Original Research Paper

Volume - 13 | Issue - 03 | March - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Respiratory Medicine

SPECTRUM OF INTERSTITIAL LUNG DISEASE BASED ON CLINICO-RADIOLOGICAL PROFILE AT A TERTIARY CARE CENTRE IN EAST GODAVARI

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ABSTRACT **Introduction:** Interstitial lung diseases (ILDs) or Diffuse parenchymal lung diseases (DPLDs) are a heterogeneous group which includes more than 200 disorders grouped together because of their similar clinical, radiological, pathological and physiological features.Based on HRCT patterns and clinical findings ILDs are classified.Studies shows about 14% of all interstitial lung diseases cases in India are idiopathic pulmonary fibrosis and an equal number of cases are due to connective tissue disorders. Materials and Methods:This study was hospital based descriptive study conducted at Respiratory Medicine Department in GSL Medical College and General Hospital in East Godavari, India. Results: The most common type of ILD was IPF (Idiopathic Pulmonary Fibrosis) 33.3%, followed by hypersensitivity pneumonitis (HP) 23.4%, Connective tissue disorder-ILD consisting of 20%, Non –specific interstitial pattern was present in 13.3%, silicosis in 6.6%, and Langerhans cell histiocytosis(LCH) was present in 1(3.4%) patient. Conclusion: Idiopathic pulmonary fibrosis was the most common type of ILD, UIP pattern is more predominant pattern.

KEYWORDS : INTERSTITIAL LUNG DISEASE(ILD), HRCT, IDIOPATHIC PULMONARY FIBROSIS(IPF), USUAL INTERSTITIAL PNEUMONIA(UIP)

INTRODUCTION

Interstitial lung diseases (ILDs) or Diffuse parenchymal lung diseases (DPLDs) are a heterogeneous group which includes more than 200 disorders grouped together because of their similar clinical, radiological, pathological and physiological features[1].

The part of the lung most commonly affected in ILD is the interstitium. Sometimes airways, vessels and pleura are also affected. Most of he ILDs are of unknown etiology[2].Diagnosis of ILD specifically IPF requires Multidisciplinary Discussion among clinician, pulmonologist, radiologist and pathologist[3].In India very less data is available on ILD.

The most commonly used initial modality to detect lung pathology is a chest radiograph. In ILD cases chest radiograph shows patterns like reticular, nodular and reticulo-nodular. But in about 10-20 % of cases chest radiographs will be normal. Hence, High resolution computed tomography of the chest helps in early diagnosis of ILD, classification and management accordingly.

Based on HRCT patterns and clinical findings ILDs are classified into ILDs of known cause, Idiopathic pulmonary fibrosis, hypersensitivity pneumonitis, Non-specific interstitial pneumonia, connective tissue disease associated ILD and other rare ILDs.

Studies shows about 14% of all interstitial lung diseases cases in India are idiopathic pulmonary fibrosis and an equal number of cases are due to connective tissue disorders. The majority of Indians are known to develop hypersensitivity pneumonitis because of environmental dust exposure[4].

The current study was conducted to analyse the spectrum of Interstitial lung diseases in our patients.

MATERIALS AND METHODS

This study was hospital based descriptive study conducted at Respiratory Medicine Department in GSL Medical College and General Hospital in East Godavari, India.

The sample size of this study is 30. Details like age, occupation, clinical symptoms and signs, radiological features, and immunological parameters were considered and a diagnosis of a subtype of ILD was made. The institutes Ethical Committee approval was taken and written informed consent was obtained from the study subjects. Patients greater than 18 years of age and who were suspected to have ILD based on history with regards to risk factors like drug and occupational or environmental exposures, predisposing connective tissue diseases and based on clinical examination and chest x-ray were subjected to serological tests for autoimmune diseases and HRCT thorax.

After taking opinion of radiologist the patients who showed features suggestive of ILD on HRCT thorax were included in the study. Spirometry were performed in patients.

The patients who were diagnosed with malignancy or suspected to have any other active respiratory infections like tuberculosis and COVID-19 were excluded. Post COVID-19 ILD patients were also excluded.

RESULTS:

Among 30 patients, 54% were above the age of 45 years. In our study 46.6% were male and 63.4% were female. The most common symptom of the presentation was breathlessness followed by cough. 23.3% were smokers in our study. The most common type of HRCT findings was interstitial septal thickening (43.3%) followed by honeycombing (40%). The most common HRCT pattern was usual interstitial pneumonia pattern (56.7%) and non-specific interstitial pneumonia was present in 43.3%. In our study 14 (46.6%) patients were having lower lobe predominance on HRCT scan, 10 (33.3%) patients were having diffuse involvement, and the remaining were having upper lobe predominance.

Normal spirometry was found in 4 patients, restrictive pattern was found in 21 patients, obstructive pattern in 1 patient, and the remaining were having mixed pattern.

The most common type of ILD was IPF (Idiopathic Pulmonary Fibrosis) 33.3%, followed by hypersensitivity pneumonitis (HP) 23.4%, Connective tissue disorder-ILD consisting of 20%, Non –specific interstitial pattern was present in 13.3%, silicosis in 6.6%, and Langerhans cell histiocytosis(LCH) was present in 1(3.4%) patient.

TABLE 1: Clinical profile, Radiological profile, and physiological profile of interstitial lung disease patients attending a tertiary care centre, East Godavari

Characteristic	Value
Age, years	50
Women	63.4%
Symptoms and sign	
Breathlessness	22 (73.3)
Cough	18 (60)
Joint pains	10 (33.3)
Skin tightening	5 (16.6)
Skin pigmentation	4 (13.3)
Raynaud's phenomenon	1 (3.4)
Smokers	7 (23.3)
Area of residence	
Rural	13 (43.3)
Urban	17 (56.7)
Occupational exposure	
Yes	7 (23.4)
No	23 (76.6)
Abnormalities on HRCT of the chest	
Interstitial Septal Thickening	13 (43.3)
Reticular thickening	8 (26.6)
Nodular thickening	9 (30)
Ground glass opacities	10 (33.3)
Honeycombing	12 (40)
Traction bronchiectasis	9 (30)
Cysts	1 (3.4)
Distribution of abnormalities on HRCT of the chest	
Upper/middle lobe predominant	6 (20)
Lower lobe predominant	14 (46.6)
Diffuse	10 (33.3)
Spirometry	
Normal	4 (13.3)
Obstructive pattern	1 (3.4)
Restrictive pattern	21 (70)
Mixed pattern	4 (13.3)

TABLE 2: Type of interstitial lung disease patients attending a tertiary care centre, East Godavari

TYPE OF ILD	FREQUENCY
IPF	10 (33.3)
NSIP	4 (13.3)
CT-ILD	6 (20)
HP	7 (23.4)
SILICOSIS	2 (6.6)
LCH	1 (3.4)

DISCUSSION:

This was a hospital-based descriptive study conducted to find out the spectrum of different ILD cases based on clinico-radiological profile. The mean age was 50 years which is similar to study conducted by Tiyas sen et al., Adesh k et al[5,6].

Female were 63.4% in our study. Many studies also showed female predominance like Indian ILD registry, Deependra kumar Das et al. Some studies showed male predominance also in which Idiopathic pulmonary fibrosis was common. In most of the studies where female predominance was common CT-ILD was common[7].

The most common symptom in our study was dyspnoea followed by cough. Other findings like joint pains, skin lesions, and skin tightening were suggestive of CT-ILD which are later confirmed by ANA blot and collagen profile. Aswanthy et al. conducted a study which showed similar results to our study[8].

The most common HRCT finding in our study was interstitial septal thickening 43.3%, followed by honeycombing and ground glass opacities. Similar observations were observed in the studies done by Ashok K et al (Ahmedabad in 2012), Mitra et al (West Bengal in 2014), Adesh k et al [6,9].

In our study UIP pattern was observed more than the NSIP pattern, the predominance of the UIP pattern may be due to more number of IPF cases in our study.

The most common type of ILD in our study was IPF (33.3%), HP (23.1%), CT-ILD (20%), NSIP (13.3%), Silicosis (6.6%), and LCH (3.4%).

Similar results were observed in many other studies. Yan et al. conducted a study in China which showed IPF was more common followed by CT-ILD[10].

Mitra et al. conducted a study in West Bengal among 92 subjects and observed that IPF was common followed by CT-ILD.

Many other showed CT-ILD as most common type of ILD.

In our study hypersensitive pneumonitis was common than CT-ILD may be due the area where we conducted the study the people were more of agricultural workers and had exposure history.

The final diagnosis of ILD was made by clinical history, examination, HRCT findings, collagen profile, Anti-nuclear antibody blot in cases where CT-ILD was suspected.

LIMITATIONS:

- Sample size is very small.
- Lung biopsy which is gold standard for diagnosis of ILD could not be done.

CONCLUSION:

Idiopathic pulmonary fibrosis was the most common type of ILD, UIP pattern is more predominant pattern. HRCT is a non- invasive method for the diagnosis of ILD, determines the pattern, distribution and extent of the disease. Thus taking proper history, examination, HRCT scan we can diagnosis ILD early and help in the management.

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