Electrocardiographic and Echocardiographic Changes in Rheumatoid Arthritis Patients

Thesis

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List of Abbreviations

Abb.	Full term
ACPAs	Anti-cyclic citrullinated peptide Antibodies.
ACR	American College of Rheumatology.
ADMA	Asymmetric dimethylarginine.
ANA	Antinuclear Antibody.
Anti-CCP	Anticyclic citrullinated peptide antibodies.
Anti-MCV	Antibodies against mutated citrullinated Vimentin
APC	Antigen presenting cells.
CAD	Coronary artery disease.
CCP	Cyclic citrullinated peptide.
CD4+	Cluster of differentiation 4+.
CDAI	Clinical Disease Activity Index.
CHD	Coronary heart disease.
CHF	Congestive heart failure..
CRP	C-reactive protein.
CT	Computed tomography.
CVA	Cerebrovascular accident
CVD	Cardiovascular disease.
DAS	Disease Activity Score.
DAS28	The DAS based on 28 joint counts.
DM	Diabetes mellitus
DMARDs	Disease-modifying antirheumatic drugs.
DVT	Deep venous thrombosis.
ECG	Electrocardiography
ECHO	Echocardiography.
EF	Ejection fraction.
EGA	Evaluator global assessment.
ELAM	Endothelial leukocyte adhesion.
EPCs	Endothelial progenitor cells.

List of Abbreviations (Cont...)

Abb.	Full term
ESR	Erythrocyte sedimentation rate.
EULAR	European League against Rheumatism.
FS	Fractional shortening.
HDL	High density lipoprotein.
HF	Heart failure.
HLA	Human leucocytic antigen.
IC	Immune complex
ICAM	Intercellular adhesion molecule.
IHD	Ischemic heart disease
IL	Interleukin.
ILD	Interstitial lung disease.
IMT	Intima-media thickness.
INF ɣ	Interferon Gamma.
IMT	intima-media thickness.
LAD	Left atrial dilatation.
LDL	Low density lipoprotein.
LV	Left ventricle.
LVH	Left ventricular hypertrophy.
MCP	Metacarpophalangeal.
MHC	Major histocombatibility complex.
MHC2TA	Major histocombatibility complex class II transactivator.
MI	Myocardial infarction.
MMP	Metalloproteinase
MRI	Magnetic resonance imaging
MSUS	Muscalo skeletal ultrasound.
MTP	Metatarsophalangeal.
MTX	Methotrexate.
NSAIDs	Non steroidal anti-inflammatory drugs.

List of Abbreviations (Cont...)

Abb.	Full term
OA	Osteoarthritis.
PADI	Peptidylarginine deiminase.
PAI-1	Plasminogen activator inhibitor -1.
PGA	Patient global assessment.
PIP	Proximal interphalangeal.
POCT	Point of care test.
PVD	Peripheral vascular disease.
RA	Rheumatoid arthritis.
RANK	Receptor activator of nuclear factor κB.
RANKL	Receptor Activator for Nuclear Factor κ B Ligand.
RF	Rheumatoid factor.
SD	Standard deviation.
SDAI	Simplified Disease Activity Index.
SpA	Spondyloarthritis
TB	Tuberculosis.
TM	Temporomandibular.
TNF-a	Tumor necrosis factor alpha.
TNF-α	Tumor necrosis factor-alpha.
ULN	Upper limit of normal.
VAS	Visual analog scales.
VCAM-1	Vascular cell adhesion molecule-1.

Introduction

Rheumatoid arthritis (RA) is a chronic autoimmune disease associated with systemic inflammation, a female predominance, and a prevalence of ≈1% that increases with age. The diagnosis is a clinical one, based on the characteristic joint manifestations ***(Turesson et al., 2004)***.

Large epidemiological studies in the last decades confirmed that patients with RA are 30 to 60% more likely to suffer cardiovascular (CV) events than subjects from the general population ***(Avina-Zubieta et al., 2008).***

The excess mortality associated with RA is due to cardiovascular disease (CVD), particularly ischemic heart disease (IHD). Many observational studies suggest that the heightened risk is not related primarily to traditional atherosclerosis risk factors or to corticosteroid and disease modifying therapy, but it is attributed to chronic inflammation with elevated levels of circulating cytokines and autoantibodies ***(Matta et al., 2009).***

Up to 30% of patients with RA have pericarditis on autopsy; echocardiographic studies and the classic ECG changes suggest that the rate may be as high as 50%, only 2 - 4% of patients have symptoms and less than 0.5% experience hemodynamic compromise ***(Imazio et al., 2005).***

In addition, myocardial and endocardial diseases have been described in association with RA. Again, these CV complications rarely cause clinical symptoms. Echocardiography reveals greater intima-media thickness in patients with RA, the more so the longer the disease duration ***(Sitia et al., 2009).***

Not only is IHD more prevalent in patients with RA, but also its clinical presentation appears to be different. Patients with RA are less likely to report chest pain or symptoms of angina associated with ambulatory ECG evidence of cardiac ischaemia than patients without RA ***(Wislowska et al., 1998).***

Clinically significant valvular disease attributable to RA appears to be uncommon. Studies using transthoracic echocardiography have detected no differences in valvular disease between groups of RA patients and controls ***(Fenchel et al., 2005)***. In contrast, mitral regurgitation was detected in 80% of 30 RA patients undergoing transesophageal echocardiography versus 37% of a control population ***(Ishida et al., 2003).***

Pulmonary hypertension is a rare complication of interstitial lung disease in patients with RA. Manifestation may include exertional chest pain indistinguishable from angina pectoris. However pulmonary artery dilatation on echocardiographic findings may help establish the diagnosis ***(McEntegart et al., 2001).***

There is an increased incidence of HF in patients with RA compared with the general population. Echocardiography demonstrate left ventricular (LV) systolic dysfunction, defined by a reduced LV ejection fraction which is more prevalent among patients with RA. The use of TNF-α blockers may be contraindicated in treaty RA in moderate to severe HF ***(Voskuyl, 2006).***

Aim of the Study

The objective of this work is to study ECG and Echocardiographic changes in rheumatoid arthritis patients as non invasive tools to detect CVD in those patients.