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FUNCTIONAL FEATURES IN INTERSTITIAL LUNG DISEASES

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Introduction

Interstitial lung diseases (ILD) are defined as a variety of heterogeneous and diffuse parenchymal lung disorders associated with significant morbidity and mortality, sharing similar clinical, radiographical, physiological, or pathological manifestations. These diseases are generally thought to share a common pattern of physiologic abnormality, characterized by a restrictive ventilatory defect and reduced diffusing capacity for carbon monoxide (DLCO).

Conflicting reports have been published regarding small airway function using more sophisticated testing. Unfortunately, these abnormalities are not specific for any particular ILD and the magnitude of the changes varies widely from patient to patient. DLCO typically is reduced in ILD to a greater extent than the lung volume at which it is measured.

Keywords

ILD, pulmonary function tests, obstruction, restriction

Purpose

To find distinctive features of the pulmonary function tests results in different types of ILD.

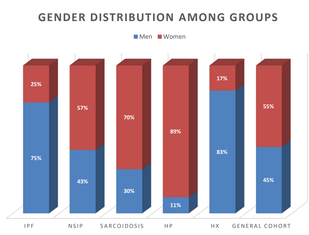
Material and methods

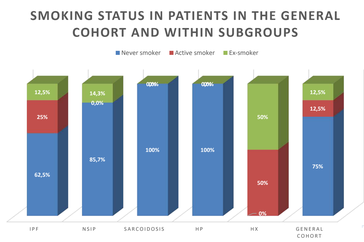
We have analyzed the data collected from 40 consecutive patients admitted to the Institute of Pthisiopneumology, Chisinau, Republic of Moldova, during January 2019 – February 2020. We have included patients with ILD that are different from a morphological and pathogenetical point of view and distributed the patients as follows:

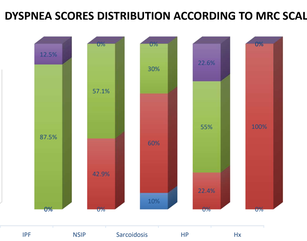
- Sarcoidosis patients – 10 cases,
- Idiopathic pulmonary fibrosis (IPF) patients – 8 cases,
- Nonspecific Idiopatic Insterstitial pneumonia (NSIP) patients – 7 patients,
- Hypersensitivity pneumonitis (HP) patients – 9 subjects
- Histiocytosis (Hx) - 6cases.

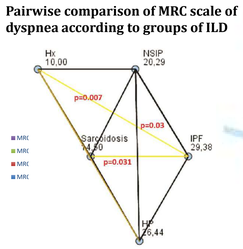
All patients have been evaluated by pulmonary function tests, 6MWT, Sa02, MRC scale for dyspnea, etc.

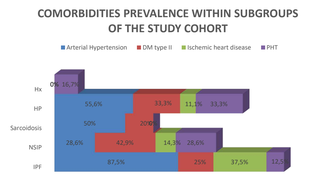
Results

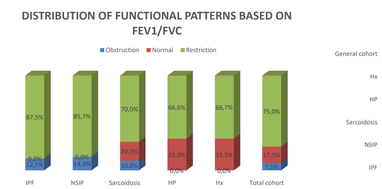


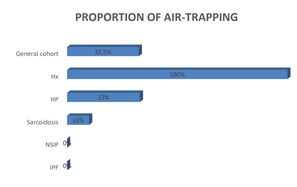


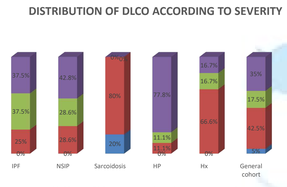


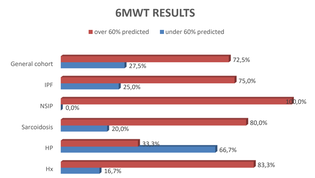












CORRELATION OF CLINICAL PARAMETERS WITH FUNCTIONAL ABNORMALITIES

	Air-trapping	Restriction	DLCO	6MWT
Dyspnea score	-0.27	0.4*	- 0.57**	-0.43**
Smoking status	0.33*	-0.22	0.03	0.09
Cough	-0.16	0.11	-0.09	0.10
PHT	-0.04	-0.15	-0.43**	-0.45**

- – correlation is significant at 0.05 level, ** – correlation is significant at 0.01 level,

PHT – pulmonary hypertension,

DLCO – diffusing lung capacity for carbon monoxide,

6MWT – six minute walk test.

Conclusions

Restriction is the dominant functional abnormality of most ILDs, but it coexists in various extents with *air-trapping*, found especially in patients with Hx, HP and sarcoidosis, this finding is related probably to the bronchiolocentric anatomical lesions in these entities. DLCO is almost universally decreased in ILDs, with the lowest levels registered in HP and in IPF patients, while mildly decreased and even normal values can be found in sarcoidosis and in Hx. IPF, HP and NSIP patients are more dyspneic, while Hx subjects are less symptomatic. Also, IPF patients show more comorbidities, while PHT as a complication is more frequently found in HP. The 6MWT has shown the best results in the NSIP patients and the worst in HP subgroup. Clinical parameters like dyspnea and PHT are directly associated with low DLCO and less walked distance at the 6MWT.