

RESEARCH NOTE

RESPIRATORY SYNCYTIAL VIRUS IS NOT AN IMPORTANT COMMUNITY ACQUIRED PATHOGEN IN ADULT HEMATOLOGICAL MALIGNANCY PATIENTS

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Abstract. Respiratory syncytial virus (RSV) has been reported as a leading cause of upper and lower viral respiratory tract infection in high-risk adult populations. We prospectively studied 48 patients with hematological malignancies over a period of 2 years. Throat and nasal washings were subjected to immunofluorescence and cell culture for virus isolation. Of these 48 patients, 31 had acute leukemia, 6 had chronic leukemia, 10 had lymphoma and one had multiple myeloma. The median age of the patients was 20 years with a male to female ratio of 4:1. No RSV was detected in any of the samples. RSV was not found as a major cause of community acquired upper respiratory tract infections in adults with hematological malignancies in India.

INTRODUCTION

Since a comprehensive report of respiratory syncytial virus (RSV) in the immunocompromised children in 1986 (Hall *et al*, 1986) several studies have implicated RSV to be a cause of serious disease in the immunocompromised adults as well (Englund *et al*, 1988; Whimbey *et al*, 1995, 1996; Wendt *et al*, 1996). Although RSV infection was reported in adults with pneumonia in the 1960s, it is only during the last decade the potential for wide spread occurrence and serious clinical implications to immunocompromised patients has been recognized. In apparently healthy individuals RSV rarely causes more than a self limited upper respiratory tract infection. However, in immunocompromised patients it often progresses to the lower respiratory tract. At times it may lead to severe life threatening pneumonia among

adult immunocompromised patients (Englund *et al*, 1988). Literature regarding RSV infection of the upper respiratory tract in adults with hematological malignancies, such as leukemia and lymphoma is scanty, especially from the Indian subcontinent. The authors studied the role of RSV in community acquired acute respiratory tract infection amongst adult patients with commonly seen hematological malignancies.

MATERIALS AND METHODS

In this study, we prospectively studied adult (>12 years old) hematological malignancy patients with acute upper respiratory tract infection (URTI) attending the hematology clinic, Post Graduate Institute of Medical Education and Research, Chandigarh, India. The study was carried out over two years, from January 2002 to December 2004, to determine the role of RSV in such patients. The study was approved by the institute ethics committee. Throat and nasal washings (3 ml each) were collected from each patient using sterile minimum essential medium. Samples

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were processed following the method described by Maitreyi *et al* (2000). RSV antigen was detected using FITC conjugated monoclonal antibody against M2 protein, phosphoprotein and fusion protein of both A and B subtypes (Novocastra Limited, Germany) by an immunofluorescence test. For viral isolation, the samples were inoculated into a Hep-2 cell line within a few hours of collection and observed for 2 weeks for the development of cytopathic effects. Two serial passages were given before being reported as negative.

RESULTS

A total of 71 samples were collected from 48 patients, of whom 31 (60%) had acute leukemia, 6 (11.7%) had chronic leukemia, 10 (19.6%) had lymphoma (7 with non-Hodgkins and 3 Hodgkins type), and the remaining one patient had multiple myeloma. Of these 48 patients, 8 had two episodes of acute respiratory tract infection, while 1 patient had 3 episodes. The majority of patients were on chemotherapy. None had lower respiratory tract infection. None of the patients were positive for RSV antigen and virus was not isolated in any samples.

DISCUSSION

RSV is traditionally regarded as a pediatric pathogen; it is an important viral cause of lower respiratory tract infection in children (Broor *et al*, 1999; Collins *et al*, 2001). It rarely causes more than a self-limited upper respiratory tract infection in immunocompetent adults (Whimbey *et al*, 1995). One study found RSV to be a cause of serious disease in immunocompromised adults with leukemia (Whimbey *et al*, 1995), and another study in organ transplant recipients (Whimbey *et al*, 1996). RSV infection in immunocompromised hosts is associated with significant morbidity and mortality due to pneumonia (Whimbey *et al*, 1996, 1997; Englund *et al*, 1988). Infections with RSV in these studies were more commonly noso-

comial rather than community acquired, and accounted for 30-50% of cases in the hospital setting. In our study, the absence of RSV in adult leukemia/lymphoma patients attending outpatient department with upper respiratory tract infection indicates that RSV may not be a major health problem in the community. However, the small sample size is a limiting factor. Further studies with larger sample sizes would be more conclusive.

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