

Study of Neutrophil Nicotinamide Adenine Dinucleotide Phosphate Oxidase Activity and Neutrophil Extracellular Traps in Pediatric Systemic Lupus Erythematosus

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ

سُبْحَانَكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْعَظِيمُ

صدق الله العظيم

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*It's now and always the blessing of The Most Merciful **Allah**. We pray for Him to accept and bless this modest effort.*

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*✍️ **Sally Gouda***



To My Husband and Kids,

*Who have always been a source of inspiration and
encouragement*

To My Beloved Parents,

*The reason of what I become today
Thanks for your great support and continuous care*

To My Brothers,

I am really grateful to both of you

Contents

Subjects	Page
List of abbreviations.....	II
List of Tables	V
List of Figures.....	VIII
• Introduction	1
• Aim of the Work	5
• Review of Literature	6
• Subjects and Methods	52
• Results	71
• Discussion	115
• Recommendation	133
• Summary	134
• References	139
• Arabic Summary	

List of Abbreviations

Abbrev.	Meaning
ANA	Anti-nuclear antibody
Anti-B2GP1	Anti-beta-2-glycoprotein 1
ANCA	Anti-neutrophil cytoplasmic antibody
cANCA	cytoplasmic Anti-neutrophil cytoplasmic antibody
pANCA	perinuclear Anti-neutrophil cytoplasmic antibody
Anti-dsDNA	Anti-double stranded deoxyribonucleic acid
APCs	Antigen presenting cells
aPL	Antiphospholipid syndrome
APS	Antiphospholipid antibody syndrome
C/EBP	Enhancer-binding protein
C4BP	C4b-binding protein
C3	Complement 3
C5a	Complement component 5a
CACs	Circulating angiogenic cells
CBC	Complete blood count
CCAAT/EBPs	Cytosine-cytosine-adenosine-adenosine-thymidine / enhancer binding proteins
CG	Cathepsin G
CGD	Chronic granulomatous disease
CNS	Central nervous system
CXCR	Chemokine receptor type

List of Abbreviations

DHR	Dihydrorhodamine
DPI	Diphenyleneiodonium
EDTA	Ethylene diaminetetraacetate
ELISA	Enzyme-linked immunosorbent assay
EPCs	Endothelial progenitor cells
ESR	Erythrocyte sedimentation rate
fMLP	Formylmethionyl-leucyl-phenylalanine
G-CSF	Granulocyte colony-stimulating factor
GM-CSF	Granulocyte-macrophage colony-stimulating factor
hCAP18	Human cationic antimicrobial protein 18
HClO	Hypochlorous acid
HLE	Human leukocyte elastase
ICAM	Intercellular adhesion molecule
IF	Immuno-fluorescence
IFN	Interferons
IGF-I	Insulin-like growth factor I
Igs	Immunoglobulins
IL	Interleukin
JAM	Junctional adhesion molecule
LPS	Lipopolysaccharide
LDGs	Low-density granulocytes
LEF-1	Lymphoid enhancer-binding factor 1
LF	Lactoferrin
LFA-1	Lymphocyte function-associated antigen-1
LN	Lupus nephritis
LZ	Lysozyme
MAC-1	Macrophage antigen-1

List of Abbreviations

MADCAM-1	Mucosal vascular cell-adhesion molecule-1
mDCs	Myeloid <u>dendritic cell</u>
MPC-FL	Mean peak channel fluorescence
MPO	Myeloperoxidase
NCF2	Neutrophil cytosolic factor 2
NE	Neutrophil elastase
NETs	Neutrophil extracellular traps
NGAL	Neutrophil gelatinase-associated lipocalin
NLRP3	NOD-like receptor pyrin domain containing-3
NLRs	Nucleotide oligomerization domain -like receptors
NOD	Nucleotide oligomerization domain
NOI	Neutrophil oxidative index
Nox2	NADPH oxidase
PAD4	Peptidylargininedeiminase 4
PBMCs	Peripheral blood mononuclear cells
pDC	Plasmacytoid dendritic cell
PECAM-1	Platelet endothelial-cell adhesion molecule-1
PMA	Phorbol 12-myristate 13-acetate
PR3	Proteins proteinase 3
PRRs	Pattern recognition receptors
PSGL-1	P-selectin glycoprotein ligand-1
RIG-I	Retinoic acid inducible gene 1
ROS	Reactive oxygen species
SDI	Systemic Lupus International Collaborating Clinics/American College of Rheumatology (SLICC/ACR) Damage Index
SDF-1	Stromal cell-derived factor-1

List of Abbreviations

SLICC	Systemic Lupus International Collaborating Clinics
SLE	Systemic lupus erythematosus
SLEDAI	Systemic Lupus Erythematosus Disease Activity Index
TLRs	Toll-like receptors
TNF-α	Tumor necrosis factor- α
TRAIL	TNF-related apoptosis-inducing ligand
TRIM	tripartite motif protein
VCAM-1	Vascular Cell-Adhesion Molecule-1
VLA-4	Very late antigen-4

List of Tables

<u>No.</u>	<u>Table</u>	<u>Page</u>
<u>1</u>	Neutrophil granules and their contents.	9
<u>2</u>	ANCA Interpretations	57
<u>3</u>	Systemic Lupus Erythematosus Disease Activity Index.	62
<u>4</u>	SLEDAI score.	64
<u>5</u>	Systemic Lupus International Collaborating Clinics/American College of Rheumatology (SLICC/ACR) Damage Index.	65
<u>6</u>	Interpretation of correlation coefficient.	68
<u>7</u>	Interpretation of Area under ROC curve.	68
<u>8</u>	Positive and negative predictive values.	69
<u>9</u>	Demographic and disease characteristics (clinical and laboratory data) of the studied SLE patients.	73
<u>10</u>	Laboratory parameters of the enrolled patients.	74
<u>11</u>	NET and DHR assay in patients and controls.	78
<u>12</u>	Receiver-operating characteristic (ROC) curve analysis for discrimination between patients and controls using NET.	80
<u>13</u>	Variation of NET results in different organs affection among enrolled patients	81
<u>14</u>	Variation of DHR results in different organs affection among enrolled patients	84
<u>15</u>	Comparison of NET and DHR in patients with proliferative and non-proliferative LN	87

List of Tables

<u>No.</u>	<u>Table</u>	<u>Page</u>
<u>16</u>	Comparison of NET and DHR in Patients with LN and CNS lupus	88
<u>17</u>	Correlation between both NET and DHR assay and the studied routine and immunological laboratory data	89
<u>18</u>	Correlation between both NET and DHR assay and global disease activity as per the SLEDAI	91
<u>19</u>	Correlation between both NET and DHR assay and age and immunosuppressive therapy received	92
<u>20</u>	Comparison between grades of SLEDAI, Renal SLEDAI and SDI as regard levels of NET	100
<u>21</u>	Comparison between grades of SLEDAI, Renal SLEDAI and SDI as regard levels of DHR	103
<u>22</u>	Multivariable binary logistic regression analysis for prediction of moderate or higher global disease activity as per the SLEDAI	106
<u>23</u>	Multivariable binary logistic regression analysis for prediction of renal activity as per the renal SLEDAI	107
<u>24</u>	Multivariable binary logistic regression analysis for prediction of lupus related damage as per the SDI	108
<u>25</u>	Receiver-operating characteristic (ROC) curve analysis to predict SLEDAI using NET	109
<u>26</u>	Receiver-operating characteristic (ROC) curve analysis to predict renal activity using NET	110
<u>27</u>	Receiver-operating characteristic (ROC) curve analysis to predict SDI using NET	111

List of Tables

<u>No.</u>	<u>Table</u>	<u>Page</u>
<u>28</u>	Receiver-operating characteristic (ROC) curve analysis to predict SLEDAI using DHR	112
<u>29</u>	Receiver-operating characteristic (ROC) curve analysis to predict renal activity using DHR	113
<u>30</u>	Receiver-operating characteristic (ROC) curve analysis to predict SDI using DHR	114

List of Figures

<u>No.</u>	<u>Figure</u>	<u>Page</u>
<u>1</u>	Surface receptors and cytoplasmic granules of neutrophils	10
<u>2</u>	Demonstrating global disease activity according to SLEDAI	75
<u>3</u>	Demonstrating lupus related damage according to SDI	76
<u>4</u>	Demonstrating immunosuppressive therapy received	77
<u>5</u>	NET level is significantly higher in the studied patients compared to the control group	79
<u>6</u>	No significant difference in DHR results between patients and controls	79
<u>7</u>	Receiver-operating characteristic (ROC) curve to define the best cut off value of NET	80
<u>8</u>	No significant difference in NET assay between patients with different classes of LN and those without	82
<u>9</u>	No significant difference in NET assay between patients with CNS lupus and those without	83
<u>10</u>	No significant difference in NET assay between patients with multi-organ affection and those without	83
<u>11</u>	No significant difference in DHR assay between patients with different classes of LN and those without	85
<u>12</u>	No significant difference in DHR assay between patients with CNS lupus and those without	86

List of Figures

<u>No.</u>	<u>Figure</u>	<u>Page</u>
<u>13</u>	No significant difference in DHR assay between patients with multi-organ affection and those without	86
<u>14</u>	Scatter plot showing strong negative correlation between NET and DHR	93
<u>15</u>	Scatter plot showing moderate positive direct correlation between NET and ESR	93
<u>16</u>	Scatter plot showing positive direct correlation between NET and BUN	94
<u>17</u>	Scatter plot showing moderate positive direct correlation between NET and 24 hour urinary protein excretion	94
<u>18</u>	Scatter plot showing moderate negative correlation between NET and C3 level	95
<u>19</u>	Scatter plot showing positive direct correlation between NET and Anti-DNA level	95
<u>20</u>	Scatter plot showing moderate positive direct correlation between NET and steroid dose	96
<u>21</u>	Scatter plot showing moderate negative correlation between DHR and ESR	96
<u>22</u>	Scatter plot showing moderate negative correlation between DHR and BUN	97
<u>23</u>	Scatter plot showing moderate negative correlation between DHR and 24 hour urinary protein excretion	97
<u>24</u>	Scatter plot showing moderate positive direct correlation between DHR and C3 level	98
<u>25</u>	Scatter plot showing negative correlation between DHR and Anti-DNA level	98

List of Figures

<u>No.</u>	<u>Figure</u>	<u>Page</u>
<u>26</u>	Scatter plot showing moderate negative correlation between DHR and steroid dose	99
<u>27</u>	NET is significantly higher in patients with moderate to severe disease activity	101
<u>28</u>	NET is significantly higher in patients with renal activity compared to those without	102
<u>29</u>	NET is higher in patients with mild damage compared to those with no damage	102
<u>30</u>	DHR is significantly lower in patients with moderate, severe and high severe disease activity	104
<u>31</u>	DHR is significantly lower in patients with renal activity compared to those without	105
<u>32</u>	DHR results are lower in patients with lupus related damage	105
<u>33</u>	Receiver-operating characteristic (ROC) curve for the predictive value of NET in SLEDAI	109
<u>34</u>	Receiver-operating characteristic (ROC) curve for the predictive value of NET in renal activity	110
<u>35</u>	Receiver-operating characteristic (ROC) curve for the predictive value of NET in SDI	111
<u>36</u>	Receiver-operating characteristic (ROC) curve for the predictive value of DHR in SLEDAI	112
<u>37</u>	Receiver--operating characteristic (ROC) curve for the predictive value of DHR in renal activity	113
<u>38</u>	Receiver-operating characteristic (ROC) curve for the predictive value of DHR in SDI	114