

CLINICAL PROFILE OF INTERSTITIAL LUNG DISEASES CASES

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ABSTRACT

Background: There are very few studies are done on interstitial lung diseases (ILD) in India.

Methods: We conducted a retrospective study of 30 patients of high resolution computed tomography (HRCT) proven interstitial lung diseases in tertiary care centre.

Results: Most common etiological causes of ILD were occupational (46.62%), Rheumatoid Arthritis (13.32%), and idiopathic pulmonary fibrosis (33.33 %). Majority were in age group 40-49 years (mean age-45.23 years) and 66.5% male patients. Common symptoms were breathlessness on exertion (100%), dry cough (43.29%), anorexia (50%) and joint pain (16.65%). Clubbing and bilateral crepitations were present in 50% and 63.27% of patients respectively. X- ray chest showed reticulo-nodular pattern (60%). Restrictive pattern (96.57%) was present in majority patients in spirometry.

Conclusion: Availability of non-invasive investigations like HRCT chest has increased our early recognitions of ILDs. Association of ILD in patients with autoimmune diseases must be ruled out.

Key words: Interstitial lung disease, spirometry, idiopathic pulmonary fibrosis

INTRODUCTION

Common clinical, radiological and pathophysiological features form the basis collectively referring to a complex group of disorders as the interstitial lung diseases ¹. The prominent feature in interstitial lung diseases is fibrosis in the interstitium, which produces derangement of alveolar architecture and loss of functional alveolar capillary units. More than 150 known factors are associated with interstitial lung diseases. Diagnosis can be made by the combination of clinical and roentgenographic features and pulmonary function tests. Histopathological confirmation of the diagnosis is not required in most of the cases. There has been a resurgence of interest in the study of these disorders chiefly on account of the availability of less invasive methods. Development of high resolution computed tomography and availability of video-assisted thoracoscopic lung biopsy has added to our diagnostic strategies. Unfortunately effective therapy remains elusive leaving the patient and clinician frustrated as the diseases typically progresses and complications develop

from frequent ineffective, non-specific immunosuppressive therapy. There are very few studies are done on interstitial lung diseases. The present study was therefore planned to analyze the spectrum of ILDs. Our aim of the study was to find out common presentations, signs, X ray findings, spirometry patterns and common etiology of interstitial lung diseases.

MATERIALS AND METHODS

A study of total 30 patients was done. This was a retrospective, observational, epidemiological study. Patients initially suspected to have Interstitial Lung Diseases, undergo high resolution computed tomography (HRCT) chest. Patients who were confirmed by HRCT² to have ILDs were included in this study. Careful history, general and systemic examination was done followed by complete hemogram, chest radiography, HRCT chest and spirometry in all cases. Pulmonary function tests were performed on computerized spirometer, through Kit

Microsystems. Sputum examinations including routine microscopy, AFB, gram stain, culture and sensitivity were carried out in patient with history of productive cough. HRCT of chest, immunological tests like ANA, anti-ds DNA were also done in all patients.

RESULTS

The mean age of the patients was 43.57 years. In our study 66.5% male patients, while 33.5% were female patients. Most of patients present with breathlessness on exertion (100%) and cough was usually dry (43.29%) in nature. Dyspnoea in interstitial lung diseases is believed to be due to altered mechanics of breathing involving increased work of ventilation. Cough may be due to that cough receptors in the lung are sensitive not only to mucosal and pleural stimuli, but also changes in the mechanism of lung expansion. Anorexia and weight loss was found in 50% and 33.33% patients respectively. It may be due to chronic hypoxia and its effect on metabolism. Fever was present in a small number (13.32%) of patients. It may be due to associated infection. Skin lesion (6.66%) and joint pain (16.65%) was found mainly in collagen diseases.

All patients usually presented before 5 years of duration of illness. Major group of patients (33.33%) presented between 1-3 years duration of illness. Patients presented less than 6 months or between 6-12 months duration were same (23.31%)

Half of patients (46.62%) give history of dust exposure, which was occupational related. Collagen diseases associated with interstitial lung diseases were found in 19.98% patients. Remaining idiopathic group (33.33%) in which specific etiology related to interstitial lung diseases was not found.

Clubbing was found in half of patients. Pallor was found in 33.30% of cases and it may be due to associated anorexia that leads to nutritional deficiency. Skin lesions found in 2 patients, one was found a case of systemic lupus erythematosus and second was scleroderma.

In respiratory system examination 63.27% cases had bilateral crepitation, which was dry and inspiratory. It might be produced by fluid accumulation in the very small air passages, where drainage was hampered by peribronchial and interstitial fibrosis. Other findings were harsh breathing (6.66%) and rhonchi (3.33%)

In all 30 patients hemogram, renal function tests, liver function tests were done. Renal function tests were normal in all patients. Hemoglobin less than 10% was found in 36.63% and white blood cells more than 11,000/cmm in 6.66% of cases. Leucocytosis may be due to associated infections. Elevated ESR was found mainly in collagen disease group but also in some idiopathic group patients have elevated ESR.

Majority of patients shows reticular (16.65%) or reticulonodular (60%) patterns on chest X-ray. Ground

glass (10%) and honey-combing (13.32%) founds in small number of patients. These finding may be related that most patients are referred after alveolitis stage (ground glass appearance) and before honey combing appearance found on lungs.

HRCT of chest was carried out in all cases. A confirmed diagnosis of ILDs² made with HRCT chest is based on presence of bilateral, predominantly basal, predominantly subpleural, reticular pattern associated with subpleural cysts (honey-combing) and/or traction bronchiectasis. Consolidation & nodules are absent. When all these radiological changes are present, diagnosis is correct in more than 90% of cases². HRCT chest confirmed interstitial lung diseases in all cases but no additional information available particularly regarding etiology.

Spirometry was done in all 30 patients. In most of patients FVC% of predicted was decreased and in 60% cases below 60% of predicted FVC. FEV1/ FVC ratio was normal and or increased in all cases except 1 case. Decrease in FVC was due to more stiffness of lungs due to fibrosis and resistance to inflation.

DISCUSSION

In present study peak incidence was found between 40-49 years age group and then 30-39 years age group. Jindal et al study³ also correlate with this study with peak incidence between 30 to 59 years. Male and female incidence was 42.4% and 57.4% in Jindal et al study, while in present study 66.50% male and 33.50% female patients found. As there were more female patients in Jindal et al study, collagen vascular disease group is more (50.8%) compared to present study (20%). In Mahashur et al study⁴ out of 161 cases 86 was male and 75 were female. 10% were below 25 years of age and 46% were at least 45 years of age. In M. Turner et al⁵ study, 66.8% male patients and 32.2% female patients were found. These findings are closely resembled to present study and male predominance raises possibility of occupational factor in etiology.

Dyspnoea was present in 100% cases in present study which is similar to Jindal et al³, Mahasur et al⁴ and J. Fulmer et al⁶ and closely resemble (92%) in M. Turner et al study. Cough was found in 63.29% cases in present study, which correlate with Jindal et al study (65.6%). Cough was usually dry. In other study slight more incidence of cough (Mahasur at al-82%, M. Turner et al-73%, J. Fulmer at al-86%). Clubbing was found in 50% cases in present study that closely resembles Mahasur et al and Jindal et al study. Bilateral creps were present in 63.27% which resemble's J. Flumer et al study, but in other studies by Jindal et al, Mahasur et al high incidence of creps.

Joint pain was present in 16.65% cases that closely resemble M. Turner et al study (21%). In Jindal et al study, more cases of joint pain found which was due to more cases of collagen disease in Jindal et al study. In present study patient present with 1-3 years duration

(33.33%) but many patients also present below 1 year (23.31%) or above 3 year duration (20%). Comparison with Jindal et al study shows similar results. Mahasur et al⁴ had find that duration of illness was up to 1 year in 30%, 1-2 year in 18%, 3-5 year in 24% and beyond 5 year in 28%.

Incidence of anemia of present study (36.63%) closely resemble to Jindal et al(39.30%) study. As compared to present study (6.66%) slight more incidence of leucocytosis was found in Jindal et al(14.70%) study. Rheumatoid factor was positive in 16.65% cases as compared to Jindal et al study (8.4%) and M. Turner et al study (19%) cases have Rheumatoid factor positive.

Honey combing appearance in present study was 13.32% that resemble to Johnston et al⁷ study (15.10%). Incidence of Reticular & Reticulonodular patterns were 76.65% in present study as compared to 51% in Johnston et al study. Slight less percentage of cases in Johnston et al may be because of that in present study selection of patient done mainly on typical X ray chest finding while Johnston et al study patient with normal and ill defined opacities on chest X ray also included. Majority of patients have FVC% of predicted between 30-59% in present study and in Mahashur et al studies. In Mahashur et al study, FVC% of predicted below 30% was found in 27% as compared to 10% in present study, which may be related to early refers or early diagnoses of interstitial lung diseases due to more advance in non-invasive investigation of interstitial lung diseases. FEV1/FVC ratio was more than 60% in most cases in present study (96.57%) and also in Mahashur et al studies (94%). Mean FVC (% of predicted) was 53.28% in present study and closely resemble to Jindal et al (60.90%) study. FEV1/FVC % was normal or increased in both studies.

CONCLUSIONS

Our study suggests that interstitial lung diseases are not uncommon in India. Interstitial lung disease must be suspect with specific symptoms, signs and further investigations like chest X-ray, HRCT chest and blood investigations should be done. Detailed occupational history, family history and drug history should be taken and specific tests must be done to rule out autoimmune diseases which may be culprit for this disease. A good clinician can make accurate diagnosis of Interstitial pulmonary fibrosis without a surgical lung biopsy and with a high specificity (>90%)^{8,9} following detailed

clinical assessment. Larger clinical studies also require to establish the true incidence and spectrum of diseases. Increased awareness would serve to provide early diagnosis and this may impact on high mortality rate of this disease.

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