Study on Etiological Profile of Lower Zone Pneumonitis in Patients Attending to the Department of Pulmonary Medicine in Santhiram Medical College and General Hospital, Nandyal

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ABSTRACT

Introduction: Lower zone involvement on chest radiography may be the presentation in cases of a Variety of pneumonias. The aim of our study is to find out the various etiological causesof the lower zone pneumonitis in the patients attending to the department of pulmonary medicine, santhiram medical college and general hospital, Nandyal.

Materials and Methods: All the patients with lower zone pneumonitis attending to the department of pulmonary medicine from january-2014 are included in the study. Patients are subjected toSputum for AFB examination, Sputum for culture and sensitivity, Sputum for KOH mount, Sputum for malignant cytology, Endo-bronchial washing and Bronchial brushings/biopsy

Results: In present study 5% patients have Interstitial lung disease, 31% patients have Tuberculosis, 47% have CAP, 9% Have Bronchiectasis, 4% have Malignancies 2% have fungal infections and remaining 2% have Tropical Pulmonary Eosinophilia.

Conclusion: Community acquired pneumonia is the commonest cause for lower zone pneumonitis patients followed by tuberculosis. In diabetic patients also CAP is the commonest cause for lower zone pneumonitis.

Keywords: Lower zone Pneumonitis, CAP, Tuberculosis

INTRODUCTION

Lower zone involvement on chest radiography may be the presentation in cases of a Variety of pneumonias. The presentation of bronchiectasis is patchy shadowing, usually in the lower zones and so is the location of pulmonary hydatid cysts. Many a time, lung cancer may present in lower zones, most commonly as multiple nodules

Due to secondaries. In cases of lymphangiticcarcinomatosis, the shadows are more obvious in the lower zones as multiple small nodular or linear lesions. Certain diseases like sarcoidosis,pneumoconiosis and progressive massive fibrosis

Produce diffuse radiological shadows. Such shadows may also be seen in advanced interstitial fibrosis, drug reactions, acute allergic alveolitis and fat embolism.[1,2]

We have tried to study in detail the diseases which may present as bilateral lower zone lungshadows and to compare the initial diagnosis suspected on the basis of clinical and radiologicalfindings with the finalclinico-pathological diagnosis.[1]

MATERIAL AND METHODS

100 patients attended to the department of pulmonary medicine, Santhiram Medical College and General Hospital, Nandyal were studied. All the patients with lower zone pneumonitis attending to the department of pulmonary medicine from january-2014 are included in the study. A detailed clinical history and a thorough examination was conducted. Routine haematologicalinvestigations, Renal Function Tests, chest X-ray and CT Thorax were performed. Sputum for AFB by Z-N staining, pyogenic organisms by Gram'sstaining, and cytopathological examination was performed along with culture for *Mycobacteriumtuberculosis* and pyogenic organisms. Similarly, if needed. Finally, specimen collected by fibreoptic bronchoscopy were smeared and subjected H and E staining.

Patients were subjected to

A Sputum for AFB examination.
B Sputum for culture and sensitivity.
C Sputum for KOH mount.
D Sputum for malignant cytology.
E Endo-bronchial washing.
F Bronchial brushings/biopsy.

Paediatric age group, patients with co-existing upper zone involvement and patients with congestive cardiac failure and pulmonary edema are excluded in our study

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RESULTS

The age of patients ranged from 21 years to 80 years with a mean age of 47.67 Years (Figure No 1 and Table No 1).
Cough was the most common presenting complaint in 88% of cases, followed by dyspnea in 76%, Fever in 73%, expectoration in 42% and chest pain in 28% cases.
On examination crepitation's was the predominant finding in 46% cases followed by clubbing in 12% cases. (Figure No 2)
Diabetes was the most common associated medical condition (38% cases), 2% cases had deranged renal functions.
Consolidation was the most common radiographic feature 65% cases followed by nodular shadows in 15% cases, bronchiectatic changes in 10% cases and mass lesions in 4% cases.
Suspected clinical diagnosis were made in all the cases. 6 cases (6%) were diagnosed as sputum positive for acid fast bacilli and 3 cases (3%) diagnosed as Retro-viral and all 3 cases (3%) were diagnosed as Tuberculosis. Community acquired pneumonia was the most common final diagnosis in our study.
Present in 47 cases (47%) out of which 45 cases had an infectious etiology and aspiration pneumonia was diagnosed in 2 cases. Streptococcus Pneumoniae was the commonest organism isolated in 25% cases followed by KlebsiellaPneumoniae in 10% cases, Pseudomonas in 8% cases, Staphylococcus aureus in 2 % cases and mixed organism in 2% cases. Tuberculosis was the next common final diagnosis, in 31 cases (31% of total) out of which 6 cases were diagnosed by sputum for AFB and remaining 25 cases were diagnosed with the help of Fibre-Optic Bronchoscopy. Bronchial Washings for AFB was positive in 25 cases. All the 9 Cases (9%) initially suspected as bronchiectasis had a final diagnosis of bronchiectasis. In 4 Cases CT thorax was confirmatory while the remaining 5 showed characteristic changes of bronchiectasis on chest X-ray.
5 cases (5%) had diagnosis of interstitial lung disease and all the cases had increased neutrophils and eosinophils on BAL fluid. 4 cases (4%) were diagnosed to be malignant, 1 case was adenocarcinoma, 2 cases were squamous cell carcinoma and 1 case was small cell carcinoma. Two cases (2%) suspected tropical pulmonary eosinophilia had their diagnosis confirmed on the basis of increased eosinophils on bronchial lavage fluid examination.
Two cases (2%) were diagnosed as pulmonary candidiasis on the basis of broncho alveolar lavage fluid highly positive for growth of candida. In the Present study Out of 100 Patients 13% falls in 21-40 Years age group, 67% falls in 41-60 Years Age group and rest (20%) falls in above 60 years of age group. In the Present Study 64 % patients were Male and remaining 36% were Females. In present study 5% patients have Interstitial lung disease, 31% patients have Tuberculosis, 47% have CAP, 9% Have Bronchiectasis, 4% have Malignancies 2% have fungal infections and remaining 2% have Tropical Pulmonary Eosinophilia (Table No 2). Most common symptoms/signs were Cough, Fever, Crepitation's and Expectoration.

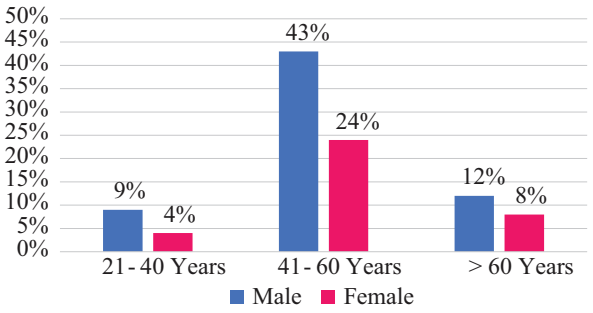

Figure-1: Distribution of Patients according to Age and Sex

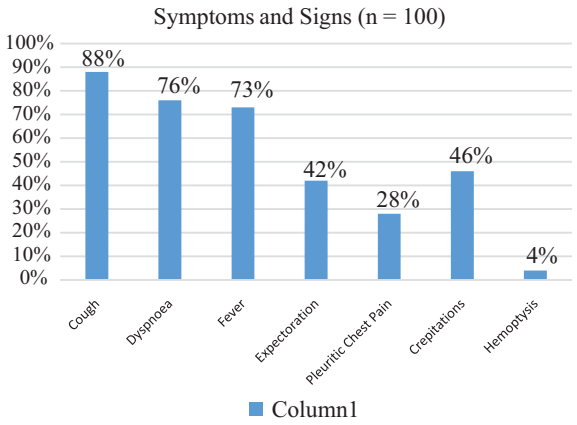

Figure-2: Symptoms and Signs of disease

			Sex		Total
			Male	Female	
Age	21-40 Years	Count	9	4	13
		% within Age	69.2%	30.8%	100.0%
		% of Total	9.0%	4.0%	13.0%
	41-60 Years	Count	43	24	67
		% within Age	64.2%	35.8%	100.0%
		% of Total	43.0%	24.0%	67.0%
	>60 Years	Count	12	8	20
		% within Age	60.0%	40.0%	100.0%
		% of Total	12.0%	8.0%	20.0%
Total		Count	64	36	100
		% within Age	64.0%	36.0%	100.0%
		% of Total	64.0%	36.0%	100.0%

Table-1: Distribution of Patients according to Age and Sex

DISCUSSION

In our study out of 100 patients 64% patients were males and 36% patients were females.The mean age in our study was 47.67 years.In a study conducted by RanaSherwani et al[1] mean age was 44.5 years.
In our study the most common symptom was cough (88%) followed by dyspnea (76%), fever (73%), Cough with expectoration was seen in (42%) and pleuritic chest pain in 28% cases. On examination clubbing was seen in 12% cases and crepitations in 46% of our patients.In a study conducted by RanaSherwani et al[1] cough was the most common presenting complaint in 78.5% cases followed by dyspnea in 73.2%, cough with expectoration in 69.6%, fever in 62.5% cases and

		Age			Total
		21-40 Years	41-60 Years	>60 Years	
Interstitial Lung Disease	Count	0	1	4	5
	% within Final Diagnosis	0.0%	20.0%	80.0%	100.0%
Tuberculosis	Count	4	18	9	31
	% within Final Diagnosis	12.9%	58.1%	29.0%	100.0%
CAP	Count	9	37	1	47
	% within Final Diagnosis	19.1%	78.7%	2.1%	100.0%
Fungal Infections	Count	0	1	1	2
	% within Final Diagnosis	0.0%	50.0%	50.0%	100.0%
Bronchiesctasis	Count	0	7	2	9
	% within Final Diagnosis	0.0%	77.8%	22.2%	100.0%
Malignancy	Count	0	1	3	4
	% within Final Diagnosis	0.0%	25.0%	75.0%	100.0%
Tropical Pulmonary Eosinophilia	Count	0	2	0	2
	% within Final Diagnosis	0.0%	100.0%	0.0%	100.0%
	Count	13	67	20	100
	% within Final Diagnosis	13.0%	67.0%	20.0%	100.0%

Table-2: Distribution of Patients according to their Diagnosis

chest pain in 37.5% cases.On examination crepitations was predominant finding in 57.5% cases followed by clubbing in 19.6% cases.In a study conducted by Bilal Bin Abdullah et al[2] cough was the most common presenting complaint in 74% cases followed by cough with expectoration in 64%, fever in 56% cases, dyspnea in 22%, and chest pain in 20% cases.On examination crepitations was predominant finding in 94% cases followed by clubbing in 4% cases. In our study out of 47 Patients (100%) diagnosed as community acquired pneumonia 30 patients (63.8%) were males and 17 (36.2%) patients were females.In a study conducted by Bilal Bin Abdullah et al[2] 70% patients were males and remaining 30% cases were females.

47 patients out of 100 patients in our study was diagnosed as community acquired pneumonia affected the lower zone. In our Study out of 47 cases (100%) most common organism causing community acquired pneumonia is Streptococcus pneumonia (53.2%) followed by klebsiellapneumoniae (21.3%), pseudomonas aeruginosa (17%), and staphylococcus aureus (4.25%).

In a study conducted by Vishak k acharya et al[3] on community acquired pneumonia most common organism casing was streptococcus pneumonia (31%) followed by pseudomonas aeruginosa (15%), Klebsiella pneumonia (13%), and Staphylococcus aureus (8%).In a study conducted by Vinay et al[4] oncommunity acquired pneumonia Most common organism casing was Streptococcus pneumonia (28%) followed by klebsiellapneumoniae (26.2%), pseudomonas aeruginosa (12.3%) and staphylococcus aureus (20%).In a study conducted by Bilal bin Abdullah et al[2] on community acquired pneumonia, most common organism casing was Streptococcus pneumonia (16%) followed by klebsiellapneumoniae (6%), pseudomonas aeruginosa (4%) and staphylococcus aureus (2%).In a study conducted by Bansal et al[5] on community acquired pneumonia, most common organism casing was Streptococcus pneumonia (35.8%) followed by klebsiellapneumoniae (22%), pseudomonas aeruginosa (9.4%), and staphylococcus aureus (17%).In a study conducted by Bomagiriraj et al[6] on community acquired pneumonia, most common organism casing was Streptococcus pneumonia (30.43%) followed by klebsiellapneumoniae (13%), pseudomonas aeruginosa (28.3%) and staphylococcus aureus (4.35%).In a study conducted by Kejriwal et al[7] on community acquired pneumonia, most common organism casing was Streptococcus pneumonia (48%) followed by klebsiellapneumoniae (1.3%), pseudomonas aeruginosa (11.1%) and staphylococcus aureus (3.3%).In a study conducted by W S Lim et al[8] on community acquired pneumonia, most common organism casing was Streptococcus pneumonia (56%) followed by klebsiellapneumoniae (13%), pseudomonas aeruginosa (11%) and staphylococcus aureus (3%).In a study conducted by Bashir ahmed et al[9] out of 100 patients with Community acquired pneumonia Gram –ve organism was commonest (19%), Gram +ve organism (10%) and 71%cases had no etiological cause.

Out of 31 Cases (100%) diagnosed as tuberculosis, 19 patients (61.3%) are males and 12 patients (38.7%) are females. Out of 31 cases (100%) diagnosed as tuberculosis, 16 cases (51.6%) have diabetes mellitus and 3 cases (11.3%) are retro-viral. In a study conducted by RanaSherwani et al[1] on lower zone pneumonitis Tuberculosis was most common diagnosis, 25% cases with bilateral lower zone shadows were diagnosed as tuberculosis. In our study out of 31 cases (100%) Bronchial alveolar lavage positive for AFB is 74% and sputum positive for AFB is 26%.In a study conducted by Chandrasekhar et al[10] Bronchial alveolar lavage positive for AFB was 15% and sputum positive for AFB was 63%.

In our study out of 100 patients, 9 cases are diagnosed as having bronchiectasis, Out of 9 cases (100%), 4 cases (44.44%) are diagnosed as bronchiectasis by CT THORAX and remaining 5 cases (55.55%) are diagnosed as bronchiectasis by characteristic changes of bronchiectasis on chest X-ray.In

a study conducted by Ranasharwani et al[1] 8.9% cases were diagnosed as having Bronchiectasis.

In our study out of 100 patients 4% (4 cases) having malignancy. Out of 4 cases 1 case is diagnosed as adenocarcinoma, 2 cases are diagnosed as Squamous cell carcinoma and 1 case is diagnosed as small cell carcinoma.In a study conducted by Ranasherwani et al[1] on bilateral lower zone shadows, out of 56 patients 9 % cases were diagnosed as malignancy and most common type was broncho alveolar carcinoma.

In this study out of 100 patients 5 (5%) cases were diagnosed as having interstitial lung disease. In all these 5 patients Sputum and FOB analysis were negative for AFB, Bacterial and Fungal culture.Diagnosis is done based on HR CT Thorax findings and Restrictive pattern on spirometry (Helios 401). In a study conducted by Rana Sherwani et al[1] 7.14% cases were diagnosed as interstitial lung disease, all the cases had increased neutrophils and eosinophils on BAL fluid Examination.

In our study out of 100 patients 2 cases are diagnosed as fungal infections, In this 2 patients Sputum is negative for AFB staining and no bacterial growth on sputum culture, BAL was negative for AFB staining and no bacterial growth on BAL culture and BAL is Positive for candida species.In a study conducted by Rana sherwani et al[1], 1 case (1.78%) out of 56 patients (100%) was diagnosed as having pulmonary candidiasis.

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