



Urinary Biomarkers in lupus Nephritis

Thesis

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ABSTRACT

This work aimed to study whether urinary tumor necrosis factor (TNF)-like weak inducer of apoptosis (uTWEAK) level has a predictive and/or diagnostic value in lupus nephritis (LN).

73 patients with systemic lupus erythematosus (SLE) fulfilling the 1997 revised criteria for the classification of SLE and 23 age/ sex-matched healthy control included in this study were subjected to full history taking, clinical examination, routine laboratory investigations as well as measurement of uTWEAK level.

uTWEAK levels were significantly higher in SLE patients with active LN compared to those without or with inactive renal disease and normal healthy subjects

Keywords: - Systemic lupus erythematosus - Lupus nephritis
- Urinary TNF-like weak inducer of apoptosis (uTWEAK)

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LIST OF ABBREVIATIONS

aa	Amino acid
ACR	American College of Rheumatology
Ag–Ab	Antigen–antibody
AGP	Alpha-1-acid-glycoprotein
AKI	Acute kidney injury
ALT	Alanine transaminases
ANA	Antinuclear antibody
ANCA	Antineutrophil cytoplasmic autoantibodies
APCs	antigen-presenting cells
aPL	Antiphospholipid antibodies
APRIL	A proliferation-inducing ligand
APS	antiphospholipid syndrome
AST	Aspartate transaminases
BAFF-R	B-cell activating factor receptor
BCMA	B-cell maturation protein
BILAG	The British Isles Lupus Assessment Group
BLys	B lymphocyte stimulator
BUN	Blood urea nitrogen
C	Complement
CBC	Complete blood count
CD	Cluster of differentiation
cGVH	Chronic graft-versus- host
CKD	Chronic kidney disease

CNS	Central nervous system
CP	Ceruloplasmin
CpG	Cytosine-phosphateguanine
CTLA-4	cytotoxic T-lymphocyte antigen 4
CVA	Cerebrovascular accident
CXCL	C-X-C chemokine ligand
DCs	dendritic cells
DD	Death domain
ds DNA	Double stranded deoxyriboneuclic acid
DTPA	diethylene triamine pentaacetic acid
ECG	Electrocardiogram
ELISA	Enzyme-Linked Immunsorbant Assay
EM	Electron microscopy
ESR	Erythrocyte sedimentation rate
ESRD	End-stage renal disease
FasL	Fas ligand
Fc	The constant fragment of antibody
FeET-1	fractional excretion of ET-1
Fn14	Fibroblast growth factor-inducible 14
FOXP3	Forkhead family transcription factor 3
g	gram
GBM	Glomerular basement membrane
GFR	Glomerular filtration rate
GN	Glomerulonephritis

gp	Glycoproteins
HB	Hemoglobin
HCQ	Hydroxychloroquine
Hp-Hb	Haptoglobin-haemoglobin
HUS	Hemolytic Uremic Syndrome
IC	Immune complex
ICAM 1	Intercellular adhesion molecule 1
IF	Immunofluorescence
IFN-γ	Interferon-gamma
Ig	Immunoglobulin
IL	Interleukin
IP-10	Interferon-γ-inducible protein
ISN	International Society of Nephrology
IκBs	Inhibitory kappa B subunits
JAK1	Janus kinase-1
kD	KiloDalton
LM	Light microscopy
LN	Lupus nephritis
LPGDS	Lipocalin-type prostaglandin D-synthetase
m TWEAK	membrane-bound TWEAK
MAPK	Mitogen-activated protein kinase
MCSF	Macrophage colony stimulating factor
MCSF	Macrophage colony stimulating factor
mg	Milligram

MIF	macrophage migration inhibitor factor
mm	Millimeter
MMPs	matrix metalloproteinases
MPO	myeloper-oxidase
mRNA	Messenger ribonucleic acid protein
MS	multiple sclerosis
NFκB	nuclear factor kappa light chain enhancer of activated B cells
NGAL	Neutrophil gelatinase-associated lipocalin
NK	natural killer
NSAIDs	Non-steroidal anti-inflammatory drugs
OPG	Osteoprotegerin
PAH	Para-aminohippurate
PAMPs	Pathogen-associated molecular patterns
PBMC	Peripheral blood mononuclear cells
PDC	Plasmacytoid dendritic cells
PDGF	Platelet derived growth factor
PR3	Proteinase 3
R	Receptor
RA	Rheumatoid arthritis
RANTES	Regulated upon Activation, Normal T cell Expressed, and Secreted
RBCs	Red blood cells
RIG-I	retinoic acid inducible gene I
ROC	Receiver Operating Characteristic

RPGN	rapidly progressive glomerulonephritis
RPS	the Renal Pathology Society
rSLEDAI	renal Systemic Lupus Erythematosus Disease Activity Index
S.D.	Standard deviation
SELDI-TOF MS	surface-enhanced laser desorption/ionization time-of-flight mass spectrometry
SLAM	the Systemic Lupus Activity Measure
SLE	Systemic lupus erythematosus
SLEDAI	Systemic Lupus Erythematosus Disease Activity Index,
SLICC/ACR	The Systemic Lupus International Collaborating Clinics/ American College of Rheumatology
sTWEAK	soluble TWEAK
TACI	transmembrane activator and calcium modulating cyclophilin ligand interactor
TCR	T cell receptor
TF	transferrin
TGF-β	Transforming growth factor-beta
Th	T-helper
TLC	Total leucocytic count
TLRs	Toll-like receptors
TMA	Thrombotic microangiopathy
TNFRSF	Tumor necrosis factor receptor superfamily
TNF-α	Tumor necrosis factor-α
TRAF	TNFR-associated factor
TRAILR	TNF-related apoptosis-inducing ligand receptor

Tregs	regulatory T cells
tSLEDAI	total Systemic Lupus Erythematosus Disease Activity Index
TTP	Thrombotic Thrombocytopenic Purpura
TWEAK	Tumor necrosis factor–like weak inducer of apoptosis
u-MCP-1	urinary monocyte chemoattractant protein–1
VCAM- 1	Vascular cell adhesion molecule-1
VEGF	vascular endothelial growth factor
WBC	White blood cells
WHO	World health organization

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