Nailfold capillaroscopy examination in patients with systemic lupus erythematosus (SLE) and correlation with its various clinical and laboratory data

Thesis

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ABSTRACT

This work aimed to study the prevalence of nailfold capillaroscopy changes in patients with systemic lupus erythematosus, find out the patterns of these changes and to correlate these findings with different clinical and laboratory parameters.

Fourty patients with SLE, all fulfilling the 1997 revised criteria for the classification of SLE. All patients included in this study were subjected to full history taking, clinical examination, laboratory investigations as well as nailfold capillaroscopy examination.

Nail fold capillaroscopic abnormalities were significantly found in SLE patients in relation to controls. Some of these abnormalities showed statistical significant correlations with different clinical and laboratory parameters.

Keywords: - Systemic lupus erythematosus - Nailfold capillaroscopy

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LIST OF ABBREVIATIONS

ACA	**Anticentromere antibodies**
aCL	**anti-cardiolipin antibodies**
ACLE	**Acute cutaneous lupus erythematosus**
ACR	**American College of Rheumatology**
AECA	**Antiendothelial cell antibody**
ANA	**Antinuclear antibody**
Anti-ds DNA	**Anti- double stranded deoxyribonucleic acid**
aPL	**antiphospholipid antibodies**
CAD	**Coronary artery disease**
CBC	**Complete blood count**
CCLE	**Chronic cutaneous lupus erythematosus**
CECs	**circulating endothelial cells**
CTD	**Connective tissue diseases**
CVA	**Cardiovascular accident**
DLCO	**Diffusing lung capacity for carbon monoxide**
DLE	**discoid lupus erythematosus**
DM	**dermatomyositis**
EC	**endothelial cell**
ECG	**Electrocardiogram**
ECs	**Endothelial cells**
EMC	**Essential mixed cryoglobulinemia**
ESR	**Erythrocyte sedimentation rate**

EULAR	**European League Against Rheumatism**
FM	**Fibromyalgia**
gm	**gram**
HB	**Hemoglobin**
HSCT	**Hemopoietic stem cell transplantation**
ICAM 1	**Intercellular adhesion molecule 1**
IFN-γ	**Interferon-gamma**
IL-1	**Interleukin-1**
JIA	**Juvenile idiopathic arthritis**
LE	**Lupus erythematosus**
Max	**Maximum**
MCTD	**Mixed connective tissue disease**
mm	**Millimeter**
mRNA	**Messenger ribonucleic acid**
NFC	**Nailfold capillaroscopy**
NO	**Nitrous oxide**
OA	**Osteoarthritis**
PAPS	**Primary antiphospholipid syndrome**
PMNs	**Polymorphonuclear leukocytes**
PRP	**Primary Raynaud's phenomenon**
PSS	**Primary Sjögren's syndrome**
RA	**Rheumatoid arthritis**
RP	**Raynaud's phenomenon**
S.D.	**Standard deviation**

SCLE	**Subacute cutaneous lupus erythematosus**
SD-pattern	**The scleroderma dermatomyositis pattern**
SLE	**Systemic lupus erythematosus**
SLEDAI	**Systemic Lupus Erythematosus Disease Activity Index**
SPVP	**Subpapillary venous plexus**
SRP	**Secondary Raynaud's phenomenon**
SS	**Sjögren's syndrome**
SSc	**Systemic sclerosis**
SSD	**Scleroderma spectrum disorder**
SSS	**Secondary Sjögren's syndrome**
TF	**Tissue factor**
TLC	**Total leucocytic count**
TNF-α	**Tumor necrosis factor-α**
TTP	**Thrombotic thrombocytopenia purpura**
UCTD	**Undifferentiated connective tissue disease**
VCAM 1	**Vascular cell adhesion molecule-1**
vWF	**Von Willebrand factor**
WBC	**White blood cells**
μm	**Micrometer**

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INTRODUCTION

Systemic lupus erythematosus (SLE) is a complex disease with variable presentations, course and prognosis **(Bertsias et al., 2008)**.

SLE is the most diverse of the systemic autoimmune diseases because it may affect any organ of the body and displays a broad spectrum of clinical manifestations **(Cervera et al., 1999**).

A pathologic hallmark of SLE is the appearance of diverse vascular lesions **(Font et al., 2001).**

Over the past 25 years, nailfold capillaroscopy (NFC) has gained a diagnostic value in the field of rheumatology based on descriptive data from patients with distinct CTD **(Anders et al., 2000).**

Few diagnostic techniques can combine all the positive features typical of capillaroscopy (low cost, uninvasiveness, repeatability, high sensitivity, good specificity and easy interpretation of results) **(Grassi and De Angelis, 2007).**

NFC may be a useful method to evaluate the microvascular changes in patients with SLE **(Ingegnoli et al., 2005)** and it was proved to be an easy-to-perform noninvasive technique, able to achieve useful data to better evaluate such a pleomorphic disease especially concerning its outcome and prognosis **(Riccieri et al., 2005).**

Capillaroscopy can give a clue for early diagnosis of patients, since the presence of typical capillaroscopic abnormalities seems to be related to the development of lupus erythematosus **(Facina et al., 2006).**

Abnormalities in nailfold capillaroscopy may reflect the extent of microvascular involvement in SLE. Nailfold capillaroscopy can be useful in the diagnostic procedure of the disease and lead to more effective strategies in the treatment of systemic organ dysfunction in SLE **(Kuryliszyn−Moskal et al., 2007).**

Kuryliszyn-Moskal and colleagues (2007) reported that all SLE patients with internal organ manifestations showed severe or moderate pathological changes under NFC. Mild changes in capillaroscopy in patients with systemic involvement were not observed.

Also, **Ingegnoli and colleagues (2005)** reported that the presence of major capillary abnormalities in NFC examination in SLE patients seems to herald a more severe clinical course of the illness**.**

AIM OF THE WORK

1- To study the prevalence of nailfold capillaroscopic changes in patients with SLE.

2- To find out the patterns of these changes

3- To correlate these findings with different clinical and laboratory parameters.