Mycoplasma Pneumonia in Hospitalized Patients in Baghdad Teaching Hospital :Clinical, Radiological and Cold Agglutinin Assessment

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ABSTRACT:

BACKGROUND:

Mycoplasmapneumonia is a cause of community-acquired pneumonia. The disease usually is of a gradual onset, with almost equal gender distribution between male & female. **OBJECTIVE:**

Assessment of the clinical, radiological & laboratory characteristics of mycoplasma pneumonia in Baghdad teaching hospital.

MATERIALS AND METHODS:

30 patients were collected from Baghdad teaching hospital between 1st of November 2003 till 30th of October 2004 having pneumonia with positive cold agglutinin titer. They were studied regarding their clinical presentation & features including seasonal incidence, radiological assessment, & testing blood for cold agglutinin titer.

RESULTS:

The study showed almost equal gender distribution (14 patients were male & 16 patients were female), with ratio of male: female equal to 1:1.1.

The most common symptoms were dry cough76.7%, headache (6.77%) &fever(70%). Other symptoms are less frequent. Seasonal variation showing more incidence during spring time. Radiological finding showed patchy infiltration in 18 patient (60%), lobar consolidation in 7 patient (23.3%), & pleural effusion in 4patient (13.3%).

CONCLUSION:

There is almost equal gender distribution between male & female.

The most common symptom was dry cough, headache, while fever is more common in old age groups than other age groups.

KEYWORDS: mycoplasma-pneumonia, cold agglutinin, radiological finding.

INTRODUCTION:

Mycoplasma pneumonia (a small cell walldeficient bacterium) is an important & treatable cause of community- Acquired & atypical pneumonia.⁽¹⁻³⁾ The Mycoplasma pneumonia organism is pleomorphic microorganism.⁽⁴⁾ At microscope analysis, these organisms assume variable forms that can resemble fungal filaments. The lack of a cell wall makes them insensitive to the usual antibiotics that are used other common therefore pneumonias: differentiation from bacterial pulmonary infections is vital to successful treatment. ⁽⁵⁾

Mycoplasma pneumoniae can mimic viral respiratory tract infection. Both clinically &radio graphically; unlike viruses, however, mycoplasma infection is responsive to antibiotics.

Mycoplasma pneumoniae is а common microorganism in respiratory tract pathogen that can lead to the development of phraryngitis, tracheobronchitis& pneumonia. Mycoplasma pneumoniae is the cause of 15 to 20 % of cases of community- Acquired pneumonia among older children & adults & has also has been implicated in a variety of respiratory tract infections. These cases tend to be relatively mild; however this pathogen can lead to sever, even fatal, cases of pneumonia⁽⁶⁾.

Therefore, the development of rapid, sensitive, & specific diagnostic technique is necessary. The laboratory diagnosis of *Mycoplasma pneumoniae* infection presently relies upon conventional serological methods. However, these methods provide only retrospective diagnosis & require paired resume sample to demonstrate a significant increase in antibody titer; in additions, false-negative results have frequently been reported for immune compromised hosts^(8,9).Recently

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developed PCR techniques show high specificity & sensitivity $^{(7,10,11,12)}$.

MATERIALS AND METHODS:

Our study started from 1st of November, 2003 till 30th of October, 2004 we recruited 30 patients, (14 males, 16 females) with mycoplasma pneumonia for which investigation was made to assess clinical status.

All patients of newly diagnosed mycoplasma pneumonia of Baghdad teaching hospital were studied & information collected from it were age, gender, residency clinical features, radiological finding, cold agglutinin test.

How to do cold agglutinin test technique:

Blood of patients put in incubator of $37C^{\circ}$ & centrifuge to separate serum from the clot, take blood group (O+ve) washed it by normal saline to get RBC washing, we took 10 tubes from 1 to 10.

1	2		3	4	5	6
	7	8	9		10	

First tube 3 drops serum patient + 3 drops of normal saline, the remaining tubes put only 3 drops from the 1^{st} tube &subsequently put in the

second tube, take 3 drops from 2^{nd} tube put in the 3^{rd} tube & take 3 drops from the 3^{rd} tube to put in 4^{th} tube is continue in this manner up to tube 10^{th} which is removed all drops not need. We obtain on 9 tubes which diluted from

1/4 1/8 1/16 1/32 1/641/128 1/256 1/512We put 3 drops from washed R.B.C. (O +ve) in each 9 tubes, put all tubes in 4C° for 24 hrs, we read it next day.

Statistical Analysis

• Frequency distribution for selected variable was done first.

The statistical significance of association between 2 categorical variables was assessed by chi-squire test.

P value less than 0.05 level of significant was considered statistically significant.

RESULTS:

Frequency distribution of the study sample by sociodemographic variables shows that among 30 patients with mycoplasma pneumonia 14 patients (46%) male & 16 patients (53%)females, make to female ratio 1:1.1.

Table 1: The relative frequency of selected clinical signs &symptoms in a sample of 30 cases with mycoplasma pneumonia stratified by age.

		Age	Р*						
	<20	20-29	30-	F				Total	
Positive signs & symptoms	(n=10)	(n=11)	(n=	90				(n=30)	
	Ν	%	Ν	%	Ν	%		Ν	%
Dry cough	8	80	8	72.2	7	77.8	0.92 [NS]	23	76.7
Headache	7	70	9	81.8	7	77.8	0.81[NS]	23	76.7
Fever	5	50	7	63.6	9	100	0.01	21	70
Dysponea/Shortness of Breath	4	40	8	72.7	5	55.6	0.31[NS]	17	56.7

 Table 2: The relative frequency of different CXR findings in a sample of 30 cases with mycoplasma pneumoniae stratified by age.

		А	ge in						
	<20	20-29		30)+		P*	Total	
CXR finding	N	%	N % N %					Ν	%
No abnormalities	0	0	1	9.1	0	0		1	3.3
Patchy infiltration	6	60	7	63.6	5	55.6	0.94[NS]	18	60
Lobar consolidation	3	30	0	0	4	44.4	0.02	7	23.3
Pleural effusion	1	10	3	27.3	0	0	0.12[NS]	4	13.3
Total	10	100	11 100 9 100			30	100		

Table 3: The rate of unilateral & bilateral lesions stratified by type of CXR finding in a sample of 30 cases with mycoplasma pneumoniae.

	Lateralization								
	Unilateral (Rt side)		Unilateral (Lt side)		Bilateral		Total		
CXR finding	Ν	%	Ν	%	Ν	%	P*	Ν	%
Patchy infiltration	2	11.1	2	11.1	14	77.8	0.001	18	100
Lobar consolidation	1	16.7	4	66.7	1	16.7	0.03	6	100
Pleural effusion	3	75	1	25	0	0	0.01	4	100

 Table 4 : The difference in median cold agglutinin titer (Dilutions) between the 3 age group was significantly lower in young age group. (1/64) compared to older age group.(1/128).

	Age in years							
	<20	20-29	30+		Total			
Cold agglutinin	N	%	Ν	%	Ν	%	Ν	%
titer (dilutions)								
1/64	8	80	1	9.1	4	44.4	13	43.3
1/128	0	0	5	45.5	4	44.4	9	30
1/256	0	0	3	27.3	0	0	3	10
1/512	2	20	2	18.2	1	11.1	5	16.7
Total	10	100	11	100	9	100	30	100
Median	1/64		1/128		1/128		1/128	

DISCUSSION:

In this study, 30 patients were showing almost equal sex distribution (14 patients were male & 16 patients were female) & male: female equal 1:1.1.\ Though Loens, K., et al showed that the incidence is higher in male than female $^{(13)}$.

The most common symptoms were dry cough in 23 patients (76.7%), & headache in 23 patients (76.7%), while fever was found in 21 patients (70%) All older age groups (thirty year and above) had fever, this is inaggreemen with study study done by Clyde, et al. showing that most of the patients either have Low grad fever (less than 38.5 c^0) or have no fever at all⁽¹⁴⁾.Other symptoms were less frequent like shortness of breath in 17 patients (56.7%),chest pain in 3 patients (10%), & productive cough in 1 patient (3.3%) while the signs were found include fever in 21 patients (70%) table 1.

None of the patients in the present study showed any hemoptysis, or rhonchi, while bronchial breathing were found in 7 cases and sign of pleural effusion in 4 cases.(Table1)

Regarding radiological assessment the study showed that bilateral lung affection was more frequently observed in CXR as diffused lesion, were as unilateral affection was more frequently observed in the middle & lower zone (Table 2). The highest proportion of CXR finding bilateral in 15 patient (53.6%). There was a study done by Cameron DC, et al showed that radiological findings in mycoplasma pneumonia are a variable. $^{(15)}$

Age of the patients showed no significant difference regarding being bilateral or unilateral (Table3).

Patchy infiltration was significantly more observed as bilateral lesion while lobar consolidation was significantly more frequency reported as a left unilateral lesion. (Table3).

Again the study showed that Lobar consolidation was more frequent in the older patients (more than 30 years), & younger patients, (less than 20 years), while this was not observed in patients at their 20s, this difference was statistically early significant. The difference at patchy infiltration on CXR in all age groups was not statistically significant. There was a study done by Cameron DC, et al showed that radiological findings in mycoplasma pneumonia are a variable, & in some cases they closely resemble to this in children with viral infection of the lower respiratory tract, although none of the finding are specific, reticulnodolar opacification confined to a single lobe seems be more closely associated with mycoplasma infection than with other type of respiratory illness (15).

Our study showed no obvious Lung infiltration in one patient & the only evidence radiological was

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mild pleural effusion. Again the study showed 4 (patients) (13.3%) have mild pleural effusion (table 3).

Regarding cold agglutinin titer, the study showed that the titer of 1/64 was found in 13 patients, the titer of 1/128 in patients, the titer of 1/256in 3 patients, & a titer of 1/512 in 5 patients. The difference in median cold agglutinin titer (Dilutions) between the 3 age group was significantly lower in young group (1/164) compared to older age group (1/128). We are not able to do another cold agglutinin test because patients left the hospital that made us unable to follow up the majority of cases. (Table4). It is well known that cold agglutinin there is not a sensitive test. Other studies showed variable positivity of the cold agglutinin.⁽¹⁶⁾.

CONCLUSION:

1-There is almost equal gender distribution between male & female.

- 2-The most common symptom was dry cough, headache, while fever is more common in old age groups than other age groups.
- 3-Radiologicaly, there is variable finding in all age group & commonest finding was patchy infiltration of the lung.
- 4-The median cold agglutinin titer was significantly lower in young age group (titer of 1/1640 compared to older age group (titer of 1/128).

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