

RECOMMENDATIONS

Based on the results of this study we recommend the following:

1. DAS 28-CRP should be used as disease activity index for accurate assessment of disease activity.
2. Physicians should not neglect ankles and feet involvement in RA and disease activity assessment should always involve the small joints of the feet to reflect disease activity accurately.
3. ACPA positive RA patients should be treated aggressively in the beginning of the course of the disease to avoid long-term joint destruction, bone loss and disability.
4. ACPA positive RA patients with lower BMI should be advised to eat healthy food and should be closely monitored to avoid long-term joint damage.
5. DXA scan should be performed for RA patients with:
 - a. Older age.
 - b. ACPA positive patients.
 - c. Long disease duration.
 - d. High disease activity.
 - e. High radiological joint damage.
 - f. High dose of Cs intake.
6. The laboratory tests for bone turnover markers should be done in conjunction with DXA.
7. More detailed longitudinal studies with a larger sample size should be performed to assess bone loss in premenopausal, postmenopausal females and males with RA.

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ANNEX I ⁽³⁵⁾

The 2010 American College of Rheumatology/European League Against Rheumatism classification criteria for rheumatoid arthritis

Target population (Who should be tested?): Patients who:

- 1) have at least 1 joint with definite clinical synovitis (swelling)
- 2) with the synovitis not better explained by another disease

Classification criteria for RA (score-based algorithm: add score of categories A–D;

A score of $\geq 6/10$ is needed for classification of a patient as having definite RA)

	Score
A. Joint involvement	
1. 1 large joint.	0
2. 2-10 large joints	1
3. 1-3 small joints (with or without involvement of large joints)	2
4. 4-10 small joints (with or without involvement of large joints)	3
5. > 10 joints (at least 1 small joint)	5
B. Serology (at least 1 test result is needed for classification)	
1. Negative RF <i>and</i> negative ACPA	0
2. Low-positive RF <i>or</i> low-positive ACPA	2
3. High-positive RF <i>or</i> high-positive ACPA	3
C. Acute-phase reactants (at least 1 test result is needed for classification)	
1. Normal CRP <i>and</i> normal ESR	0
2. Abnormal CRP <i>or</i> abnormal ESR	1
D. Duration of symptoms	
1. <6 weeks	0
2. ≥ 6 weeks	1

ANNEX II ⁽¹⁹⁸⁾

Health Assessment Questionnaire

Name:

Date:

In this section we are interested in learning how your illness affects your ability to function in daily life. Please feel free to add any comment on the back of this page.

Please check the response which best describes your usual abilities Over the Past Week.

Without Any difficulty	With Some difficulty	With much difficulty	Unable to do
------------------------------	----------------------------	----------------------------	-----------------

DRESSING & GROOMING

Are you able to:

1. Dress yourself, including shoelaces and buttons?
2. Shampoo your hair?

ARISING

Are you able to:

3. Stand up from an armless straight chair?
4. Get in and out of bed?

EATING

Are you able to:

5. Cut your meat?
6. Lift a full cup or glass to your mouth?
7. Open a new milk carton?

WALKING

Are you able to:

8. Walk outdoors on flat ground?
9. Climb up five steps?

Please check any AIDS OR DEVICES that you usually use for any of the above activities:

Devices used for dressing (button hook, zipper pull, etc.)	Built up or special utensils Cane Walker	Crutches Wheelchair
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Please check any categories for which you usually need HELP FROM ANOTHER PERSON:

Dressing and grooming	Arising
Eating	Walking

Please check the response which best describes your usual abilities Over the Past Week.

Without Any difficulty	With Some difficulty	With much difficulty	Unable to do
------------------------------	----------------------------	----------------------------	-----------------

HYGIENE

Are you able to:

10. Wash and dry your body?
11. Take a tub bath?
12. Get on and off the toilet?

REACH

Are you able to:

13. Reach and get down a 5-pound object (such as a bag of sugar) from just above your head?
14. Bend down to pick up clothing from the floor?

GRIP

Are you able to:

15. Open car doors?
16. Open previously opened jars?
17. Turn faucets on and off?

ACTIVITIES

Are you able to:

18. Run errands and shop?
19. Get in and out of a car?
20. Do chores such as vacuuming or yard work?

Please check any AIDS OR DEVICES that you usually use for any of the above activities:

<input type="checkbox"/> Raised toilet seat	<input type="checkbox"/> Long-handled appliances in the bathroom	<input type="checkbox"/> Jar opener (for jars previously opened)
<input type="checkbox"/> Bathtub seat	<input type="checkbox"/> Long-handled appliances for reach	<input type="checkbox"/> Other (specify)

Please check any categories for which you usually need HELP FROM ANOTHER PERSON:

<input type="checkbox"/> Hygiene	<input type="checkbox"/> Gripping and opening things
<input type="checkbox"/> Reach	<input type="checkbox"/> Errands and chores

ANNEX III ⁽³⁶⁾

Disease Activity Score Index 28 (DAS 28)

DAS28 with 4 variables:

$$\text{DAS28} = 0.56\sqrt{(\text{TEN28})} + 0.28\sqrt{(\text{SW28})} + 0.70\text{Ln}(\text{ESR}) + 0.014(\text{GH})$$

TEN28

28 joint count for tenderness

SW28

28 joint count for swelling

LnESR

Natural logarithm of Western's Erythrocyte Sedimentation Rate

GH

General health or patient's global assessment of disease activity on Visual Analogue Scale of 100mm.

DAS28 score	Level of disease activity
<3.2	Low
3.2– 5.1	Moderate
>5.1	High

أوراق
الجامعة

المجلد

1

A STUDY OF OSTEOPOROSIS IN PREMENOPAUSAL RHEUMATOID ARTHRITIS PATIENTS

دراسة لهشاشة العظام في مرضى الروماتزم المفصلي الرثياني في سن ما قبل انقطاع الطمث

Protocol of a thesis submitted
to the Faculty of Medicine
University of Alexandria
In partial fulfillment of the
requirements of the degree of

خطة بحث مقدمة
لكلية الطب
جامعة الإسكندرية
إيفاء جزئيا لشروط الحصول
على درجة

**Doctor in Physical Medicine,
Rheumatology and Rehabilitation**

دكتور في الطب الطبيعي
والروماتزم والتأهيل

by

من

**Yusra Hisham Mohamed Moustafa
Abdel-Fattah
MBBCh, Alex.**

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والروماتزم والتأهيل
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2011

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Rheumatic Diseases



د/ مروة حسن
مدرس الطب الطبيعي
والروماتزم والتأهيل
كلية الطب
جامعة الأسكندرية
لخبرتها في تشخيص الامراض
الروماتزمية



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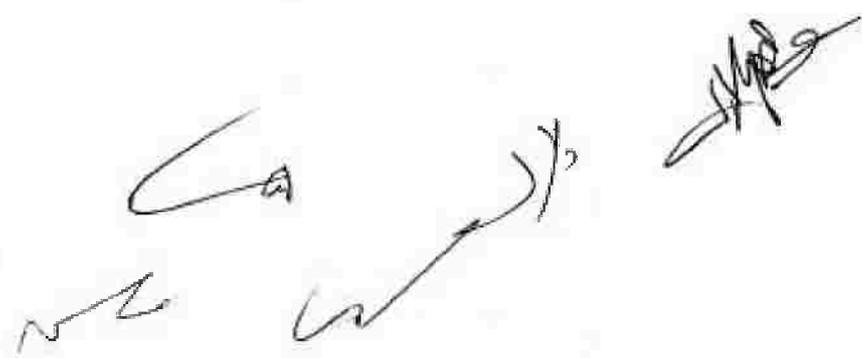
الباحث المساعد

احمد هشام غنيم

طالب بالسنة السادسة

كلية الطب

جامعة الاسكندرية

The image shows three handwritten signatures in black ink. The first signature on the left is a stylized, cursive signature. The middle signature is a longer, more complex cursive signature. The signature on the right is a shorter, more compact cursive signature.

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic inflammatory disease characterized by swelling, tenderness and destruction of synovial joint, leading to severe disability and premature mortality.⁽¹⁻³⁾

Rheumatoid arthritis is not only characterized by inflammation in the synovial tissue, but also involves the bone.⁽⁴⁾ The interaction between the inflammatory cascade and bone is characterized by a wide range of changes in the bone remodeling not only at the site of inflammation but also at skeletal sites remote from inflammation.⁽⁵⁾

Rheumatoid arthritis is accompanied by 3 types of bone involvement: periarticular osteopenia, systemic osteoporosis and bone erosions.⁽⁶⁾ Periarticular osteopenia is one of the first radiological signs of RA, most marked in early disease and is correlated with disease activity.⁽⁴⁾

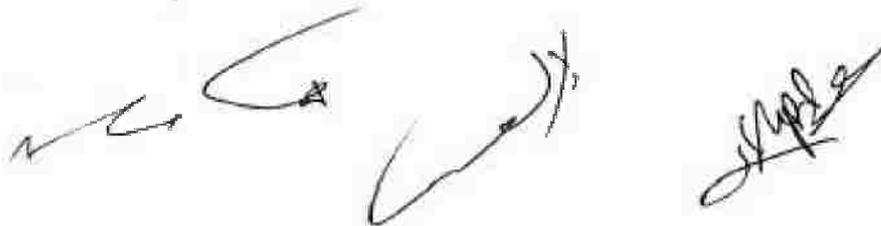
Systemic osteoporosis is recognized as an extra-articular complication in RA.⁽⁷⁾ There is compelling evidence that this bone mass reduction is associated with an increased risk of fracture.⁽⁸⁾ A study proved that osteoporosis in RA patients is often related to the use of corticosteroids,⁽⁹⁾ but another population based study showed that cumulative disease damage was the stronger predictor of reduced bone density and that other disease and lifestyle factors have only a modest influence.⁽¹⁰⁾ It was also suggested that bone mass in RA is affected by disease dependent factors, such as functional impairment and the activity of the inflammatory process itself, especially early in the course of RA.⁽⁷⁾



Bone erosions are radiographic hallmark of RA and reflect unfavourable prognosis. They develop within the first months of disease onset, their extent and severity reflects cumulative disease activity.^(11,12)

The pathophysiological mechanisms of the 3 different types of bone involvement have previously been thought to be separate processes. A recent study has suggested that both local and systemic bone destruction are mediated by osteoclast activation.⁽¹³⁾ The skeletal system is a target organ for RA, the relationship between focal erosions and generalized osteoporosis is complicated and modified by many aspects of RA as well as other factors.⁽¹²⁾

Dual energy x ray absorptiometry (DXA) is the gold standard for assessing bone density, and the World health Organisation (WHO) definition of osteoporosis is based on this. The use of DXA may be limited by the availability of equipment, cost, and reimbursement issues.⁽¹⁴⁾



AIM

The aim of this study is to assess osteoporosis in premenopausal RA patients and its correlation with other disease parameters.

[Handwritten signatures and initials]

SUBJECTS

Forty female patients with RA will be recruited from those attending the Outpatient Clinic of Physical Medicine, Rheumatology and Rehabilitation Department, Faculty of Medicine, Alexandria University Hospital. The diagnosis of RA will depend on the 2010 American College of Rheumatology/European League Against Rheumatism (ACR/EULAR) classification criteria for RA (Annex I).⁽¹⁾ The patients will be selected in their premenopausal period to exclude postmenopausal and age related osteoporosis.

Patients with a history of taking treatment for osteoporosis and those with concurrent medical conditions known to affect bone metabolism (including renal or liver disease, malignancy or endocrine disorders)⁽¹⁵⁾ will be excluded from the study.

Twenty age and sex matched healthy females to serve as control subjects will be included in the study.

The study will be explained to the participants and an informed consent will be given by each, after approval from the local ethical committee of Faculty of Medicine, Alexandria University.

The image shows two handwritten signatures in black ink. The signature on the left is larger and more complex, while the one on the right is smaller and more compact.

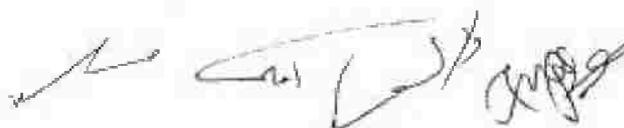
METHODS

A. The following data will be obtained from each patient:

1. Personal data (Name, age, sex, marital status and occupation).
2. History (age of menarche, history of smoking, coffee intake, dietary habits).
3. History of present condition; (onset, disease duration, course, progression ...).
4. Medication history; [the intake of glucocorticoid, non steroidal anti-inflammatory drugs (NSAIDs), Calcium, vitamin D, disease modifying antirheumatic drugs (DMARDs) and others].

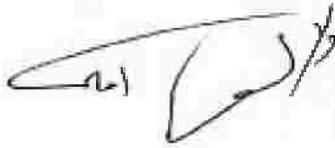
B. Then each patient will be subjected to the following:

1. Thorough clinical evaluation with stress on musculoskeletal examination.⁽¹⁶⁾
2. Disease severity assessment by Disease Assessment Severity index 28 (DAS 28)⁽¹⁷⁾ (Annex II) and Health Assessment Questionnaire (HAQ)⁽¹⁸⁾ (Annex III)
3. Routine laboratory investigations [hemoglobin, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) and Latex rheumatoid factor (RF)].⁽¹⁹⁾
4. Bone markers (β - Cross Laps,⁽²⁰⁾ Total PINP⁽²¹⁾ and N-MID Osteocalcin⁽²²⁾).
5. Plain X-ray (PXR) hands, wrist and feet that will be assessed by Modified Sharp method.^(23,24)
6. Dual X-ray absorptiometry (DXA) (radius, femur and lumbar spine).⁽²⁵⁾



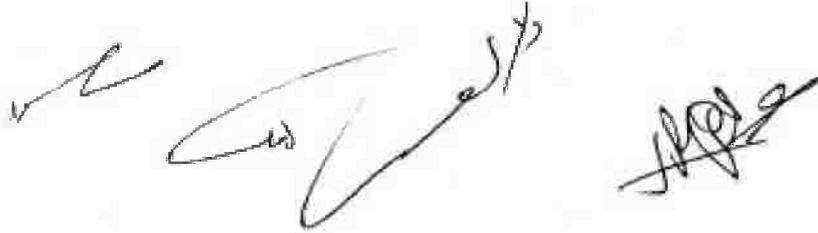
RESULTS

The results obtained will be assessed, tabulated and statistically analyzed according to established statistical methods.



DISCUSSION

The results will be discussed in view of achievement of the aim, their significance and their comparison with previous related researches.

Three handwritten signatures in black ink, arranged horizontally. The first signature on the left is a simple, stylized mark. The middle signature is larger and more complex, featuring a large loop. The signature on the right is also complex and appears to be a name.

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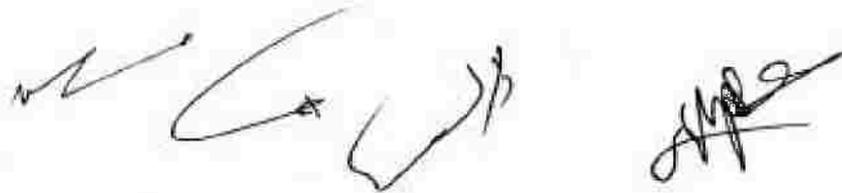
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The image shows two handwritten signatures in black ink. The signature on the left is a stylized, cursive name that appears to be 'G. V. P.'. The signature on the right is another stylized, cursive name that appears to be 'J. P. S.'.

ANNEX I⁽¹⁾

The 2010 American College of Rheumatology/European League Against Rheumatism classification criteria for rheumatoid arthritis

Target population (Who should be tested?): Patients who:
 1) have at least 1 joint with definite clinical synovitis (swelling)
 2) with the synovitis not better explained by another disease

Classification criteria for RA (score-based algorithm: add score of categories A–D;
 A score of 6/10 is needed for classification of a patient as having definite RA)

	Score
A. Joint involvement	
1. 1 large joint.	0
2. 2-10 large joints	1
3. 1-3 small joints (with or without involvement of large joints)	2
4. 4-10 small joints (with or without involvement of large joints)	3
5. > 10 joints (at least 1 small joint)	5
B. Serology (at least 1 test result is needed for classification)	
1. Negative RF <i>and</i> negative ACPA	0
2. Low-positive RF <i>or</i> low-positive ACPA	2
3. High-positive RF <i>or</i> high-positive ACPA	3
C. Acute-phase reactants (at least 1 test result is needed for classification)	
1. Normal CRP <i>and</i> normal ESR	0
2. Abnormal CRP <i>or</i> abnormal ESR	1
D. Duration of symptoms	
1. <6 weeks	0
2. ≥6 weeks	1

ANNEX II⁽¹⁷⁾

Disease Activity Score Index 28 (DAS 28)

DAS28 with 4 variables:

$$\text{DAS28} = 0.56\sqrt{(\text{TEN28})} + 0.28\sqrt{(\text{SW28})} + 0.70\text{Ln}(\text{ESR}) + 0.014(\text{GH})$$

TEN28

28 joint count for tenderness

SW28

28 joint count for swelling

LnESR

Natural logarithm of Western's Erythrocyte Sedimentation Rate

GH

General health or patient's global assessment of disease activity on Visual Analogue Scale of 100mm.

DAS28 score	Level of disease activity
<3.2	Low
3.2–5.1	Moderate
>5.1	High

ANNEX III⁽¹⁸⁾

Health Assessment Questionnaire

Name: _____

Date: _____

In this section we are interested in learning how your illness affects your ability to function in daily life. Please feel free to add any comment on the back of this page.

Please check the response which best describes your usual abilities Over The Past Week.

	Without Any difficulty	With Some difficulty	With much difficulty	Unable to do
--	------------------------------	----------------------------	----------------------------	-----------------

DRESSING & GROOMING

Are you able to:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Dress yourself, including shoelaces and buttons? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Shampoo your hair? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ARISING

Are you able to:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 3. Stand up from an armless straight chair? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Get in and out of bed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

EATING

Are you able to:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 5. Cut your meat? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Lift a full cup or glass to your mouth? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Open a new milk carton? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

WALKING

Are you able to:

- | | | | | |
|----------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 8. Walk outdoors on flat ground? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Climb up five steps? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please check any AIDS OR DEVICES that you usually use for any of the above activities:

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Devices used for dressing (button hook, zipper pull, etc.) | <input type="checkbox"/> Built up or special utensils | <input type="checkbox"/> Crutches |
| <input type="checkbox"/> Special or built up chair | <input type="checkbox"/> Cane | <input type="checkbox"/> Wheelchair |
| | <input type="checkbox"/> Walker | |

Please check any categories for which you usually need HELP FROM ANOTHER PERSON:

- | | |
|--|----------------------------------|
| <input type="checkbox"/> Dressing and grooming | <input type="checkbox"/> Arising |
| <input type="checkbox"/> Eating | <input type="checkbox"/> Walking |

[Handwritten signatures and marks]

Please check the response which best describes your usual abilities Over The Past Week.

	Without Any difficulty	With Some difficulty	With much difficulty	Unable to do
HYGIENE				
Are you able to:				
10. Wash and dry your body?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Take a tub bath?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Get on and off the toilet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REACH				
Are you able to:				
13. Reach and get down a 5-pound object (such as a bag of sugar) from just above your head?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Bend down to pick up clothing from the floor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GRIP				
Are you able to:				
15. Open car doors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Open previously opened jars?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Turn faucets on and off?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTIVITIES				
Are you able to:				
18. Run errands and shop?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Get in and out of a car?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Do chores such as vacuuming or yard work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Please check any AIDS OR DEVICES that you usually use for any of the above activities:				
<input type="checkbox"/> Raised toilet seat	<input type="checkbox"/> Long-handled appliances in the bathroom	<input type="checkbox"/> Jar opener (for jars previously opened)		
<input type="checkbox"/> Bathtub seat	<input type="checkbox"/> Long-handled appliances for reach	<input type="checkbox"/> Other (specify)		
<input type="checkbox"/> Bathtub bar				
Please check any categories for which you usually need HELP FROM ANOTHER PERSON:				
<input type="checkbox"/> Hygiene	<input type="checkbox"/> Gripping and opening things			
<input type="checkbox"/> Reach	<input type="checkbox"/> Errands and chores			

الملخص العربي

الروماتيزم المفصلي الرثياني هو التهاب المفاصل المزمن الأكثر انتشارا ويتميز بالتورم والتألم بالمس وتلف المفاصل الزلالية. على الرغم من أنه يعتبر "مرض المفاصل" يرتبط الروماتيزم المفصلي الرثياني بمشاركة مظاهر إضافية غير مفصلية بما في ذلك الألم العضلي الليفي الثانوي والتهاب الأوعية الدموية الروماتيزمي. هناك أيضا أمراض هامة مصاحبة للمرض، بما في ذلك الأورام المفاوية غير الهودجكن ومرض نقص تروية القلب وهشاشة العظام.

هشاشة العظام هي مرض العظام الأكثر شيوعا وتمثل مشكلة كبيرة للصحة العامة. تتميز بانخفاض كثافة العظام وتدهور النسيج العظمي وتعطيل عمارة العظام وقوتها وخطر في زيادة نسبة حدوث الكسور.

يزيد انتشار هشاشة العظام في مرضى الروماتيزم المفصلي الرثياني ضعفين بالمقارنة مع السكان عموما. هناك انخفاض في كثافة المعادن في العظام بالإضافة إلى زيادة في نسبة حدوث الكسور بالورك والعمود الفقري في مرضى الروماتيزم المفصلي الرثياني مقارنة بالمرضى بدون الروماتيزم المفصلي الرثياني.

كان الهدف من هذه الدراسة تقييم هشاشة العظام في مرضى الروماتيزم المفصلي الرثياني في سن ما قبل انقطاع الطمث وعلاقته مع معالم المرض الأخرى.

اشتملت هذه الدراسة على ثلاثة وأربعين مريضا بالروماتيزم المفصلي الرثياني (٣١ مريض بأجسام مضادة ضد بروتين السترولين موجبة و ١٢ مريض بأجسام مضادة ضد بروتين السترولين سالبة) حققوا معايير التصنيف للكلية الأمريكية للروماتيزم/والعصبة الأوروبية ضد الروماتيزم للعام ٢٠١٠ لتشخيص الروماتيزم المفصلي الرثياني .

تم الحصول على تاريخ مفصل من كل مريض يليها تقييم سريري شامل مع التركيز على فحص العضلات والعظام وتقييم نشاط المرض والقدرة الوظيفية. تم قياس علامات دوران العظام بما في ذلك مستوى مصد الدم لإجمالي البروكولاغين نوع I للأمين الطرفي البروبيتيدي والبيتا كروسلاب وأوستيوكالسين لتقييم دوران العظام. كما تم تقييم إشعاعي لليدين والقدمين لتقييم تقرحات وضيق مساحة المفاصل بواسطة نتيجة شارب المعدلة. وتم كذلك قياس كثافة المعادن في العظام في العمود الفقري و عظم الورك والساعد بواسطة قياس امتصاص طاقة أشعة اكس المزدوجة.

تم ضم ثلاثين فرد من الأصحاء بسن وجنس مطابق للمرضى كمجموعة ضابطة.

أظهر مرضى المجموعة الموجبة نشاط مرض وعجز أعلي من مرضى المجموعة السالبة. كما أظهر أيضا مرضى المجموعة الموجبة ارتفاع معدل دوران العظام بواسطة مصد دم البيتا كروسلاب بالمقارنة بالمجموعة الضابطة. تم العثور على تلف بالمفاصل أكثر شدة كما هو موضح بنتيجة شارب المعدلة في مرضى المجموعة الموجبة عن المجموعة السالبة.

يتسم مرضى المجموعة الموجبة أيضا بارتفاع معدل فقدان العظام كما هو موضح بانخفاض ملحوظ في قياس كثافة المعادن في عظم الورك والساعد بالمقارنة بالمجموعة الضابطة وتتسم بارتفاع معدل فقدان العظام في العمود الفقري بالمقارنة بمرضى المجموعة السالبة والمجموعة الضابطة. يتسم مرضى المجموعة السالبة بارتفاع معدل فقدان العظام في عظم الورك فقط بالمقارنة بالمجموعة الضابطة.

هناك علاقة ذات دلالة إحصائية بين دوران العظام وكل من عمر المرضى ونشاط المرض في مرضى المجموعة الموجبة. هناك علاقة ذات دلالة إحصائية بين تلف المفاصل ومدة المرض ومؤشر كتلة الجسم والجرعة التراكمية للكورتيكوستيرويد وفقدان العظام في عظم الورك والساعد في مرضى المجموعة الموجبة فقط.

كانت هناك علاقة ذات دلالة إحصائية بين فقدان العظام في العمود الفقري ونشاط المرض والعجز والجرعة التراكمية للكورتيكوستيرويد وفقدان العظام في عظم الورك والساعد في مرضى المجموعة الموجبة.

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دراسة لهشاشة العظام فى مرضى الروماتيزم المفصلى الرثيائى فى سن ما قبل انقطاع الطمث

مقدمة من

يسرا هشام محمد مصطفى عبد الفتاح

(بكالوريوس طب و جراحه ٢٠٠٥ – ماجستير ٢٠١٠)

كلية الطب - جامعة الإسكندرية

للحصول على درجة

الدكتوراه

فى

الطب الطبيعى والروماتيزم والتأهيل

موافقون

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رسالة علمية

مقدمة إلى كلية الطب- جامعة الإسكندرية
إستيفاء للدراسات المقررة للحصول على درجة

الدكتوراه

فى

الطب الطبيعى والروماتيزم والتأهيل

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