caused serious respiratory illness and death over the past century. ARIs are the most common illnesses experienced by otherwise healthy children. A few reasons why influenza is spreading in India include low vaccination rates for the flu vaccine and high pollution. Influenza viruses are known to cause outbreaks globally. Information on the activity of influenza virus in our country is limited and none from Raichur. The first case of confirmed infection with the virus in India was documented in May, 2009. After that large numbers of positive cases were reported throughout the country that has caused serious respiratory illness and death over the past century. It always had potential to cause widespread pandemics whenever a new type of influenza strain appeared in the human population and then spread easily from person to person. The morbidity associated with influenza viral infection is often overlooked. India being the most populous country, accounts for 20% of global childhood deaths from respiratory infections. Acc to WHO ILI is defined as 4 : An acute respiratory infection with: measured fever of $\geq 38^{\circ}\text{C}$; and cough; with onset within the last 10 days. Acc to WHO ARI is defined as 4: An acute respiratory infection with; history of fever or measured fever of $\geq 38^{\circ}\text{C}$; and cough; with onset within the last 10 days and requires hospitalization.

AIMS AND OBJECTIVE:

A study on clinical spectrum of influenza-like illness(ILI)/acute respiratory infections(ARI) in hospitalised paediatric patients. To find other causes of acute respiratory infections among admitted patients.

METHODOLOGY:

A Cross-sectional observational study was conducted in Paediatric Department of Navodaya Medical Hospital & Research Centre from December 2022- February 2023. Inclusion Criteria: all admitted patients in ward and PICU of age group 1-5 years. Exclusion Criteria: Any child with preexisting co-morbid conditions (like COPD, immunodeficiency, CHD etc), those of deferred consent.

STATISTICS:

Demographic and clinical features were described using percentages. Data entered in MS-EXCEL sheet. Laboratory data includes complete blood counts, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), creatinine. Chest xray was also performed. Throat swab

was collected from suspected cases at admission and sample was tested using RT-PCR.

RESULTS:

Total number of patients = 75 of age group 1-5 years. Number of males was 44 and females was 31. The median age of 18 months was observed (range 15 months to 23 months) in influenza positive cases. The median duration of diagnosis of infection was five days after onset of illness. Overall males(58.7%) were more affected compared to females(41.3%) in this study. Both influenza virus and RSV infections were diagnosed more frequently in males than females. Fever (93.4%), cough (86.7%) followed by runny/stuffy nose(60%) were the most common presenting complaints. Commonly prevalent symptoms associated with Influenza A & B were found to be fever (87.6%), cough (49.77%), sore throat (27%) and breathlessness (23.9%).

Table 1: Total number of males and females affected in each disease

Disease	Male	Female	Total
Influenza A and B	15	10	25
Respiratory Syncytial Virus	23	17	40
Adenovirus	2	3	5
Parainfluenza	4	1	5
total	44	31	75

Table 2: Symptoms with frequency and percentage

Symptoms	N	%
Fever	70	93.4
Cough	65	86.7
runny /stuffy nose	45	60
sore throat	30	40
difficulty in breathing	15	20
diarrhoea	5	6.7
Vomiting	5	6.7

Table 3: Different lab parameters with range

Lab Parameters	Median (Range)
Haemoglobin (g/dL)	10.5(9.5-12.2)
Total WBC Count (per μL)	6400(2100-22100)
Leucopenia	30%
Leucocytosis	22%

Neutrophils %	35.5(30-50.5)
Lymphocytes %	60.9(50-65.4)
Monocytes %	3.4(2-4.8)
Eosinophils %	0.2(0-7.0)
RBC (million/cumm)	4.93(4.52)
PCV (%)	32.2(34-40)
Platelet Count (per μ L)	218000(140000-515000)
Thrombocytopenia	22.90%
Thrombocytosis	12.60%
CRP (mg/dL)	4.3(4-8.9)
ESR (mm/hr)	15.5(2-51)
Creatinine	0.41(0.2-1.0)

Figure 1:Symptoms with frequency

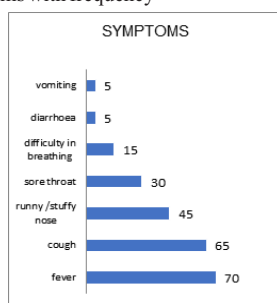
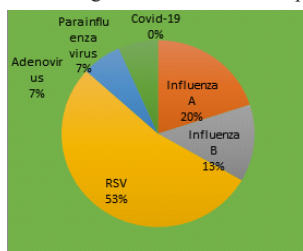


Table 4: Diagnostic diseases with frequency and percentages

RT-PCR	N	%
Covid-19	0	0
Influenza A	15	20
Influenza B	10	13.33
RSV	40	53.33
Adenovirus	5	6.67
Parainfluenzavirus	5	6.67

Figure 2: Pie chart showing different diseases with percentage



The median time for hospital stay was six days for patients. The proportion of specimens positive for influenza virus was 33.33% for ILI cases and 66.67% for other ARI cases. None had received influenza vaccines in the past.

Chest x-ray was obtained in 60 cases of which 66.67% had abnormal findings.

Table 5: Chest xray findings with frequency and percentages

Chest Xray	N	%
Done in	60	-
Abnormal Findings	40	66.67
Mildly prominent broncho-vascular markings with air trapping	32	80
Prominent broncho-vascular markings noted on both side	4	10
Rt lobar consolidation with perihilar opacity	4	10



Fig 3: Prominent broncho-vascular markings noted on both side

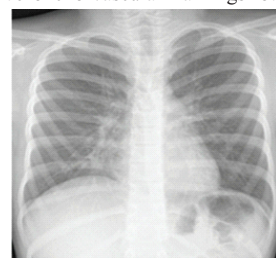


Fig 4: Perihilar opacities with right lower lobe involvement

Table 6: Table showing different treatment provided with percentage

Treatment/Outcomes Measured	N	%
Duration of hospitalisation in days	median=6; range(5-8)	
PICU admission	50	66.67
PICU (duration of stay)	median=3; range(1-5)	
Oxygen supplementation	50	66.67
Nebulisation with levolin	45	60
Nebulisation with 3% NS	40	53.34
Nebulisation with levolin & budesonide	25	33.34
Nebulisation with adrenaline	5	6.67
IVF	60	80
IVF (duration of days)	median=3; range(2-4)	
Oseltamivir	30	40

All the reported positive patients had received antiviral drug oseltamivir. Majority of the children recovered well without any complications. Pneumonia was observed in 5 (6.67%) children.

Treatment/Outcomes Measured	N	%
Antibiotics	40	53.34
Type of antibiotic		
Azithromycin	25	33.34
Amoxycillin+Clavulanic acid	10	13.34
Ceftriaxone	5	6.67
CPAP	0	0
Mechanical Ventilation	0	0
Complications		
Pneumonia	5	6.67
Mortality	0	0

DISCUSSION:

Median time of six days reported for hospital stay of study done by Rajesh K. Chudasama, et al¹ similar to our study. Fever (93.3%), cough, followed by runny/stuffy nose (60%) were the most common presenting complaints similar to a study done by V.Siddharth, V.Goyal et al². The prevalence of disease in our study group was around 33.33% comparable to the study done by Siddharth et al (29.08%)² and similar to prevalence of influenza B (5.18%) in study done by S.Roy, Ritwik Dahake et al³. With regards to laboratory parameters in our study, the median WBC count and CRP was in the normal range supporting the diagnosis of viral infection. Oseltamivir therapy is recommended within 48 hours of the onset of flu-like symptoms in children. In present study, all the influenza infected patients received oseltamivir after hospital admission. As per latest updates issued by Ministry of Health and Family Welfare; Press Information Bureau (PIB, DELHI)⁴; The IDSP-IHIP (Integrated Disease Surveillance Programme-integrated health Information Platform) data from health facilities indicate that during the month of January 2023, a total of 397,814 cases of Acute Respiratory Illness/Influenza Like Illness (ARI/ILI) were reported from the country that increased slightly to 436,523 during February, 2023. In the first 9 days of March 2023, this number stands at 133,412 cases and all over India such cases are increasing^{6,7}.

LIMITATIONS:

The data was taken only from hospitalized patients, therefore other cases of influenza might have been missed. Due to the small sample size we focussed mainly on viral aetiology since it is understudied in our region. This prevented the possibility of analysing the role of bacterial pathogens and mixed viral/bacterial coinfections. The

findings may be different during future waves, owing to the timely deployment of an effective vaccine, to viral mutation, and to resistance to antiviral drugs.

CONCLUSION:

Influenza is evidently an important cause of hospitalization among children, even during limited outbreaks of influenza. Fever, cough and sore throat are the most common symptoms with which the patients usually present. Males were more commonly affected in our study. The data generated from the present study reveals that both Influenza type A and B are prevalent in Raichur with considerable activity along with other viral causes. There was significant association with P value less than 0.05 among detection of influenza A & B cases by RT-PCR. Early detection of influenza infection is extremely important in order to initiate oseltamivir therapy early in the course of illness to prevent complications and reduce morbidity and mortality. This study provides hospital-based epidemiological information, but a community-based wider studies are required to arrive at a more precise and accurate understanding of Influenza. Prevention is the best cure.

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