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قسم

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

Relation between hand bone mineral density, degree of joint destruction and hand function in adults rheumatoid arthritis patients

Thesis

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By

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Abstract

Background: Rheumatoid Arthritis [RA] is a chronic systemic disease that affects the functional capacity of the hand due to inflammatory arthritis and joint destruction. RA patients have difficulties with everyday life activities and daily living activities. The prevalence of osteoporosis is estimated to be about twice that of the general population. Dual-energy X-ray absorptiometry (DEXA) is the most precise tool for detecting loss in bone mineral density in RA. Aim of the study: This study aims to investigate the relation between generalized bone mineral density (BMD) and each of hand joint destruction and hand function in order to find out its possible role in assessment of rheumatoid hand disability.

Patients and Methods: Fifty patients diagnosed as RA based on the 2010 ACR Rheumatoid Arthritis Classification Criteria were included in this study. All patients were subjected to the following scores: Duruöz Hand Index (DHI), Grip Ability Test (GAT), Grip strength test, and Pinch strength tests for assessing the function of the dominant hand of each patient. The participants were also subjected to plain x-ray evaluated by van der Heijde-modified total Sharp score (vdH-S) to assess the damage of the joints of the dominant hand, and Dual-energy X-ray absorptiometry (DEXA) to assess the Bone Mineral Density.

Results: The current study showed that wrist BMD was correlated with grip strength, pinch strength, GAT, and van der Heijde modified sharp score of the dominant hand. Moreover, X-ray joint findings were significantly correlated with each of total grip ability test, grip strength, and pinch strength as the hand disability manifested more with joint damage.

Conclusion: In conclusion, Osteoporosis, hand function, and joint damage in RA are correlated suggesting related pathophysiological mechanisms. The Severity of RA could be related to osteoporosis as well as joint destruction and hand disability.

Keywords: DEXA, hand function, Rheumatoid Arthritis [RA], van der Heijde-modified total Sharp score (vdH-S).

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List of Abbreviations

Abb.	Full Term
ACPA	Anti-Citrullinated Protein Antibodies
ADLs	Activities of Daily Living
AHFT	Arthritis Hand Function Test
anti-CCP	Antibodies to Cyclic Citrullinated Peptides
BBT	the Box and Block Test
BMD	Bone mineral density
CAD	Coronary Artery Disease
CBC	Complete Blood Count
CCP	Cyclic Citrullinated Peptide
CD40	Cluster of Differentiation 40
CDAI	Clinical Disease Activity Index
CHF	Congestive Heart Failure
CRP	C-reactive Protein
CT	Computed Tomography
CTLA4	Cytotoxic T-lymphocyte Antigen 4
DAS	Disease Activity Score
DXA	Dual-Energy X-ray Absorptiometry
DHI	Duruöz Hand Index
DIPs	Distal Interphalangeal Joints
DMARDs	Disease-Modifying AntiRheumatic Drugs
ESR	Erythrocyte Sedimentation Rate
FLS	Fibroblast-Like Synoviocytes
GAT	Grip Ability Test
GI	Gastrointestinal
GSTM1	Glutathione S-Transferase Mu 1

List of Abbreviations (Continued)

Abb.	Full Term
GWAS	Genome-Wide Association Studies
HLA	Human Leukocyte Antigen
HS	Highly Significant
IFN	Interferons
Ig	Immunoglobulin
IL	Interleukins
ILD	Interstitial Lung Disease
IQR	Interquartile Range
ISCD	International Society for Clinical Densitometry
MCPs	Metacarpophalangeal Joints
M-CSF	Macrophage-Colony Stimulating Factor
MHC	Major Histocompatibility Complex
MIR 146A	microRNA 146A
MRI	Magnetic Resonance Imaging
MRM	Minnesota Rate of Manipulation test
NOF	National Osteoporosis Foundation
NS	Non Significant
OA	Osteoarthritis
OPG	Osteoprotegerin
PAS- II	Patient Activity Scale-II
PIPs	Proximal interphalangeal joints
pQCT	Peripheral Quantitative Computed Tomography
PRKCQ	Protein Kinase C Theta Type
PSI	Pounds Per Square Inch

List of Abbreviations (Continued)

Abb.	Full Term
PSORS1C1	Psoriasis Susceptibility 1 Candidate 1
PTPN22	Protein Tyrosine Phosphatase Non-Receptor Type 22
r	The Correlation Coefficient
RA	Rheumatoid Arthritis
RANKL	Receptor Activator of Nuclear Factor κB Ligand
RAPID-3	Routine Assessment of Patient Index Data 3 Measures
RF	Rheumatoid Factor
S	Significant
SD	Standard Deviation
SDAI	Simplified Disease Activity Index
SNP	Single Nucleotide Polymorphism
STAT4	Signal Transducer and Activator of Transcription 4
TH	T Helper Cells
TNFAIP3	Tumor Necrosis Factor Alpha-Induced Protein 3
TNFα	Tumor Necrosis Factor Alpha
TRAF1	Tumor Necrosis Factor Receptor Associated Factor 1
UEFT	the Upper Extremity Function Test
ULN	the Upper Limit of Normal Value
US	Ultrasound
vdH-S	van der Heijde-Modified Total Sharp Score
WHO	World Health Organization

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