

Adrenomedullin Level in Systemic Lupus Erythematosus Patients with and without Nephritis

Thesis

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List of Abbreviations

ACE	Angeotensin converting enzyme
ACLE	Acute cutaneous lupus erythematosus
ACR	American college of rheumatology
ACTH	Adrenocorticotrophic, hormone
AM	Adrenomedullin
ANA	Antinuclear antibody
ANCA	Anti-neutrophil cytoplasmic antibody
ANP	A-Type natriuretic peptide
Anti-dSDNA .	Anti-double strand DNA
Anti-Sm	Anti-smith antibody
Anti-SSA	Anti-sjogren syndrome A
Anti-SSB	Anti-sjogren syndrome B
APRIL	Aproliferation inducing ligand
APS	Antigen presenting cell
AS	Ankylosing spondylitis
AUC	Area under the curve
BAFF	B-cell activating factor
BILAG	British isle lupus assessment group
BLYS	B lymphocyte stimulator
C	Complement

CAAT	Cytosine, Adenine/ Adenine/ Thymine
cAMP	Cyclic adenosine monophosphate
CBC	Complete blood count
CCL5	Chemokine
CCLE	chronic cutaneous lupus erythematosus
CD	Cluster of differentiation
CGRP	Calcitonin gene-related peptide
CKD	Chronic kidney disease
CNS	Central nervous system
CRLR	Calcitonin receptor like receptor
CTLA-4	Cytotoxin T-lymphocyte associated protein
CVS	Cardiovascular system
DC	Dendritic cell
DL	Discoid lupus
DNA	Deoxy nucleic acid
E	Endothelin
ELISA	Enzyme linked immunosorbent assay
EM	Electron microscope
EPZ	Epratuzumab
ESRD	End stage renal disease
FAD	Food drug administration
FC	Fragment constant

G	Global
GC Box	Distinct pattern of nucleotide has sequence of GGGGG
GFR	Glomerular filtration rate
GMB	Glomerular Basement membrane
HLA	Human leucocyte antigen
HPF	High power field
HRP	Horse radish peroxidase
IC	Immunocomplex
IFN	Interferon
Ig	Immunoglobulin
IL	Interleukin
IL-1RA	Interleukin-1 receptor antagonist
IP	Inosin monophosphate
ISN	International Society of nephrology
L	Litre
LM	Light microscope
LN	Lupus nephritis
M	Mesangial
mAb	Monoclonal antibodies
MCP1	Monocyte chemo attractant protein-1
MHO	Major histocompatibility complex
MIF	Migration inhibiting factor

MM	Mesangial-matrix
MMF	Mycophenolate mofetil
mRNA	Massenger RNA
NF-κB	Nuclear factor-kappa B
NGAL	Neutrophil-gelatinase associated lipocalin
NO	Nitric-oxide
NPSLE	Neuro psychiatric systemic lupus erythematosus
NPV	Negative predictive value
OD	Optical density
PAS	Periodic acid schiff
PBMC	Peripheral blood mononuclear cell
PDGP	Platelet derived growth factor
PKA	Protein kinase
PO	Podo cyte
PPV	Positive predictive value
RA	Rheumotoid arthritis
RAAS	Renin angeotensin aldosteron system
RAMP	Receptor activity modifying protein
RBC	Red blood cell
RNA	Ribonucleic acid
RNP	Ribonucleoprotein
ROC	Receiver operating curve
ROM	Reactive oxygen metabolite

RPS	Renal pathology society
RTX	Rituximab
S	Segmental
SD	Standard Deviation
Sens.	Sensitivity
SLE	Systemic lupus erythematosus
SLEDAI	Systemic lupus erythematosus disease activity index
SLICC	Systemic lupus international collaborating clinics
SMIP	Small Modular Immuno Pharmaceutical
Spe.	Specificity
TACI	Transmembrane activator and calcium modulating ligand interactor
TATA	Thymine/adenine/ Thymine, Adenine.
TGF	Tumor growth factor
TH	T helper
TMB	Tetramethyl benzidine
TNF	Tumor necrosis factor
WBC	White blood cell
WHO	World health organization
XO	Turner syndrome
XXY	Klinefelter syndrome

INTRODUCTION

Systemic Lupus Erythematosus (SLE) is an autoimmune, multi-systemic disease that is characterized by the production of antibodies against nuclear antigens. The pathogenesis includes genetic, environmental, and hormonal factors. A broad array of clinical manifestations ranging from mucocutaneous manifestations and arthritis to severe organ- and life-threatening disease are observed in SLE patients (*Postal et al., 2012*).

Lupus nephritis (LN) is one of the most severe forms of organ involvement in SLE and occurs in at least 50% of SLE patients. Current evidence suggests that dysregulated expression of cytokines plays a crucial role in the immunopathogenesis of SLE. Previous studies showed a predominantly type 1 T-helper cell (Th1) activation in patients with active LN (*Szeto et al., 2012*).

SLE, because of its complex and multi-systemic presentation, lacks a reliable and sensitive gold standard for measuring disease activity. Several disease activity indices have been developed over the years (*Luijten et al., 2012*).

A number of biochemical markers are currently used to clinically assess SLE renal disease activity, such as anti-dsDNA antibodies and complement component levels. Nevertheless, the correlation between these markers and LN is imperfect, and