

Prevalence of co-morbidities in patients with Interstitial Lung disease

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SAA AA conceived idea, SAA SKAZ SNA drafted the study, AA SKAZ collected data, SAA AA SKAZ SNA did satisfied analysis & interpretation of data, SAA SNA critical reviewed manuscript, All approved final version to be published

Declaration of conflicting interests

The Authors declares that there is no conflict of interest.

ABSTRACT

Background: The disease of lung parenchyma is called Interstitial Lung Diseases (ILD). The pathogenesis, clinical presentation and prognosis of different ILDs are highly variable. They progress at different rate, stabilize or even improve after initiation of proper treatment in some cases. Comorbidities, such as infections, heart failure, ischemic heart disease, diabetes, chronic obstructive pulmonary disease (COPD), asthma, pneumothorax, gastro-oesophageal reflux disease, pulmonary artery hypertension, lung cancer and sleep disorder may impact upon patients' health and has potential to impair quality of life or reduce life expectancy. Comorbidities may either pre-exist or develop during the course of ILD. Early identification and concomitant treatment of these conditions is essential.

Objective: To study the prevalence of comorbidities in patients with interstitial lung diseases in a tertiary care hospital in Karachi, Pakistan.

Methodology: This is a retrospective study carried out at the department of Pulmonology, Liaquat National Hospital, Karachi, Pakistan between January 2014 and December 2015. This study included adult patients who were diagnosed with ILD based on clinical and high resolution computed tomography (CT) findings. Cases were selected both from in and out-patient department. Clinical records of the selected patients were reviewed and data collected.

Results: During the study period 119 patients with ILD were identified. There were 43 (36.1%) men and 76 (63.9%) women. The mean age was 62 years. Ten percent were active smoker and 15% were ex-smoker. Idiopathic pulmonary fibrosis (IPF) was diagnosed in majority of the case (37%), followed by hypersensitivity pneumonitis (14%), connective tissue diseases related ILD (12%) and non specific intestinal pneumonia (NSIP) in (11%) cases. Breathlessness and cough of more than 3 months duration were the two main symptoms at presentation. Most common co-morbidity was systemic hypertension. Other co-morbidities included gastro-esophageal reflux disease (GERD), diabetes mellitus (DM), COPD and ischemic heart disease.

Conclusion: There are various co-morbidities associated with ILDs and they have the potential to impair quality of life and to reduce life expectancy. They may also have a major impact on treatment decisions. Early detection and management of the co-morbidities may have major potential benefits in reducing morbidity and mortality associated with ILDs.

Keywords: Lung diseases; Interstitial Lung Diseases; Karachi; Pakistan

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Introduction

Interstitial lung diseases effect of lung parenchyma. The most common of all ILDs is IPF.¹ With the recent advancement in treatment for lung fibrosis, better outcomes are expected than the historical cohorts. The development of new antifibrotic therapies for IPF and rational use of immunosuppression including systemic steroids in lung fibrosis secondary to immune dysregulation has led to improved outcomes. Pulmonary fibrosis has been associated with a large number of comorbidities including pulmonary hypertension,²⁻³ emphysema,⁴⁻⁵ lung cancer,⁶ coronary artery disease (CAD),⁷⁻⁸ diastolic-dysfunction,⁹ GERD,¹⁰ sleep disorders,¹¹ endocrine disorders and psychiatric disturbances.¹²

Sometimes a common risk factor may account for these conditions, for example, cigarette smoking as a potential cause of emphysema and/or lung cancer in patients with pulmonary fibrosis. On the other hand pulmonary hypertension may occur due to lung fibrosis itself. Similarly, GERD has been considered as an etiological factor for IPF. Association of sleep apnoea and depression with interstitial lung disease remains difficult to explain. Regardless of the underlying cause, symptoms and quality of life in ILD patients can be significantly influenced by these comorbidities.

Various guidelines used for diagnosis and management of interstitial lung disease recommends that some patients may have sub-clinical or overt comorbid conditions such as

pulmonaryhypertension, gastroesophageal reflux, obstructive sleep apnoea, obesity, and emphysema. However, the impact of these conditions on the outcome of patients with IPF is still uncertain.¹³

Aim of the present study was therefore to determine the prevalence of various comorbidities in patients with interstitial lung diseases.

Methods

This retrospective study was carried out at the department of Pulmonology, Liaquat National Hospital, Karachi, Pakistan. Outpatient records, case notes and electronic discharge summaries of all the patients with the final diagnosis of ILD during the period from January 2014 till December 2015 were reviewed. Patients attending the outpatients and also those admitted in the wards were included. Those with incomplete or missing records were excluded from the study. History, clinical findings, abnormalities on routine blood tests and auto-immune profile (when relevant), electrocardiogram (ECG), Chest Xray (CXR), Echocardiogram, spirometry, High-resolution computed tomography (HRCT) (thorax) findings and lung biopsy results were recorded and data collected on a pre-designed proforma.

Results

A total of 119 patients with the diagnosis of interstitial lung diseases were identified during the study period. There were 43 (36.1%) men and 76 (63.9%) women (Figure 1). The mean age was 62 years. Of the study cases, 10% were active smoker and 15% were ex-

Figure 1

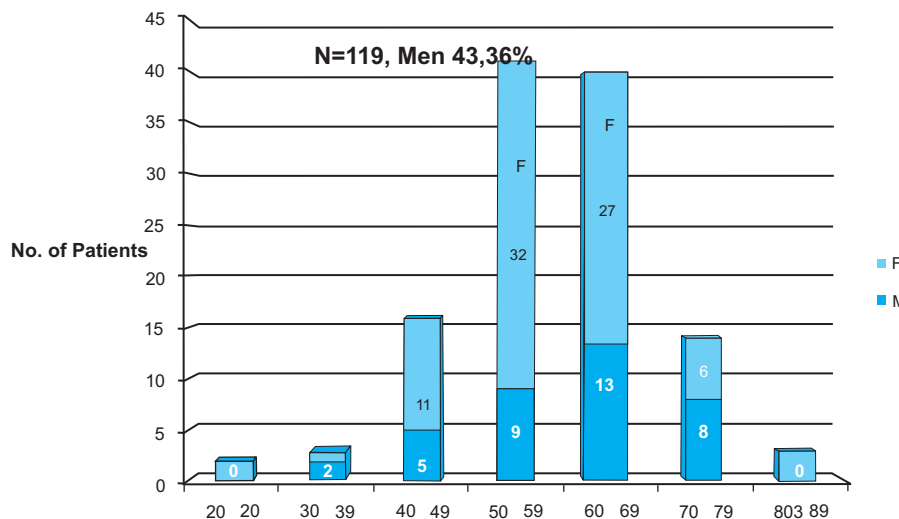


Figure 1: Gender distribution of study cases

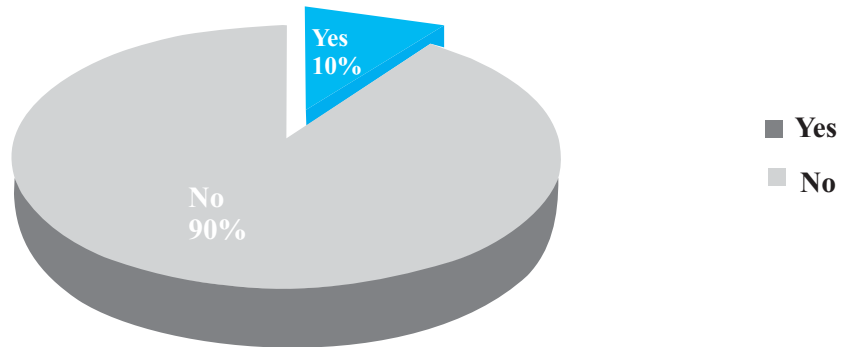


Figure 2: Distribution of study cases according smoking

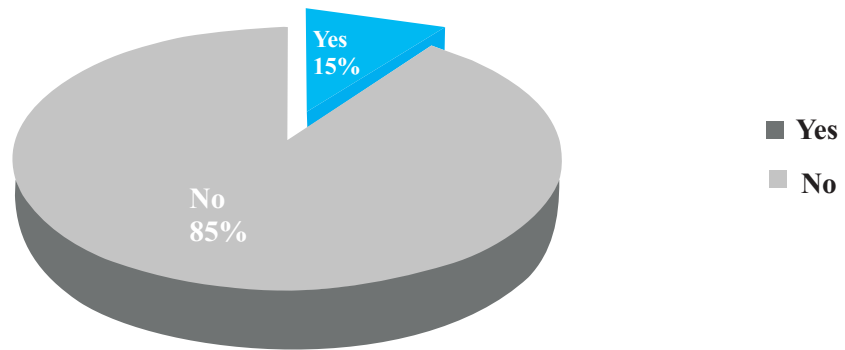


Figure 3: Past smoking history of study cases

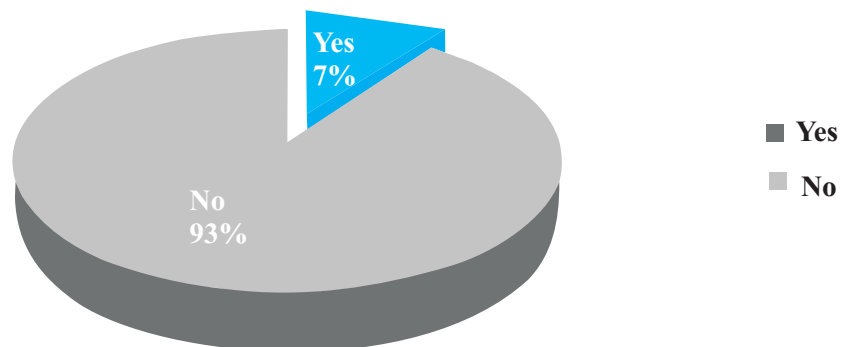


Figure 4: Distribution of study cases according to exposure to biomass fuel

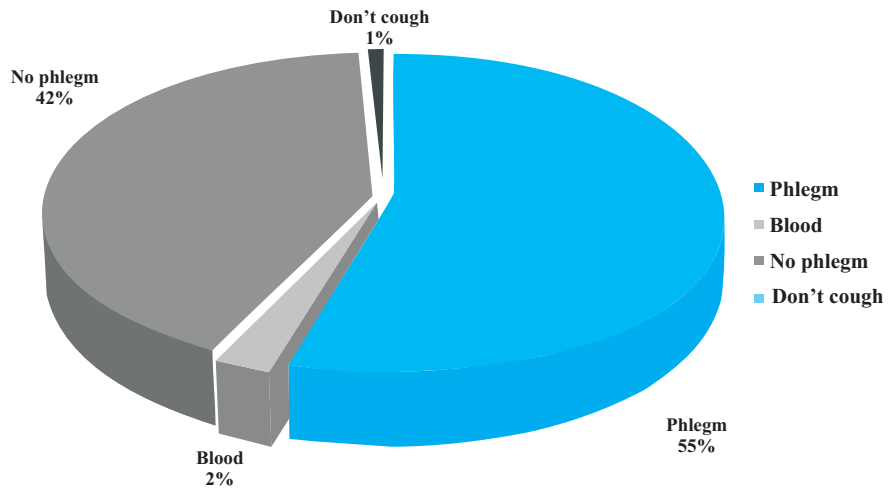


Figure 5: Nature of cough

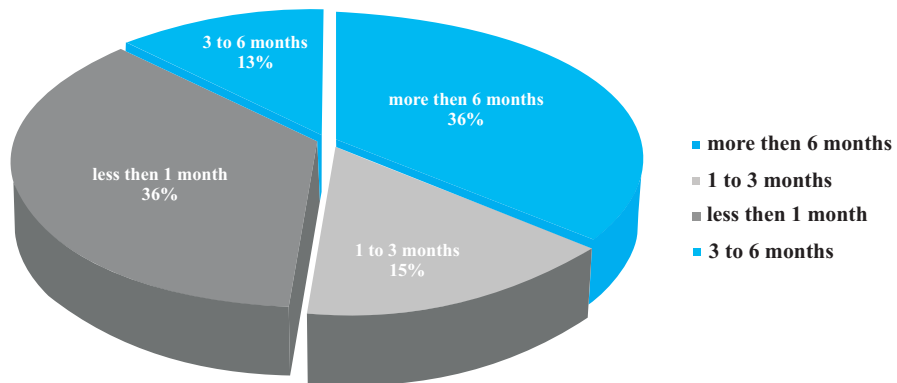


Figure 6: Duration of cough of study cases

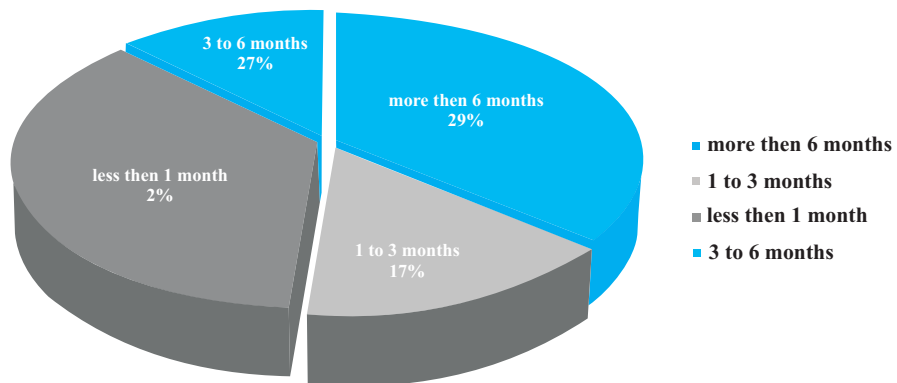


Figure 7: Duration of breathless of patient

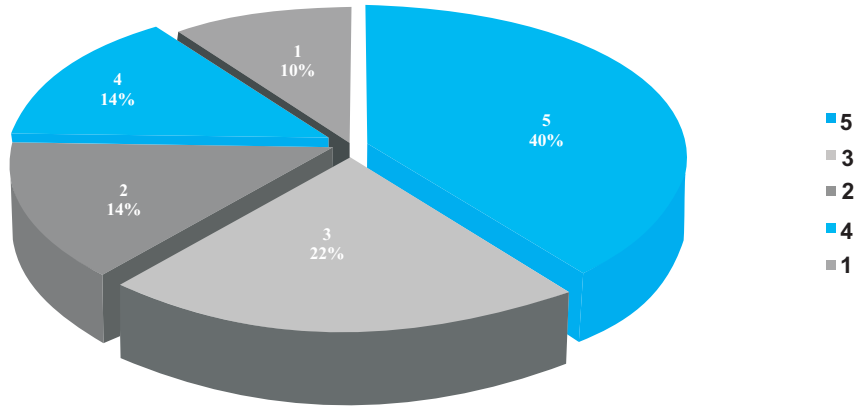


Figure 8: Severity of breathlessness among study population

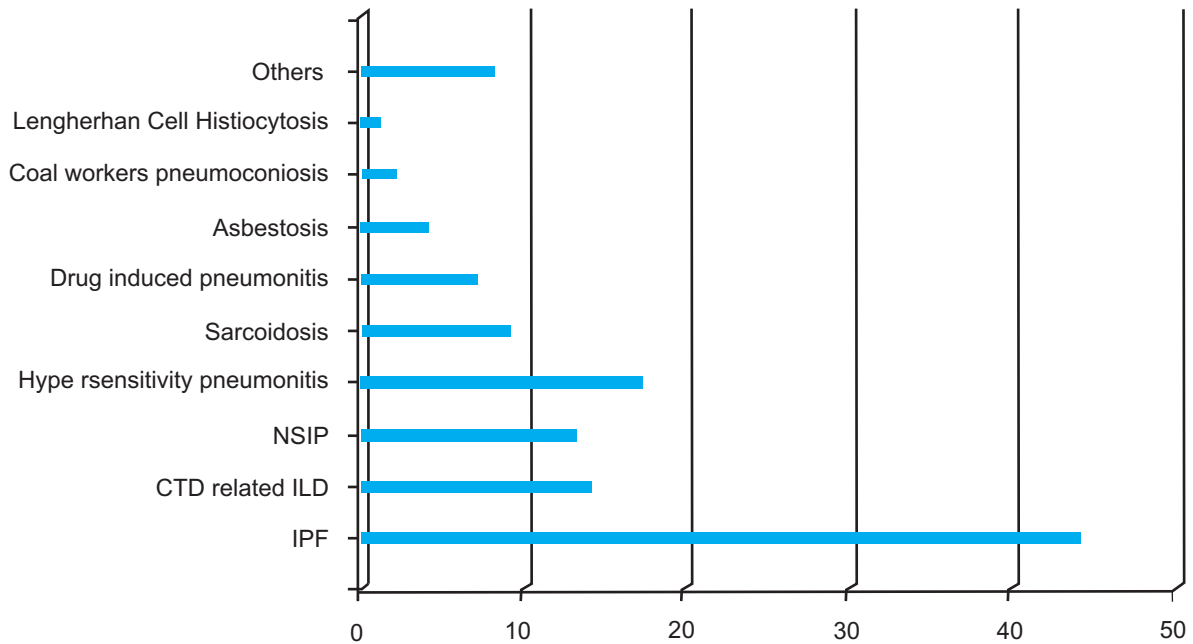


Figure 9: Distribution of ILD among study population

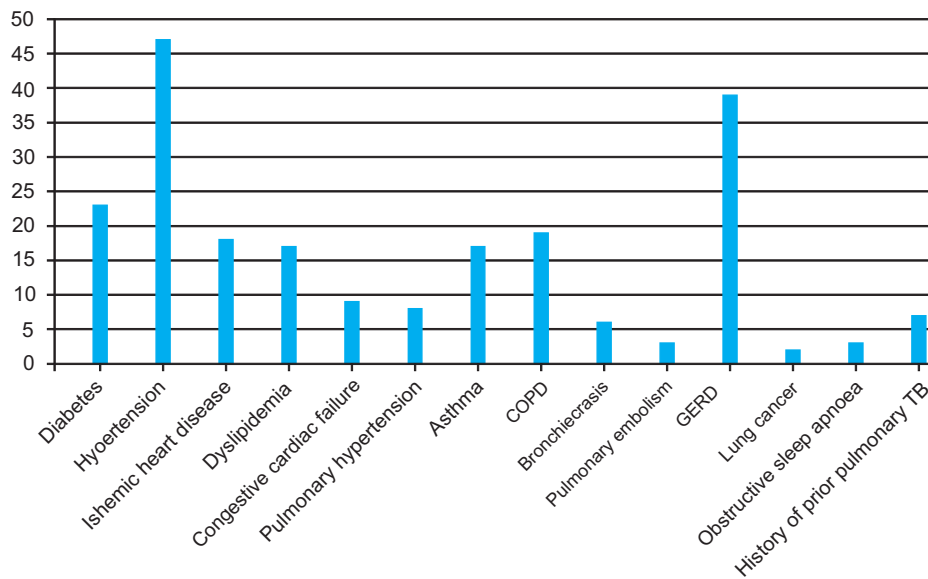


Figure 10: Comorbidity found among study population

smoker (Table 2 and 3). Seven percent (7%) admitted significant history of exposure to biomass fuel (Table 4). The main symptoms at presentation in majority of the cases were cough (99%) and breathlessness (100%) (Table 5). The duration of cough was more than three months in 39% cases (Table 6). All patients reported breathlessness and 56% were symptomatic for more than 3 months (Table 7). Seventy six percent (76%) scored 3 or above on Medical research council (MRC) dyspnoea scale at presentation (Table 8). IPF was diagnosed in majority of the case (37%). Hypersensitivity pneumonitis (14%), Connective tissue diseases related ILD (12%), NSIP (11%), Sarcoidosis (7%) and drug induced pneumonitis were found in 6% case (Table 9). Most common comorbidity was systemic hypertension (39%). Other comorbidities included GERD (33%), diabetes mellitus (19%), COPD (16%), Ischemic heart disease (15%), asthma (14%), and dyslipidemia (14%) (Figure 10).

Discussion

It is essential to identify the presence or development of any comorbidity during the course of illness in patients with interstitial lung disease as they are not only common but also have a significant influence on quality of life, functional impairment and survival.¹⁴⁻¹⁵ It

has become more important now as newer immune modulating drugs and antifibrotic therapies have become available.

Our study provided data which established the fact that patients with interstitial lung disease often have comorbidities. In a study from Denmark by Hyldgaard et al where they looked into the comorbidities in patients with IPF alone and found that the most frequently observed comorbidities were cardiovascular diseases, depression, arterial hypertension and diabetes Mellitus.¹⁶ In another study by Krueter M et al, similar comorbidities were observed.¹⁷ Similarly, according to INSIGHTS-IPF registry, the most frequently observed comorbidities in this analysis were arterial hypertension, coronary heart disease and diabetes mellitus which is comparable to our study.¹⁸

In our study we noticed that systemic hypertension, GERD, diabetes, COPD, ischemic heart disease, asthma and dyslipidemia were identified as comorbidities. The exact time of onset of these comorbidities could not be ascertained in this retrospective study. It is possible that some comorbidities either were identified during investigation of their respiratory symptoms or patients might have developed some or any of these illnesses during

the course of treatment for their interstitial lung disease eg: diabetes and dyslipidemia due to prolonged use of steroids for connective tissue related interstitial lung disease or NSIP. It is interesting to note that we did not find any patient with chronic liver disease or renal failure in our study and same were the findings in the study from Denmark by Krueter M et al.¹⁷

In cases of interstitial lung diseases where immune modulation particularly with steroids is considered an option, presence of various comorbidities as identified in our study becomes absolutely relevant. One should also bear in mind that the drug Pirfenidone used in patients with IPF may cause GERD, which is one of the common comorbidities we identified in our study and also some other studies. Also, when using the antifibrotic drug Pirfenidone in patients with IPF, it should be considered that gastrointestinal side effects of the drug, particularly GERD can get worse. Hence, in patients regardless of the underlying cause of interstitial lung disease, symptoms and quality of life in these patients can be significantly influenced not only by these comorbidities, but also by the pharmacological therapy used to treat interstitial lung disease.¹⁹⁻²⁰

Conclusion

In this study, the most common comorbidity associated with interstitial lung disease was systemic hypertension. Other comorbidities included GERD, diabetes mellitus, COPD and ischemic heart disease. Identification of these comorbidities may have a major impact on treatment decisions. Early recognition and treatment of the comorbidities may have major potential benefits in reducing morbidity and mortality associated with ILDs.

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