Frequency of Chlamydia pneumonia infection in asthmatic patients in northeast of Iran

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Abstract

Background: The role of Chlamydia pneumonia in asthma has drawn much attention in recent years. Considering conflicting data about frequency of C. pneumonia in asthmatic subjects and, regarding that no such study has been done in Middle East, we assess the prevalence of C. pneumonia infections in patients with chronic stable and acute exacerbation of asthma and compared it with normal subjects. **Methods:** 20 adult patients with chronic stable asthma and 21 patients with acute exacerbations of asthma and 41 matched control subjects were studied for presence of C. pneumonia using PCR and IgA and IgG assay. **Results:** This study suggests that positive results of C. pneumonia IgA antibody are associated with both chronic stable and acute exacerbation of asthma, while IgG antibody and PCR are not. **Conclusions:** Regarding PCR results which were statistically insignificant, it could be concluded that in our region C. pneumonia is not a major risk factor for either development or exacerbation of asthma.

Keywords: Asthma, Chlamydia pneumonia, PCR, IgG, IgA

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INTRODUCTION

The worldwide high prevalence of asthma and the impact of the disease on quality of life, have led to numerous investigations on the cause of the disease. However, the cause and pathophysiology of this syndrome are presently not completely defined. Viral infections have been linked to the acute exacerbation of asthma in approximately 50% of patients [1]. Recently Chlamydial infection has been suggested to participate in the pathophysiology of asthma [2-4].

C. pneumonia is a relatively new respiratory pathogen, which first described in 1986[5]. The possible link between asthma and *C. pneumonia* was first published by Hahn et al, [4] then, with use of different methods, multiple studies have been led in this subject mostly with conflicting results [6-14]. However, multiple serologic evaluation studies suggest that *C pneumonia* may be associated with chronic stable asthma [2-4, 6, 8, 9].

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The present study copulate serologic evaluation with PCR among well defined asthmatic subjects to study the role of *Chlamydia pneumonia* in asthma.

MATERIALS AND METHODS

Study population: From Feb. 2005 to May 2005, we identified 48 patients; from whom 28 were admitted as asthma exacerbation and 20 patients with chronic stable asthma from out-patient clinics in Ghaem Medical Center, Mashhad University of Medical Sciences, Iran. The asthmatic patients fulfilled criteria for asthma, exhibiting a recurrent attacks of dyspnea, wheezing, cough and >15% reversibility of lung function with bronchodilator. An asthma exacerbation was defined as an abrupt and/or progressive worsening of shortness of breath, wheezing and chest tightness, while asthmatic patient in chronic group did not have such an attack during last 4 week. Seven patients out of 28 case of asthma exacerbation which were participated in this study were excluded from study due to heavy smoking habit or persistent productive cough, and the remaining 21 patients were selected as case group 1. Case group 2 consisted of 20 asthmatic patients diagnosed as chronic stable asthma. Pair matched healthy control subjects were also chosen for each of these groups. As sex is not important in asthma pathogenesis, the female to male ratio of participants in our study, was merely based on actual hospital visit and not the true ratio in asthma, besides by matching exact sex (and similar age) subjects for each case, we neutralize any potential effect of it.

Study design: After local ethical committee approval was granted and informed consent was obtained for this study, subjects were examined by the physician and routine questionnaire were completed. Subjects underwent spirometric evaluation. Chest radiography was carried out to rule out infiltrates. Measurements of total serum immunoglobulin levels (IgG, IgA, and IgM) was also performed to ensure subjects were not hypogammaglobulinemic and were thus capable of mounting an appropriate serologic response to infection.