



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكرو فيلم

# بسم الله الرحمن الرحيم



**MONA MAGHRABY**



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# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# جامعة عين شمس التوثيق الإلكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



## يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



**MONA MAGHRABY**

# **Neutrophil- and platelet-to-lymphocyte ratios (NLR&PLR) and their relation with disease activity in rheumatoid arthritis patients**

*Thesis*

Submitted for Partial Fulfillment of the master Degree in  
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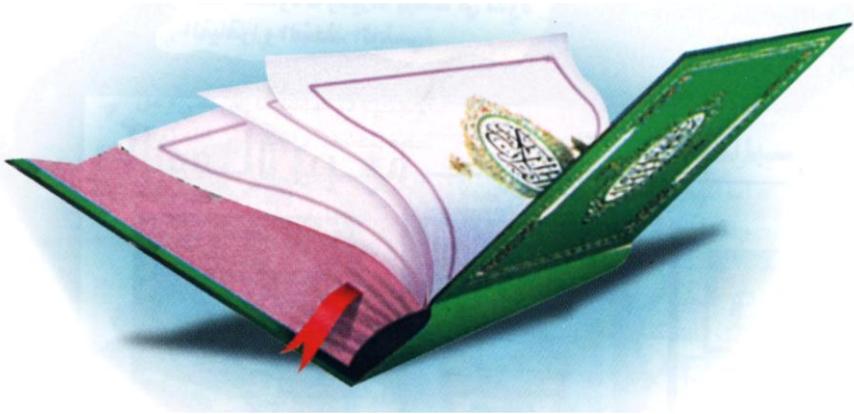
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**2021**

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

وَقُلْ اَعْمَلُوا فَسَيَرَى اللّٰهُ  
عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ



صدق الله العظيم

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## List of Abbreviations

AA	: Amyloidosis; reactive amyloid A
ACD	: Anemia of chronic disease
ACPAs	: Anticitrullinated protein antibodies
ACR	: American college of rheumatology
ACS	: Acute coronary syndrome
ADAL	: Adalimumab
ADCC	: Antibody dependent cell mediated cytotoxicity
ADP	: Adenosine diphosphate
AF	: Atrial fibrillation
AL	: Amyloid light-chain
ALT	: Alanine transaminase
ANC	: Absolute neutrophile count
Ang1, Ang2	: Angiopoietin 1, 2
anti-CarP	: Anti-carbamylated protein antibodies
APCs	: Antigen-presenting cells
APRIL	: A proliferation-inducing ligand
APRs	: Acute phase reactants
AS	: Ankylosing spondylitis
AST	: Aspartate aminotransferase
AUC	: Area under the ROC curve
AZA	: Azathioprine
BAFF	: B-cell activating factor
BAR	: Baricitinib
BCR	: B cell antigen receptor
bDMARDs	: Biologic disease-modifying antirheumatic drugs
BES	: Bone erosion score
BLyS	: B-lymphocyte stimulator
BM	: Bone marrow

BME	: Bone marrow edema
Breg	: Regulatory B-cells
bsDMARDs	: Biosimilar DMARDs
BSI	: Blood stream infection
BTK	: Bruton's tyrosine kinase
CBC	: Complete blood count
CBT	: Cognitive behavioral therapy
CCL	: CC-chemokine ligand
CD	: Color Doppler
CDAI	: Clinical Disease Activity Index
CI	: 95% confidence interval
COMP	: Cartilage oligomeric matrix protein
COPD	: Chronic obstructive pulmonary diseases
CP	: Cyclophosphamide
CRP	: C-reactive protein
csDMARDs	: Conventional synthetic DMARDs
CTZ	: Certolizumab
CVDs	: Cardiovascular diseases
CXCL	: CXC-chemokine ligand
CYA	: Cyclosporine
DAH	: Diffuse alveolar hemorrhage
DAMPs	: Damage-associated molecular patterns
DAS	: Disease Activity Score
DAS- 28	: DAS using 28 joint counts
DC	: Dendritic cell
DHEA-S	: Dehydroepiandrosterone sulfate
DIC	: Disseminated intravascular coagulation
DM	: Diabetes mellitus
DMARDs	: Disease modifying antirheumatic drugs
EAMs	: Extra-articular manifestations of RA
ECM	: Extracellular matrix

ELISA	: Enzyme - linked immunosorbent assay
ER $\alpha$	: Estrogen receptor alpha
ER $\beta$	: Estrogen receptor beta
ESR	: Erythrocyte Sedimentation Rate
ETN	: etanercept
EULAR	: European league against rheumatism
Fab	: fragment antigen-binding
Fc $\gamma$ R	: Fc-gamma receptor
FGF	: Fibroblast growth factor
FLSs	: Fibroblast-like synoviocytes
FMF	: Familial mediterranean fever
GC	: Glucocorticoids
G-CSF	: Granulocyte colony stimulating factor
GH	: Global health assessment, General health
GLM	: Golimumab
GM-CSF	: Granulocyte macrophage colony stimulating factor
GPIb $\alpha$	: Platelet glycoprotein Ib $\alpha$
GS	: Gray scale
GSTS	: Gray scale tenosynovitis
GSUS	: Grayscale US
HAQ	: Health Assessment Questionnaire
HAQ-DI	: Health Assessment Questionnaire Disability Index
HAS	: Anti-human serum albumin
HCC	: Hepatocellular carcinoma
HCQ	: Hydroxychloroquine
HCV	: Hepatitis c virus
HGF	: Hepatocyte growth factor
HLA	: Human leukocyte antigen
HOC1	: Hypochlorous acid

HRT	: Hormonal replacement therapy
iBr35	: IL-35- producing BREG cells
ICOS	: Inducible costimulator
ICOSL	: ICOS ligand
IFNs	: Interferons
IFN- $\gamma$	: Interferon gamma
Ig	: Immunoglobulin
IL 8	: Interleukin 8
IL18	: Interleukin 18
IL-1ra	: Interleukin-1 receptor antagonist
IL1 $\beta$	: Interleukin 1beta
IL-2	: Interleukin IL-2
IL-2 $\beta$	: Interleukin 2-beta
IL6	: Interleukin 6
IL8	: Interleukin 8
ILD	: Interstitial Lung Disease
INF	: Infliximab
IPF	: Interstitial pulmonary fibrosis
IQR	: Interquartile range
iTregs	: Inducible T regulatory cells
IV	: Intravenous
IVIG	: Intravenous immunoglobulin
JAKs	: Janus Kinases
JIA	: Juvenile Idiopathic Arthritis
JRA	: Juvenile RA
LEF	: Leflunomide
LR	: Likelihood ratio
LTa	: Lymphotoxin
LTB4	: Leukotriene B4
LXA4	: Lipoxin A4
MAB	: Monoclonal antibody

MCP	: Metacarpophalangeal joint
MH	: Megahertz
MHC	: Major histocompatibility complex
MI	: Myocardial infarction
MIP1- $\alpha$	: Macrophage Inflammatory Protein 1-alpha
MMPs	: Matrix metalloproteinases
MPO	: Myeloperoxidase
MRI	: Magnetic resonance imaging
MSCs	: Mesenchymal stromal/stem cells
mTNF	: Transmembrane precursor form
MTP	: Metatarsophalangeal joint
MTX	: Methotrexate
M $\Phi$ s	: Macrophages
NBTE	: Nonbacterial thrombotic endocarditis
NE	: Neutrophil elastase
NETs	: neutrophil extracellular traps
NF-AT	: Nuclear factor of activated T cells
NK	: Natural killer cells
NLR	: Neutrophil lymphocyte ratio
No	: Number
NPV	: Negative predictive value
NSAIDs	: Non-steroidal anti-inflammatory drugs
NSCLC	: Non-small cell lung carcinoma
OA	: Osteoarthritis
OCs	: Oral contraceptives
OMERACT	: Outcome measures in Rheumatology
OPN	: Osteopontin
PA	: Physical activities
PAD	: Peptidyl arginine deiminases
PAH	: Pulmonary arterial hypertension
PAMPs	: Pathogen-associated molecular patterns

PBMC	: Peripheral blood mononuclear cells
PCI	: Percutaneous coronary intervention
PCO	: Polycystic ovary syndrome
PD	: Power Doppler
PDGF	: Platelet-derived growth factor
PDTS	: Power Doppler tenosynovitis
PDUS	: Power Doppler ultrasound
PEG	: Polyethylene glycol
PF4	: Platelet factor 4
PGA	: Patient global assessment of disease
PGRPs	: Peptidoglycan recognition proteins
PHYGA	: Physician global assessment of disease
PI3Ks	: Phosphoinositide 3-kinases
PICOs	: Population, intervention, comparator, and outcomes
PIP	: Proximal interphalangeal joint
PML	: Progressive multifocal leukoencephalitis
PMNs	: Polymorphonuclear leukocytes
PPV	: Positive predictive value
PR	: Palindromic rheumatism
PRF1	: Perforin-1
PROs	: Patient-reported outcomes
PRP	: platelet-rich plasma
PSGL1	: P-selectin glycoprotein ligand 1
pSyk	: Spleen tyrosine kinase in peripheral blood B cells
RA	: Rheumatoid arthritis
RAI	: Ritchie articular index
RCC	: Renal cell carcinoma
RF	: Rheumatoid factor
RN	: Rheumatoid nodules

ROC	: Receiver-operating characteristic curve
RPGN	: Rapidly progressive glomerulonephritis
RV	: Rheumatoid vasculitis
SCD	: Sudden cardiac death
sCD40L	: Soluble CD40 ligand
SCLC	: Small cell lung cancer
ScUSI	: Semiquantitative US Inflammation
SDAI	: Simplified disease activity index
SIR	: Systemic inflammatory response
SJC	: Swollen joint counts
SJC28	: The number of swollen joints (0-28)
SJs	: Swollen joints
SLE	: Systemic lupus erythematosus
SSZ	: Sulfasalazine
STAT	: Signal transducers and activators of transcription
sTNF	: Soluble form TNF
Syk	: Spleen tyrosine kinase
Syn	: Synovitis
TB	: Tuberculosis
TCZ	: Tocilizumaab
Ten	: Tenosynovitis
TGF- $\beta$	: Transforming growth factor beta
TH	: T helper
Th1	: T helper-1
TH17	: T helper type 17 cells
Th2	: T helper-2
TIMP-free	: Neutrophils tissue inhibitor of metalloproteinase free
TJC28	: Number of tender joints (0-28)
TJR	: Total joint replacement