Is Mycoplasma Pneumoniae Infection Associated with Adult Asthma Exacerbation?

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Mycoplasma pneumoniae infection has been considered as a cause of initial onset of bronchial asthma¹ or exacerbation of asthma.² For example, Kraft, et al. showed that M. pneumoniae was detected by Polymerase Chain Reaction (PCR) in 10 of 18 asthmatics and one of 11 control subjects (p<0.02).³ Furthermore, Martin, et al. reported that thirty-one of 55 asthmatic adult patients were PCR-positive for Mycoplasma (n=25) or Chlamydia spp. (n=6) compared with 1 of 11 (9%) control patients.⁴ In both of those studies, M. pneumoniae was confirmed primarily in lung biopsy specimens or in lavage fluid.³,⁴

We performed comprehensive analysis for multiple pathogens, including M. pneumoniae, Chlamydia pneumoniae, and common respiratory viruses (i.e., Respiratory Syncytial Virus (RSV), Human rhinovirus (HRV), Human metapneumovirus (HMPV), influenza virus, human parainfluenza virus, human bocavirus) using PCR or real-time PCR techniques. However, our preliminary data, obtained for both outpatient (n=29) and inpatient (n=15) subjects suffering from asthma attacks, did not detect M. pneumoniae or C. pneumoniae in the nasopharyngeal or oropharyngeal swabs from these individuals.

In contrast, real-time PCR detected virus in 6.9% (n=2) and 46.7% (n=7) of subjects with asthma exacerbations in outpatient and inpatient settings, respectively.⁵ The incidence of virus-positive viral status was significantly higher in the latter group (p<0.002).⁵ This observation was similar to the results obtained in a previous study that, using PCR-based viral diagnostics, detected viral respiratory infections in up to 50% of adults with asthma exacerbations.⁶

Notably, in a total of 15 hospitalized patients, 7 virus-positive cases (n=5, HRV; n=1, HMPV; n=1, RSV) had significantly lower values of SpO₂ (81.4±3.9%) than those measured in the virus-negative group (n=8, SpO₂: 91.8±1.3%; p<0.007), and the frequency of hypercapnea (PaCO₂>45 Torr) was significantly higher in the virus-positive group (66.7%, n=4) than in the virus-negative group (0%; p= 0.014).⁵

Thus, in the context of social and economic costs, our preliminary data suggest that viral infection in asthmatic patients may be more important for case management than is M. pneumoniae infection in these patients. Larger studies will be needed to further address the role of M. pneumoniae in the exacerbation of asthma.

CONFLICTS OF INTEREST
The authors declare that they have no conflicts of interest.

REFERENCES
1. Yano T, Ichikawa Y, Komatu S, Arai S, Oizumi K. Association of Mycoplasma pneumoniae...


