Scintigraphic evaluation of disease activity in juvenile rheumatoid arthritis

By

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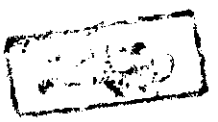

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%	percent
^{0}C	Degree Centigrade
^{99}Tc-MDP	Technitium Methelene Di Phosphonate
ACR	American College of Rheumatology
ANA	Antinuclear Antibody
Anti-ds-DNA	Anti double stranded antibody
b,i,d	twice per day
C2	Complement factor 2
C3	Complement factor 3
CBC	Complete Blood Count
CD4	Cluster of differentiation 4
CRP	C reactive protein
CT	Computerized tomography
DIP	Distal Interphalangeal
dl	deciliter
DMARDs	Disease Modifying Anti Rheumatic Drugs
ECG	Electrocardiography
ESR	Erythrocyte sedimentation rate
Ga	Gallium
GH	Growth hormone
HDD	Hydroxymethelene Di Phosphonate
HLA	Human leukocytic antigens
IgA	Immunoglobulin A
IGF1	Insulin Growth factor 1
IGF2	Insulin Growth factor 2
IgG	Immunoglobulin G
IgM	Immunoglobulin M
In	Indium
JRA	Juvenile rheumatoid arthritis.
Kg	Kilogram
L	Litre
LN	Lymph Nodes
M^2	Square meter
mCi	milli curi
MCP	Metacarbophalangeal
MDP	Methelene diphosphate
mg	milligram
mm	millimeter
mm^3	Cubic millimeter
MRI	Magnetic resonance imaging
MTP	Metatarsophalangeal
NC	Nanocolloid

NSAIDs	Non Steroidal Anti-Inflammatory Drugs
OD	Once daily
PIP	Proximal Interphalangeal
PPD	Protein Purified Derivative
q,i,d	Four times per day
RA	Rheumatoid Arthritis
RF	Rheumatoid factor
Rh +ve	Rheumatoid factor positive
Rh -ve	Rheumatoid factor negative
SAARDs	Slow Acting Anti Rheumatic Drugs
SLE	Systemic Lupus Erythematosus
TB	Tuberculosis
t,I,d	Three times per day
Y	Year(s)

Introduction & Aim of work

Rheumatoid arthritis is characterized by an inflammatory process of the synovial membrane with increased capillary permeability, exudation of plasma proteins into the synovial stroma and the joint cavity, and infiltration of cellular element ***(Arnett et al, 1988).***

The clinical assessment of this condition is normally based on the evaluation of pain and swelling experienced by the patient, physical examination of the joints and laboratory investigations. This type of assessment is obviously rather subjective and is not always able to evaluate the real state of the disease. Objective, non-invasive test, aimed at measuring the synovitis, is of great interest in clinical practice ***(Breedveld et al 1989).***

Nuclear medicine has been currently applied to evaluate disease activity ***(Breedveld et al 1989).*** Technetium-99m-labeled, non-specific, polyclonal, human Immunoglobulin G (^{99m}Tc-HIG) has been used to quantify synovial inflammation in rheumatoid arthritis, as it can be detected in inflamed joints as a result of the increased vascular permeability of the synovial membrane ***(Fishman et al 1988).***

Aim of the work:

To evaluate this scintigraphic imaging with ^{99m}Tc-HIG as an objective test for assessing synovitis and compare the results of this technique with clinical examination and laboratory indices of disease activity.

Review of literature

Review of literature

Chapter 1

Juvenile Rheumatoid Arthritis

Juvenile rheumatoid arthritis (JRA) is a disease or a group of diseases characterized by chronic synovitis and associated with a number of extra-articular manifestations. A confusing number of names have been applied, including juvenile arthritis, Still disease, juvenile chronic polyarthritis, and chronic childhood arthritis. JRA encompass several broad clinical subgroups (table 1).

1- Rheumatoid factor-positive (RF +ve) polyarticular disease.

2- Rheumatoid factor-negative (RF -ve) polyarthritis.

3- Pauciarticular disease type I.

4- Pauciarticular disease type II.

5-Systemic-onset disease.

Recognition of these subgroups is useful in the diagnosis, follow-up, and appropriate care of children with chronic arthritis ***(Schaller,1996).***

Table 1: Subgroups of JRA

Characteristics	Poly-articular rheumatoid factor-negative	Poly-articular rheumatoid factor-positive	Pauci-articular type I	Pauci-articular type II	Systemic onset
Percentage of JRA patients	20-30	5-10	30-40	10-15	10-20
Sex	90 % girls	80 % girls	80 % girls	90 % boys	60 % boys
Age at onset	Any	Late childhood	Early Childhood	Late childhood	Any
Joints	Any, multiple	Any, multiple	Few large joints: Knee, ankle, elbow	Few large joints: hip girdle	Any, multiple
Sacroiliitis	No	Rare	No	Common	No
Iridocyclitis	Rare	No	30 % chronic iridocyclitis	10-20 % acute iridocyclitis	No
Rheumatoid Factor	Negative	100 %	Negative	Negative	Negative
Antinuclear antibodies	25 %	75 %	90 %	Negative	Negative
HLA studies	?	HLA DR4	HLA DR5, DR6, and DR8	HLA B27	?
Ultimate morbidity	Severe arthritis, 10-15 %	Severe arthritis, > 50 %	Polyarthritis, 20 %	Subsequent spondyloarthropathy, ?	Severe arthritis, 25 %

(Cassidy & Petty,1995).