Mycoplasma pneumoniae infection in Sri Lanka (a three year prospective study)

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Abstract

Objectives : - To find out incidence of mycoplasma infection among children with respiratory tract infections and also to find out any seasonal pattern, complications and response to different antimicrobial agents.
Design: - Prospective study.
Setting: - University Paediatric Unit, Teaching Hospital, Karapitiya, Galle.
Method: - Children presented with lower respiratory tract infections to the out patients department or admitted to University Paediatric Unit were investigated for *Mycoplasma pneumoniae* infection. Clinical features, complications, response to different antibiotics were documented. Study period was November 1999 to October 2002.
Results: - Nineteen out of 105 patients studied during November 1999 to October 2000 had *M. pneumoniae* infection. During November 2000 to October 2001, 260 patients were investigated for *M. pneumoniae* infection. 46 patients were confirmed as *M. pneumoniae* infection. There were 144 children investigated for *M. pneumoniae* infection during November 2001 to October 2002. 48 patients were positive for mycoplasma infection.
Conclusion: - According to the results *M. pneumoniae* infection seem to be a common causative agent in children with lower respiratory tract infections.

Introduction

M. pneumoniae is a known causative agent of community acquired pneumonia. It seems to be a common causative agent in both children and adults with community acquired pneumonia.[1,2] Patients with sickle cell disease, those who are immuno deficient or who have pre existing cardiac or pulmonary disease are known to be severely affected. In Sri Lanka there were some cases of atypical pneumonia reported in 1953 by Prof. C.C. de Silva. Several cases were described as atypical pneumonia compatible with *M. pneumoniae*.
A case of *Mycoplasma pneumoniae* infection with its multi organ involving nature was reported by us in 1992.[3] Since then we have studied the incidence and the different presentations of this infection.
There are no prospective studies on this infection carried out in Sri Lanka before, probably due to an assumption by the clinicians, that the burden to the community due to *M. pneumoniae* is not significant.
But over the past few years we have shown the high incidence of this infection by our prospective analysis of respiratory infections and their complications in children.
This is the first prospective clinical study on *M. pneumoniae* infection, carried out in this country.
We found that in contrast to other countries, this infection in Sri Lanka is associated with a definite seasonal pattern. Most of the cases were seen during November to April each year.
We came across different modes of presentation of this infection. The majority presented with different types of respiratory infections.
But myocarditis with pericardial effusions, hepatitis with fulminant hepatic failure, meningoencephalitis, polyarthritis and continuous fever were also seen in some of the infected children.
We think if clinicians are aware of these different presentations, it will be possible to prevent the under diagnosis, the prolonged hospital stay and even some of the lethal complications, in children as well as adults infected with *M. pneumoniae*.
M. pneumoniae infection is worldwide. Each year about 1 per 1000 people in the United States experience *M. pneumoniae* infection. The incidence of other upper and lower respiratory infections is probably 10 times that of pneumonia. In some countries such as the U.K. and Denmark epidemics have been observed about every 4 years. From our study we found that this infection has a seasonal pattern.

Method

Children presented with features of lower respiratory tract infections lasting more than 7 days to the paediatric clinic and patients with lower respiratory tract infections admitted to University Paediatric Unit were investigated for *M. pneumoniae* infection.
Children below 1 year were excluded.
Clinical features, complications, response to antimicrobial treatment were documented.
Mycoplasma antibody titre of more than 160 was considered as an acute infection.
Study period was November 1999 to October 2002.

Results

105 patients with lower respiratory tract infections were studied during November 1999 to October 2000. (62 males and 43 females.) Acute mycoplasma infection was found in 19 children.

Distribution of cases according to the months.

Month	Total no. respiratory infections	Mycoplasma positive cases
November	4	2
December	6	3
January	9	4
February	3	2
March	5	2
April	3	1
May	13	1
June	22	2
July	13	0
August	9	0
September	5	0
October	9	2

There were 260 patients studied during November 2000 to October 2001. (142 males and 118 females.) *M. pneumoniae* infection was found in 46 patients.

Distribution of cases according to the months

Month	Total no. respiratory infections	Mycoplasma positive cases
November	20	4
December	22	4
January	8	2
February	29	8
March	28	10
April	24	3
May	20	0
June	48	7
July	27	6
August	21	1
September	8	1
October	5	0

154 patients with lower respiratory tract infections were studied during November 2001 to October 2002. 45 patients were found to be having *Mycoplasma pneumoniae* infection. 33 of them were seen during November to April.

Distribution of cases according to the months

Month	Total no. respiratory infections	Mycoplasma positive cases
November	23	4
December	17	7
January	13	3
February	25	6
March	12	7
April	14	6
May	10	3
June	9	4
July	8	3
August	5	1
September	8	1
October	10	0

Discussion

M. pneumoniae infection has been documented in the medical literature of the past several decades. Earlier, the organism was identified as the Eaton agent causing atypical pneumonia. Eaton agent was named after Monroe (1944), who described the organism causing atypical pneumonias.[4]

This organism was shown to be similar to one causing pleuropneumonia in cattle. Hence the names Eaton gent and pleuropneumonia like organism (PPLO), continued to be used.

It was found to be neither a bacterium nor a virus. Patients presented with insidious onset of cough, fever and illness lasting for long periods (average 28 days). In 1962 this agent was reclassified as *M. pneumoniae.*

Diagnosis of mycoplasma infection is done by serological methods. Presence of IgM by ELISA technique or detection of high titres of IgG is considered in the diagnosis of acute infection.[5] It is a well known fact that IgG levels drop very rapidly after an infection. So a rise in titre or a drop in titre is considered in the diagnosis of acute infection. DNA probe test is the best and most accurate method of early detection of this infection.[6]

M. pneumoniae infection often has an insidious onset with malaise, myalgia, sore throat or headache followed by cough and other chest symptoms. Respiratory tract manifestations include pharyngitis, bronchitis, pneumonia (lobar, interstitial or broncho pneumonia), lung abscess[7], adult respiratory distress syndrome[8] and pleural effusions.[9]

19 out of 105 patients (18%) in this series studied during November 1999 to October 2000 were due to *Mycoplasma pneumoniae* infection. 14 of them presented during November to April.

46 out of 260 patients (18%) studied during November 2000 to October 2001 were due to *M. pneumoniae* infection. 31 of them were presented during November to April.

45 out of 154 patients (27%) studied during November 2001 to October 2002 were *M. pneumoniae* positive. 33 of them were seen during November to April.

According to the literature incidence of *M. pneumoniae* in children with respiratory tract infections is 20% - 25%. Similar incidence was observed by us during the study period. In addition we have found a definite seasonal pattern of this infection. Majority of infected patients were recorded during November to April in each year.

M. pneumoniae infection could involve the other systems of the body other than respiratory tract. We found a patient with acute cardiac tamponade due to this infecton.[10] Probably this is the first case reported in the world literature.

M. pneumoniae can cause fulminant hepatitis with hepatic failure.[11]

Central nervous system infections are not uncommon with this infection. Meningitis, Meningo encephalitis has been observed by us during past few years.[12]

Conclusions

M. pneumoniae infection is not uncommon in Sri Lanka. *M. pneumoniae* infection should be suspected in patients with febrile respiratory tract infections lasting more than 7 day, especially those who are responding poorly to conventional antibiotics. It can cause bronchitis, pneumonia or pleural effusions.
Seasonal pattern also exists with this infection.
Myocarditis, hepatitis and meningo encephalitis are also can cause by this infection. If clinicians are aware about these different presentations and seasonal pattern of this infection it will prevent under diagnosis of this infection.

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