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## **WINTER PEAK OF RESPIRATORY SYNCYTIAL VIRUS IN ISLAMABAD**

Waheed –Uz-Zaman Tariq\*, Talal Waqar\*\*, Salman Ali\*\*, Eijaz Ghani\*.

\*Armed Forces Institute of Pathology Rawalpindi, \*\*Department of Paediatrics Military Hospital Rawalpindi.

### **ABSTRACT**

Respiratory Syncytial virus (RSV) is important cause of pneumonia and bronchiolitis in paediatric population between 2 month and 2 year age group.

A study had been carried out on 391 cases of bronchiolitis and pneumonia from different paediatric units of Rawalpindi/Islamabad over a span of 6 months.

A clear winter spike of RSV was noted. It was found that there was a substantial increase of 30-50% in the positivity of RSV from December to February.

### **INTRODUCTION**

Respiratory syncytial virus (RSV) is one of the most important respiratory tract pathogens and is a major cause of bronchiolitis and pneumonia in infants<sup>1</sup>. It is a medium sized membrane bound RNA virus that belongs to the family of paramyxoviridae<sup>2</sup>. It has been hypothesized that the virus causes damage by the release of vascular active cytokines<sup>3</sup>. The virus shows a worldwide distribution, with epidemics occurring frequently in winters. During remainder of the year, infections are sporadic in nature and unusual. It is transmitted primarily by contact with ill children and contaminated objects in the environment<sup>4</sup>. The study was carried to establish the extent of problem in our local population and to ascertain its aetiological significance regarding bronchiolitis and pneumonia in children. Moreover the seasonal variation was to be ascertained.

### **METHODS AND MATERIALS**

This study was conducted at Armed Forces Institute of Pathology (AFIP) Rawalpindi from October 1999 to April 2000. The specimens of nasopharyngeal aspirates were obtained from children, 2 months to 3 years age, admitted in different paediatric units of Rawalpindi / Islamabad and transported in a syringe to the virology department of AFIP Rawalpindi. The aspirate was centrifuged at 3000 rads /min for 15 minutes. The deposit was then washed three times in phosphate buffer saline (PBS) by suspension and centrifugation following the speed and time as mentioned previously. The cells were transferred to teflon coated glass slides which were fixed in acetone and kept at 4°C for 30 minutes. The conjugate (monoclonal antibodies against RSV tagged with fluorescein isothiocyanate) was added in a quantity of 25µl. The reagents of Dako kit were used. Slides were incubated for 30 min at 37°C, washed and then observed under a fluorescent microscope by an objective lens of 40. Appropriate positive and negative controls were dealt with each batch. The results were personally confirmed by a virologist.

## **RESULTS.**

A total of 391 cases were included in the study. Out of these, 80 specimens (20%) were found to be positive for RSV. The percentage of positivity ranged from 0% in October 99 to 43% in January, which once again declined to 2.7% in March and touching 0% in April 2000. The results are shown in table 1.

**TABLE 1.**

### **Monthly Distribution of Positive cases of RSV**

<b>MONTH</b>	<b>TOTAL CASES</b>	<b>POSITIVE FOR RSV</b>	<b>%</b>
<b>OCTOBER</b>	<b>31</b>	<b>0</b>	<b>0</b>
<b>NOVEMBER</b>	<b>40</b>	<b>4</b>	<b>10</b>
<b>DECEMBER</b>	<b>113</b>	<b>33</b>	<b>29</b>
<b>JANUARY</b>	<b>55</b>	<b>24</b>	<b>43</b>
<b>FEBRUARY</b>	<b>50</b>	<b>17</b>	<b>34</b>
<b>MARCH</b>	<b>72</b>	<b>2</b>	<b>2.7</b>
<b>APRIL</b>	<b>30</b>	<b>0</b>	<b>0</b>

**Total no of cases=391.**

## **DISCUSSION**

In Pakistan there was a dearth of data about the incidence of RSV and its seasonal variation. This is mainly due to lack of understanding of problem of RSV associated diseases and inaccessibility of paediatricians to the laboratory facilities for viral diagnosis. There is a general trend to deal such problems empirically by unnecessary prescribing all kinds of newly discovered antibiotics for the management of ARI. This might lead to the development of antibiotic resistance and wastage of resources. Moreover, the aetiology of the disease remains unestablished and hence appropriate therapeutic and preventive measures might not be precisely adopted.

The study was carried out by using direct immunofluorescence for the detection of intracellular viral antigen of RSV. This method was considered to be as good as viral isolation in its sensitivity and specificity<sup>5</sup>. Moreover, the diagnosis was available in a couple of hours leading to timely decision in the management of the case.

This study clearly determined that RSV is an important cause of respiratory diseases in our paediatric population during the peak of winter season. There was a gradual increase

in the incidence of RSV infection during the winter months. The problem reached to its zenith in January when it was found to be positive in 43% of cases. During March 2000 only 2.7% of specimen showed positivity and by April it had come down to zero. No specimen obtained in October had shown positive results for RSV.

Hence nasopharyngeal secretions of all infants suffering from symptoms of bronchiolitis and pneumonia in these months should be evaluated by the virus laboratory for RSV detection. A timely diagnosis may justify withholding antibiotics and adding antiviral therapy in selected patients. The high risk group of patients may be treated with aerosolized Ribavarin and palivizumab (monoclonal antibodies). These patients include those having congenital heart disease, immunocompromised, preterms and ones suffering from cystic fibrosis<sup>6</sup>.

Moreover the specific diagnosis of RSV may be prognostically significant in determining the outcome of the disease.

By conducting such studies and collecting data, vital epidemiological information may be obtained which may in turn help in the control of the problem. Although at present, there are no effective vaccines available against this virus, the situation may change in future.

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