Study of Soluble Fibronectin in Patients With Interstitial Pulmonary Fibrosis

Thesis
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By

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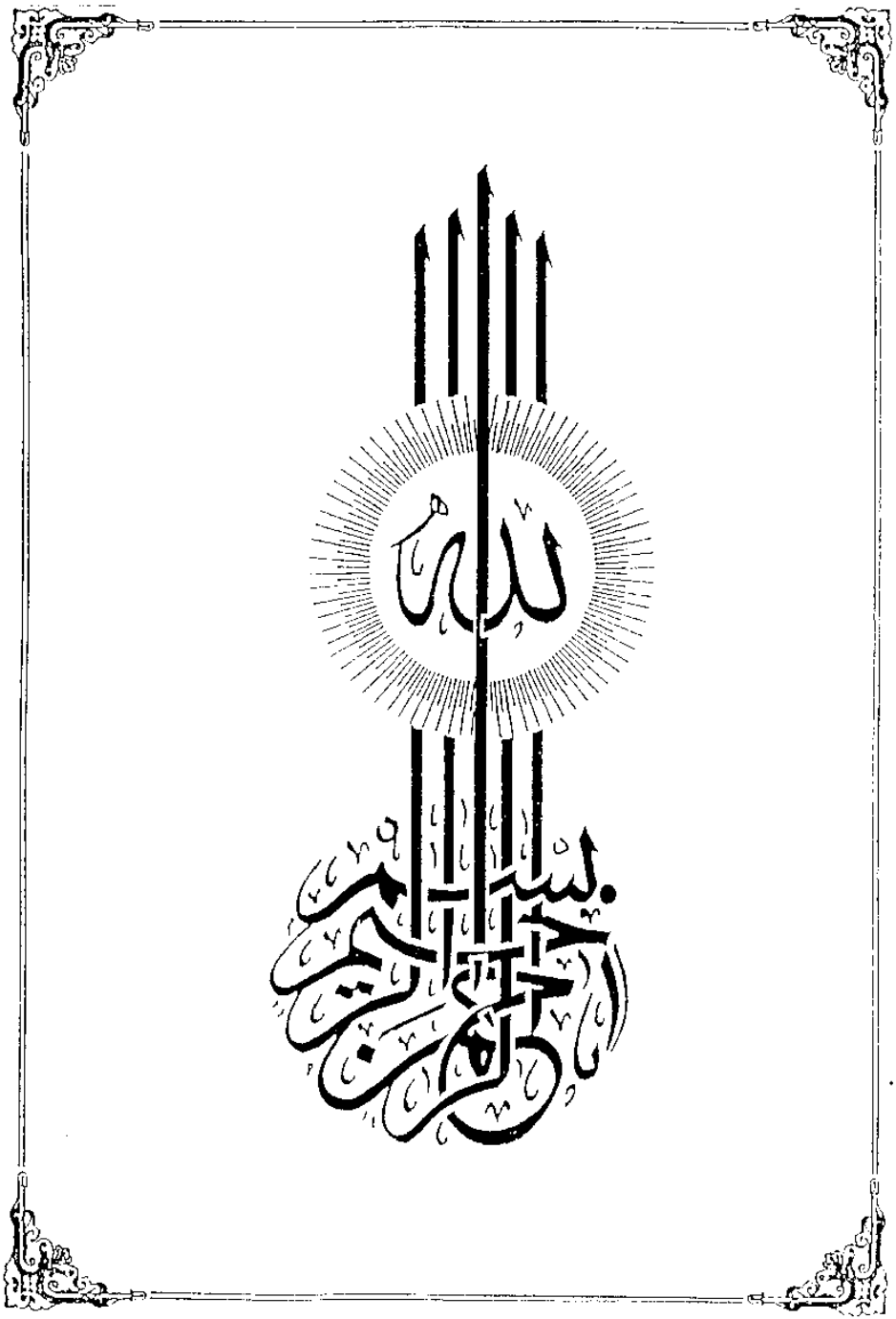

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LIST OF ABBREVIATIONS

Interstitial pulmonary fibrosis	[IPF]
Functional residual capacity	[FRC]
Forced expiratory volume in first second	[FEV_1]
Forced vital capacity	[FVC]
Desquamative interstitial pneumonitis	[DIP]
Usual interstitial pneumonitis	[uIP]
Carbon monoxide diffusion	[DCO]
Complement 3	[C_3]
Total lung capacity	[TLC]
Angiotensin converting enzyme	[ACE]
Complement 5	[C_5]
Fibronectin	[FN]
Transforming growth factor B	[TGF-B]
Acquired immunodeficiency syndrome	[AIDs]
Cyclic adenosine monophosphate	[CAMP]
Migration inhibitory factor	[MIF]
Cerebrospinal fluid	[C.S.F.]
International labour office	[ILO]
Immunoglobulin G	[IgG]
Epithelial lining fluid	[ELF]

INTRODUCTION & AIM OF WORK

Introduction:

Fibronectin is a large glycoprotein found in plasma and extracellular matrices. It is present in a soluble from in plasma and certain biological fluids while it is found in an insoluble form at cell surfaces and connective tissues.

It is major cell surface protein and is secreted by fibroblast and a variety of other cells **(Yamada and Olden, 1978).**

It is thought to be involved in the interaction of cells with the extracellular matrix and this can influence both morphology and differentiation **(Ali et al., 1977).**

Interstitial lung diseases are a heterogenous group of disorders characterized by abnormal accumulation of inflammatory cells and connective tissue elements in the pulmonary interstitium together with changes in parenchymal cell populations and organization **(Fulmer and Crystal,1979).**

Frequently these diseases lead to fibrosis characterized by derangements of interstitial collagen, because fibronectin seems to play a major role in the maintenance of

cellular and extracellular integrity, it is reasonable to hypothesize that this macro- molecule plays an important role in the derangements of the alveolar structures that characterize these disorders.

Aim of the Work:

The aim of the present work is to estimate the soluble fibronectin both in broncho-alveolar lavage and plasma in patients with interstitial pulmonary fibrosis and to correlate them with the extent of the disease radiologically.

INTERSTITIAL LUNG DISEASES

Interstitial pulmonary fibrosis (IPF) are a heterogenous group of chronic non infectious, non malignant diseases that affect primarily the alveolar structures. At least 130 different interstitial lung disease have been described, most of them are rare **(Crystal et al., 1981).**

The common interstitial disorders are those resulting from inhalation of inorganic or organic dusts, sarcoidosis, idiopathic pulmonary fibrosis and the interstitial lung disease associated with collagen vascular disorders **(Keogh et al., 1981).**

Classification of IPF:

IPF can be classified into 2 groups.
Those with known causes and those with unknown causes, each of these groups can be subclassified further according to the presence or absence of granuloma in interstitial or vascular area. Interstitial lung fibrosis of known causes include occupational and environmental inhalant exposures. These include diseases due to inhalation of inorganic dusts, organic dusts, gases, fumes, vapors and aerosols. Other includes lung diseases caused by drugs,irradiation, poisons,

neoplasia and chronic cardiac failure. The diseases with an unknown cause are idiopathic pulmonary fibrosis and connective tissue (collagen vascular) disorders with interstitial lung disease including rheumatoid arthritis, systemic lupus erythematosus, progressive systemic sclerosis, polymyositis, dermatomyositis and Sjogren's syndrome.

Among the granulomatous diseases, sarcoidosis and eosinophilic granuloma are prominent. Systemic vasculitides often have granuloma in lung tissue, they include a variant of polyarteritis nodosa, Wegener's granulomatosis, lymphatoid granulomatosis and hyper-sensitivity vasculitis **(Seminars in respiratory medicine, 1984).**

Interstitial lung disease of known etiology:

Occupational and environmental inhalants:

Inorganic dusts:

Silica (crystalline - Amorphous).

Silicates:

Asbestos.

Talc

Kaolin

Aluminum silicates

Aluminum

Powdered aluminum.

Bauxite (aluminum oxide: causes Shaver's disease)

Antimony

Beryllium

Mixed dusts.

Organic dusts:

Farmer's lung

Bagassosis

Mushroom worker's lung

Humidifier lung, air conditioner lung, refrigerator lung

Cheese worker's lung

Malt worker's lung

Bird breeder's lung

Chicken handler's disease.

Aspergillosis

Pituitary snuff lung

Turkey handler's disease

Duck fever (duck feathers)

Detergent worker's lung

Rodent handler's disease (serum, urine)

Wood-dust worker's lung

Furrier's lung.

New Guinea lung.

Chemical dusts:

Synthetic fibers (polyesters, nylon, acrylic).

Polyvinyl chloride powder.

Gases:

Oxygen

Sulfur dioxide

Chlorine gas

Oxides of nitrogen.

Vapor:

Mercury.

Aerosols:

Fats

Oils

Toluene diisocyanate

Drugs:

Busulfan

Bleomycin

Cyclophosphamide

Methotrexate

Nitrosoureas

Procarbazine

Mitomycin

Chlorambucil

Melphalan

Mercaptopurine

Azathioprine

Uracil mustard

Antibiotics:

Nitrofurantoin

Sulfonamides

Penicillin

Other drugs

Diphenylhydantoin

Drugs causing a lupus-like syndrome

Gold salts

Hexamethonium

Methysergide

ß- Blocking agents

Carbamazepine

Peninillamine

Mineral oil (laxatives, nose drops, throat spray)

Poisons:

Paraquat

Radiation:

External (therapeutic)

Inhaled (nuclear accident)

Infectious agents:

Bacteria

Mycobacteria

Fungi

Viruses

Legionella pneumophila

Parasites

Others:

Chronic cardiac disease.

Chronic renal disease with uremia

Graft- versus- host disease.

[Brendan et al., 1981].

Interstitial lung disease of unknown etiology:

Idiopathic pulmonary fibrosis.

Chronic interstitial disease associated with the Collagen Vascular disorders:-

- Rheumatoid arthritis.
- Progressive systemic sclerosis.
- Systemic lupus erythematosus.
- Polymyositis-dermatomyositis.

- Sjogren's syndrome.
- Mixed connective tissue disease.
- Ankylosing spondylitis.

Sarcoidosis

Histiocytosis

Goodpasture's syndrome

Idiopathic pulmonary hemosiderosis

Chronic eosinophilic pneumonia

Diffuse amyloidosis of lung

Lymphangioleiomyomatosis.

Inherited disorders

- Tuberous sclerosis
- Neurofibromatosis
- Hermansky-Pudlak syndrome
- Familial pulmonary fibrosis

Alveolar proteinosis

Liver disease associated with interstitial lung disease

- Chronic hepatitis.
- Primary biliary cirrhosis.

Whipple's disease.

Weber-christian disease

Lymphocytic infiltrative disorders

- Immunoblastic lymphadenopathy
- Unclassified (lymphocytic interstitial pneumonitis).