Idiopathic Pulmonary Fibrosis, Clinical Features in Thai Patients

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Abstract

Idiopathic pulmonary fibrosis (IPF) or cryptogenic fibrosing alveolitis (CFA) is the most common type of chronic diffuse parenchymal lung disease. We identified twenty patients who were diagnosed with this disease in Phramongkutklao Hospital. Clinical features of these patients were reported. All presented with dyspnea and the severity of dyspnea was grade 3-4 in 14 patients (70%). Every patient had bilateral basilar crackles on auscultation. The median survival time of newly diagnosed IPF in this study was only 16 months. Comparison of Thai patients with those of other reports from Western countries showed differences in severity of dyspnea and the median survival time.

Key word : Idiopathic Pulmonary Fibrosis, Cryptogenic Fibrosing Alveolitis, Interstitial Lung Disease

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Idiopathic pulmonary fibrosis (IPF) was first described in 1944 by Hamman and Rich as progressive, rapidly fatal and diffuse pulmonary fibrosis[1]. It is now recognized as a subacute or chronic disease in chronic diffuse parenchymal lung diseases (DPLD) with no evidence of systemic disease or external agent exposure[2]. In most patients, IPF is slowly progressive and results in death. The term cryptogenic fibrosing alveolitis (CFA) is the synonym and commonly used in Europe[3].

IPF is the most common type of chronic DPLD and accounts for about 25-30 per cent of cases in Western countries[4]. Bovornkitti et al first

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reported a case of IPF in a Thai patient in 1974[5]. However, there have been no reports about the clinical features and outcome of IPF in Thailand.

The aim of this study was to determine the clinical characteristics and outcome of IPF in Thai patients.

METHOD

Patients

Between 1990 and 1999, twenty-three patients were diagnosed with IPF in Phramongkutklao Hospital, but only 20 of them had complete medical records and fulfilled the diagnostic criteria. The maximum follow-up time for each patient was recorded and eight patients were documented death. The severity of dyspnea was graded according to the recommendation of the American Thoracic Society.

The diagnosis was based on the clinical, physiologic, radiographic and pathologic diagnostic criteria established by Katzenstein and Myers[6]. The diagnostic criteria for IPF are as follows:

1. Persistent bilateral interstitial radiographic infiltrates with Velcro-type bibasilar crackles and restrictive lung physiology.
2. Exclusion of other causes of interstitial lung disease including environmental exposure, connective tissue disease and drugs.
3. Surgical (open or thoracoscopic) lung biopsy showing usual interstitial pneumonitis (UIP) (for definite diagnosis of IPF) or high-resolution computed tomography (HRCT) of the chest demonstrating UIP pattern (for highly probable diagnosis of IPF).

Radiographs

Chest radiographs were interpreted and graded into mild, moderate and severe degree of interstitial change according to the International Labor Organization (ILO) classification[7].

Recently, HRCT was introduced to make the diagnosis of IPF and the appearance is characteristic. Typical findings are reticular and honeycomb changes often associated with the ground glass opacification and traction bronchiectasis. The abnormalities are predominately in the periphery of the lung and in the lower lobes[2].

Analysis

Data are expressed as percentage, mean ± SD or proportions.

RESULTS

We identified twenty Thai patients who met the diagnostic criteria for the disease. The clinical and demographic features of the patients are shown in Table 1. There were fourteen men (70%) and six women (30%). Male to female ratio was 2.3:1 and mean age at presentation was 67 years (range 42-89 years). The mean duration of symptoms was 10.9 months. Twelve patients had a history of smoking and mean quality was 31.5 pack-years.

All presented with dyspnea and the severity of dyspnea was grade 3-4 in 14 patients (70%). Crackles was the most common physical sign and was found in every case. Six patients (30%) had clubbing of the fingers (Table 2).

Pulmonary function tests (PFT) were done in fifteen patients. All of the tests demonstrated restrictive lung disease. The mean of forced vital capacity (FVC) was 60.6 per cent of that predicted and the data is shown in Table 3.

The chest radiographs were abnormal in all cases and sixty per cent of these patients showed severe fibrosis (Table 4). HRCT was done in 16 cases and ten patients were diagnosed with HRCT alone. While the rest of patients were diagnosed with both HRCT and histology. Ten patients whose pathology were available showed the characteristics of usual interstitial pneumonitis (UIP).

Eight patients died (40%), the median survival time being only 16 months (range 8-52 months) from onset of respiratory symptoms.

DISCUSSION

IPF is the most common cause and accounts for about 25-30 per cent of cases of interstitial lung diseases[4,8]. It is a specific form of DPLD limited

Table 1. Demographic and clinical characteristics of study patients. (n=20)

Age at presentation (mean ± SD)		67.4 ± 12.1 years
Range		42-89 years
Sex, number of	male	14(70%)
	female	6 (30%)
Smoking history		12(60%)
Pack-years of smoking (mean ± SD)		31.5 ± 22.5
Duration of symptoms (mean ± SD)		10.9 ± 6.1 months
Treatment of IPF	None	2(10%)
	Corticosteroids	10(50%)
	Colchicine	8(40%)

Table 2. Clinical manifestations at presentation. (n=20)

	Numbers (%)
Symptoms	
Dyspnea	20 (100%)
Grade 1 -2	6 (30%)
Grade 3-4	14 (70%)
Cough	19 (95%)
Weight loss	10 (50%)
Recurrent fever	8 (40%)
Sputum	3(15%)
Hemoptysis	2 (10%)
Recurrent pleurisy	2 (10%)
Signs	
Crackles	20 (100%)
Rhonchi	4 (20%)
Wheezing	1 (5%)
Clubbing	6 (30%)
Cyanosis	3 (15%)

Table 3. Mean (± SD) pulmonary function test at the diagnosis.*

	N	Mean ± SD
FVC	15	60.56 ± 13.17
FEV1	15	65.11 ± 17.84
FEV1/FVC ratio	15	81.71 ± 7.20
TLC	10	56.70 ± 6.67
RV	10	53.17 ± 13.77
DLco	10	41.40 ± 18.19
DLco/VA	10	69.22 ± 23.78

* All pulmonary function values are expressed as the per cent predicted except for the FEV1/FVC ratio which is expressed in absolute terms.

Table 4. Chest radiographic appearance at entry to study (n = 20).

	Numbers (%)
Normal	-
Mild fibrosis	2 (10%)
Moderate fibrosis	6 (30%)
Severe fibrosis	12 (60%)

to the lungs and predominantly a disease in the elderly. In this study, the mean age at presentation was 67.3 years compared to 67.4 years in a recent report by Johnston et al[9]. Male to female ratio was approximately 2:1 similar to many reports that men were predominant[9-11].

All patients presented with dyspnea and seventy per cent were grade III-IV. Compared with the report by Turner-Warwick et al, the majority of patients (79%) had dyspnea grade I-II[10]. The mean duration of symptoms in this patient group was only 10.9 ± 6.19 months which was shorter than previous reports[9,10]. Every patient had bilateral basilar crackles on auscultation while clubbing of the fingers was found in only 30 per cent.

Approximately 50 per cent of IPF patients died within 4-5 years from onset of respiratory symptoms[9,15]. Of particular interest, the median survival time of newly diagnosed IPF in this study was only 16 months which was worse than those in previous reports[9-11,13-15]. We can speculate that Thai patients usually underestimated the severity of dyspnea so they came to seek medical advice late.

Recently, HRCT has been introduced to make the diagnosis of IPF. The clinical usefulness of HRCT in IPF patients includes the detection of typical appearances, assessment of disease activity and predicting long-term survival[2,16]. The typical pattern allows a specific diagnosis on HRCT in most cases[3]. The diagnosis of IPF in this study was made on clinical grounds and HRCT in 10 (50%), and tissue diagnosis was made in 50 per cent of our study subjects,

PFT especially FVC and DLco are the physiologic variables that best reflect the extent of the disease, as shown by HRCT[17]. In this study, FVC on presentation revealed moderate restrictive lung disease which was less than the previous report [9]. The fact implies that our hospital is a referral center and more severe cases are likely to be seen. Therefore, these patients were transferred for investigation during the late stage of the disease. Many patients were diagnosed as chronic obstructive pulmonary disease because some Thai general practitioners may not recognize the disease.

Apart from oral glucocorticoids and colchicine which are the standard treatment for IPF, interferon gamma-1b plus low-dose prednisolone have recently been introduced to treat IPF and results showed substantial improvement of PFT and gas exchange[12].

In conclusion, we reported twenty cases of IPF who had fulfill diagnostic criteria established by Katzenstein and Myers[6]. IPF should be suspected in all patients who have clinical manifestations of subacute or chronic disease in DPLD with no evidence of systemic disease or external agent

exposure[2]. Comparison of this patient group with those of other reports from Western countries showed differences in severity of dyspnea and the median survival time.

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อาการวิทยาของโรค Idiopathic Pulmonary Fibrosis ในผู้ป่วยชาวไทย

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รายงานผู้ป่วยโรค Idiopathic pulmonary fibrosis จำนวน 20 ราย ที่ได้มารับการรักษาที่โรงพยาบาลพระมงกุฎเกล้า ผู้ป่วยทุกรายมีอาการหอบเหนื่อยร่วมกับการตรวจพบเสียงผิดปกติที่ปอด (bibasilar crackles) ค่าเฉลี่ย medial survival time ของผู้ป่วยกลุ่มนี้เท่ากับ 16 เดือน ผู้ป่วยกลุ่มที่รายงานนี้มีลักษณะที่แตกต่างจากรายงานจากต่างประเทศ คือ มี medial survival time เฉลี่ยที่สั้นกว่า และมีอาการหอบเหนื่อยที่รุนแรงกว่า

คำสำคัญ : Idiopathic Pulmonary Fibrosis, Cryptogenic Fibrosing Alveolitis, Interstitial Lung Disease

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