Pulmonary Capillary Changes and its Relation to Nailfold Capillary Changes in Connective Tissue Diseases

Thesis submitted for partial fulfillment of the MD Degree in Chest Diseases

Presented by

May Mahmoud Hafez El-Attar
M.B., B.Ch., M.Sc.

Under the supervision of

PROF. SAMIHA ASHMAWI
Professor of Chest Diseases
Ain Shams University

PROF. ADEL GOMAA ALI
Professor of Chest Diseases
Head of Chest Department
Ain Shams University

PROF. MOHAMED AWAD TAG ELDIN
Professor of Chest Diseases
Vice President-Ain Shams University

PROF. MOHAMED FATHY TAMARA
Professor of Internal Medicine
Head of Rheumatology Unit
Ain Shams University

DR. MANAL HOSNY AHMED
Assistant Professor of Chest Diseases
Ain Shams University

FACULTY OF MEDICINE
AIN SHAMS UNIVERSITY
1997

بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا إلا ما علمتنا

إنك أنت العليم الحكيم

صدق الله العظيم

(سورة البقرة الاية ٣٢)

Acknowledgment

First of all, thank God who allowed and helped me to accomplish this work.

I would like to express my sincere thanks and highest appreciation to my Professor, Dr. ***Samiha Ashmawi,*** *Professor of Chest Diseases, Ain Shams University for her valuable guidance and kind advice during the work in this thesis.*

I am also greatly indebted to Professor, Dr. ***Adel Gomaa,*** *Professor of Chest Diseases and Head of Chest Department, Ain Shams University for his continuous advice and unfailing help throughout the whole work.*

I would also like to express my deep appreciation to Professor Dr. ***Mohamed Awad Tag El-Din****, Professor of Chest Diseases and Vice President of Ain Shams University, for his continuous advice and unfailing help throughout the work.*

I feel deeply obliged to Professor Dr. ***Mohamed Fathy Tamara****, Professor of Internal Medicine and Head of Rheumatology Unit, Ain Shams University for guiding me through the field of rheumatology.*

I would also like to express my deep appreciation to Professor Dr. ***Manal Hosny Ahmed****, Assistant Professor of Chest Diseases, Ain Shams University for the great effort and time she devoted in guiding me throughout the work.*

I feel deeply obliged to my colleagues in the rheumatology unit and rheumatology laboratory especially Dr. ***Hanan Ewais,*** *Dr.* ***Zeinab Galal,*** *and biochemist* ***Manal Halawa*** *for their continuous help and advice. I am also thankful to my colleague Dr.* ***Sophi Abadir*** *in pulmonary function and Dr.* ***Ayman Abd El Hamid,*** *L.L. Major, Air Force Hospital, for their grateful help in pulmonary function.*

May El-Attar
1997

List of Contents

List of Abbreviations

Name	Abbreviation
Rheumatoid Arthritis	*R.A.*
Systemic Lupus Erythematosus	*S.L.E.*
Systemic Sclerosis	*S.Sc.*
Progressive Systemic Sclerosis	*P.S.S.*
Pulmonary function tests	*P.F.T.*
Diffusing capacity of the lung for carbon monoxide	*D.L.C.O.*

Introduction and Aim of the Work

INTRODUCTION AND AIM OF THE WORK

Many respiratory manifestations have been described in association with collagenosis. The resulting abnormalities of pulmonary function in affected patients include restrictive ventilatory defect, air flow obstruction, and a depressed diffusing capacity for carbon monoxide which may be an isolated early finding ***(Arroliga et al, 1992)***.

The collagen disorders share certain clinical characteristics, including inflammation of joints, serosal membranes, connective tissue and blood vessels in various organs. The lung is a particularly vulnerable target organ in the connective tissue group of diseases due to both its abundant vasculature and its large content of connective tissue, which is frequently involved in these diseases ***(Hunninghake et al, 1979).***

There was correlation between nailfold capillary density and pulmonary gas transfer in patients with systemic lupus erythematosus, scleroderma and dermatomyositis ***(Monica Pallis et al, 1991).***

Nailfold capillary microscopy is a non-invasive, in-vivo method of assessing skin microvasculature and its

value has been described in the differential diagnosis and prognosis of various connective tissue disorders and Raynaud's disease ***(Monica Pallis et al, 1991).***

Poor gas transfer may be dependent on alveolar capillary loss and nailfold capillary density may be a good indicator of alveolar capillary density ***(Monica Pallis et al, 1991).***

There is a relationship between capillary changes and organ involvement. Nailfold capillary changes is mirror for systemic vascular disease ***(Schmidt and Mensing, 1988).***

Small airways disease and diffusion capacity impairment were the most frequent and marked functional abnormalities in the whole group of connective tissue disorder patients. Large airways obstruction was more prevalent in progressive systemic sclerosis, while diffusion capacity impairment in systemic lupus erythematosus and small airways disease in rheumatoid arthritis ***(Vitali et al, 1986).***

AIM OF THE WORK

The aim of this work is to study the relationship between alveolo-capillary gas transfer (alveolar diffusion) and nailfold capillary abnormalities in the patients with connective tissue diseases.

Review of Literature