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Original Research

Epidemiology of Interstitial Lung Disease in Tertiary Care Centre of Central India

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***ABSTRACT*:**

Background: A diagnosis of an ILD primarily relies on a combination of clinical & pathological criteria of numerous factors, such as environmental & occupational exposures, infections, drugs, radiation & genetic predisposition have been concerned in the pathogenesis of these conditions. Asbestosis & other pneumoconiosis & smoking-related ILD are particularly associated to inhalational exposure of environmental agents. Significant progress has been made in recent years in understanding the epidemiology of interstitial lung diseases (ILD) across the world, but the amount of information available is still small compared to other respiratory diseases. **Method:** Data were collected from Bronchoscopy unit records over that period, which means we included only patients who required a bronchoscopic procedure in order to make a diagnosis, regardless of DPLD classification. **Result:** A history of relevant occupational or environmental exposure was documented in 25 patients. These included 11 patients (44%) who were exposed to construction dust, 05 patients (20%) who were Pneumonitis (NSIP), surprisingly NSIP was more common in males than in females at 19.4% in males compared to 17.3% in females. The third most common ILD was Occupational lung disease 09 patients (36%). As expected interstitial lung diseases were more common in females compared to males (1.27:1), probably because of higher incidence of associated diseases, like vasculitis and connective tissue diseases in females. The most common diagnosis made was Sarcoidosis. **Conclusion:** ILDs are heterogeneous group of comparatively unusual diseases, although the prevalence and incidence seem to be increasing in many areas. This epidemiological study, on ILDs, with a thorough & systematic review of diagnoses, emphasizes the importance of ILDs, the relatively low prevalence of IPF when using stringent diagnostic criteria, and it confirms that sarcoidosis is a common entity.

Keywords: Epidemiology, ITL & Bronchoscopy.

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INTRODUCTION

Interstitial lung disease (ILD) refers to a diverse range of pulmonary fibrotic disorders that affect the alveoli of the lungs[1].Approximately two-thirds do not have a known cause (idiopathic),while one-third result from known endogenous or exogenous causes, including environmental/occupational factors, infections, drugs and radiation. Variation in the classification of ILDs, both historically and internationally, has not aided diagnosis, but recent consensus guidelines to both diagnosis and classification, together with a new nomenclature, offer an opportunity for greater precision[2]. In the light of this new classification, this review examines the epidemiology of ILD and the evidence for its potential increase in prevalence.

Interstitial lung diseases, also called diffuse parenchymal lung diseases are a large and diverse group of fibrotic and non- fibrotic conditions that affect the bronchioles, alveoli and interstitium of the lungs. Several factors play role in the pathogenesis of these diseases including genetics, drug and radiation toxicities, smoking, environmental and occupational exposures[3]. They could also be idiopathic. DPLD are classified based on etiology into four groups: DPLD of known cause (like drugs or CTD associated), Idiopathic interstitial pneumonia[4].

MATERIAL & METHOD

This is a retrospective analysis of all 82 undiagnosed patients, who were suspected to have ILD, and who presented to M.G.M Medical College & M.Y. Hospital, Indore, in the period between 01 Jan 2020 to 30 June 2020.

Data were collected from Bronchoscopy unit records over that period, which means we included only patients who required a bronchoscopic procedure in order to make a diagnosis, regardless of DPLD classification.
Bronchoalveolar lavages (BAL) with trans-bronchial biopsies, and only one surgical lung biopsy. Each case was discussed by a pulmonologist and a radiologist and a pretest differential diagnosis list was generated. The pathologist reviewed the clinical and radiologic information, and then examined pathologic specimens in light of the most likely differential diagnosis.
The combination of clinical-radiologic-pathologic correlation yielded confident and accurate diagnosis of all the bronchoscopic procedures and in the one surgical lung biopsy performed.

Inclusion criteria were:
(i) age ⩾15 years at the time of ILD diagnosis;
(ii) diffuse infiltration of lungparenchyma at chest radiography or HRCT;
(iii) duration of symptoms greater than 02 months or clinical latency;
(iv)residence in Indore during the study period. HIV patients were excluded, as well as ILDs due toneoplastic diseases, infections, and congestive heart failure.

All patients underwent Chest x-ray and CT chest as part of their evaluation, the most common finding was bilateral interstitial infiltrates in more than 89% of patients.

RESULTS

Table 1: Gender Distribution

S. No.	Gender	No.	Percentage
1	Male	36	44
2	Female	46	56

We identified 82 patients with suspected ILD, including 36 males (44%) and 46 females (56%), with a mean age of 49.3 years (50.5 for males, 49 for females).

Table 2: Tobacco Habits

S. No.	Tobacco Habit	No.	Percentage
1	Ex-smokers	11	13.4
2	Current smokers	09	10.1
3	Non-smokers	47	58.3
4	Data Not Available	15	18.2

Most patients were never smokers 47 (58.3%), 11 (13.4%) were ex-smokers and only 09 patients (12%) were active smokers at the time of diagnosis. Data about smoking status could not be retrieved in 15 patients (18.2%).

Table 3: History of relevant Occupational or Environmental Exposure

S. No.	History Occupation	No.	Percentage
1	Exposed to Construction	11	44
2	Pneumonitis (NSIP)	05	20
3	Occupational lung disease	09	36

A history of relevant occupational or environmental exposure was documented in 25 patients. These included 11 patients (44%) who were exposed to construction dust, 05 patients (20%) who were Pneumonitis (NSIP), surprisingly NSIP was more common in males than in females at 19.4% in males compared to 17.3% in females. The third most common ILD was Occupational lung disease 09 patients(36%).

Table No. 04: Diagnosis

S. No.	Diagnosis	No.	Percentage
1	ILDs of known cause	27	32.9
2	CTDs/vasculitis	14	17.2
3	Drug-induced ILDs	03	3.6
4	Pneumoconioses	04	4.9
5	Sarcoidosis	34	41.4

As expected interstitial lung diseases were more common in females compared to males (1.27:1), probably because of higher incidence of associated diseases, like vasculitis and connective tissue diseases in females. The most common diagnosis made was Sarcoidosis.

DISCUSSION

Drug-induced lung diseases often have no pathognomonic signs or symptoms and are under diagnosed (see Review by CAMUS et al.[5] in this Supplement). Indeed, they account only for 2.5–3% of all ILD in several registries[6]. In fact, some cases of presumed IIP may be due to unrecognized drug-induced ILD. Quite a few groups of drugs are particularly prone to tempt ILD.

Cytotoxic antibiotics, Bleomycin lung is the most studied example, with a reported incidence which varies from 02–40%[7], although in the larger studies rates of 08–10% have been observed. At a cumulative dose >500 $mg.m^{-2}$, toxicity occurs in 17%. Mitomycin has been reported to induce pulmonary fibrosis in 02–12% of patients[8].
Cyclophosphamide causes early onset ILD with a low incidence, estimated at 1%. Busulphan may cause ILD 12–24 months after initiation of treatment in4% of cases[9].

Antimetabolites Carmustine used in high doses induces early onset pulmonary fibrosis in 10–30% of patients, & late-onset fibrosis (after a latency period of 08 to 17 yrs) in 35% of the surviving patients.

CONCLUSION

ILDs are heterogeneous group of comparatively unusual diseases, although the prevalence and incidence seem to be increasing in many areas. This epidemiological study, on ILDs, with a thorough &systematic review of diagnoses, emphasizes the importance of ILDs, the relatively low prevalence of IPF when using stringent diagnostic criteria, and it confirms that sarcoidosis is a common entity.

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