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Original article

Bone mineral density status and frequency of osteoporosis and clinical fractures in 155 patients with psoriatic arthritis followed in a university hospital

Noemi Busquets[a], Carmen Gómez Vaquero[b], Jesús Rodríguez Moreno[b], Daniel Roig Vilaseca[c], Javier Narváez[b], Loreto Carmona[d,e], Joan M. Nolla[b,*]

[a] Servicio de Reumatología, Hospital General de Granollers, Granollers, Barcelona, Spain
[b] Servicio de Reumatología, IDIBELL-Hospital Universitari de Bellvitge, L'Hospitalet de Llobregat, Barcelona, Spain
[c] Servicio de Reumatología, Hospital Moisés Broggi, Sant Joan Despí, Barcelona, Spain
[d] Facultad de Ciencias de la Salud, Universidad Camilo José Cela, Madrid, Spain
[e] Instituto de Salud Musculoesquelética, Madrid, Spain

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ABSTRACT

Objective: To assess the bone mineral density (BMD) and the frequency of osteoporosis and clinical fractures in a large group of Spanish patients with psoriatic arthritis (PsA).
Patients and methods: BMD was determined by DXA in all the patients who were willing to participate and had peripheral PsA regularly evaluated in a tertiary university hospital. All patients underwent a physical examination and general laboratory analysis. We gathered demographic and clinical variables related with BMD and risk of fractures. We also recorded the history of clinical low impact fractures. The population of reference to calculate T-score and Z-score came from a Spanish database.
Results: One hundred and fifty-five patients were included (64 postmenopausal women, 26 premenopausal women and 65 men). The clinical forms of PsA were: 46% oligoarticular and 54% polyarticular. Mean disease duration was 13.7 ± 9.4 years and mean ESR was 21.8 ± 13.9 mm/h; 66% of patients had received glucocorticoid treatment.
We found no differences in BMD status between the patients and the Spanish general population, neither in the whole series nor in each defined subgroup. Frequency of osteoporosis was 16%; it was higher in postmenopausal women (28%) than in men (9%) or premenopausal women (4%). Frequency of clinical fractures was 13%; it accounted specially in postmenopausal women.
Conclusions: The magnitude of the problem of osteoporosis in PsA seems to be mild.

Estado de la densidad mineral ósea y frecuencia de osteoporosis y de fracturas clínicas en 155 pacientes con artritis psoriásica evaluados en un hospital universitario

Palabras clave:
Artritis psoriásica
Densidad mineral ósea
Densitometría ósea
Osteoporosis
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RESUMEN

Objetivo: Analizar el estado de la densidad mineral ósea (DMO) así como la frecuencia de osteoporosis y de fracturas clínicas en una serie de pacientes con artritis psoriásica (APs).
Pacientes y Método: Se determinó la DMO, mediante DXA, en todos los pacientes con APs periférica, evaluados de forma periódica en un hospital universitario, que aceptaron participar en el estudio. Se les practicó una exploración física y un estudio analítico y se recabó información acerca de variables clínicas relacionadas con la DMO y con el riesgo de fractura. Asimismo, se analizó si existía el antecedente de haber presentado una fractura de bajo impacto. El cálculo del T-score y del Z-score se realizó a partir de una base de datos de población española.
Resultados: Se incluyeron 155 pacientes (64 mujeres posmenopáusicas, 26 mujeres premenopáusicas y 65 varones). En el 46% de los casos la APS adoptó un patrón oligoarticular y en el 54% poliarticular. La duración media de la enfermedad fue 13.7 ± 9.4 años, el valor medio de la VSG fue de 21.8 ± 13.9 mm/h; el 66% de los pacientes habían recibido tratamiento con glucocorticoides.

* Corresponding author.
E-mail address: jm.nolla@bellvitgehospital.cat (J.M. Nolla).

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No se observaron diferencias entre la DMO de los pacientes y la de la población general, ni en la globalidad de la serie, ni en ninguno de los tres grupos. La frecuencia global de osteoporosis se situó en el 16%; fue más alta en las mujeres posmenopáusicas (28%) que en los varones (9%) y que en las mujeres premenopáusicas (4%). La frecuencia de fracturas clínicas fue del 13%; acontecieron fundamentalmente en las mujeres posmenopáusicas.

Chronic inflammation, including autoimmune disease, is a strong trigger for the development of osteoporosis[1].

Rheumatoid arthritis (RA) is the paradigm of chronic inflammatory diseases that are frequently accompanied by bone loss. It has been long recognized that osteoporosis is a relevant co-morbid condition in both female[2] and male[3] patients with RA. Disease activity, decreased functional capacity, and corticosteroid use have been identified as the most important causative factors.[4]

Psoriasis[5] and psoriatic arthritis (PsA)[6,7] are chronic, immunomediated inflammatory diseases characterized by abnormal expressions of keratinocytes, as well as proliferation and neovascularization of the synovial.

Although patients with PsA seem to have local and systemic osteoporosis,[8] little is known concerning the actual degree of bone loss. Nowadays, certain issues, specially related to the magnitude of the problem in practice, remain to be clarified.[9]

We report a cross-sectional study that used dual X-ray absorptiometry (DXA) to evaluate BMD at the lumbar spine and the hip and the frequency of osteoporosis and clinical fractures in 155 Spanish patients with peripheral PsA.

Patients and methods

Study setting

The study was performed at the Rheumatology Department of the Hospital Universitari de Bellvitge. Our department has developed a standardized protocol to collect information on PsA patients. Collected data include medical history, physical, laboratory and imaging study findings, and management.

Patients

We considered for the current study all PsA patients who had been attended within one-year period ($n = 202$) in our outpatient clinics.

We excluded patients who met any of the following criteria: (a) disease duration < 1 year ($n = 12$), (b) evidence of ankylosing spondylitis (psoriatic spondyloarthropathy) ($n = 18$) and (c) current clinical remission, defined as the absence of articular signs and symptoms for the last 6 months ($n = 14$). Patients with axial involvement were excluded in order to avoid interferences in BMD measurement due to syndesmophytes.

One hundred and fifty-eight patients were invited to participate in the study; 155 gave their informed consent. All patients fulfilled the diagnostic criteria for PsA defined by the Classification of Psoriatic Arthritis (CASPAR) study.[10] None had received hormone replacement therapy or any drug for osteoporosis treatment other than calcium or vitamin D.

Outcome measure

A full medical history was obtained and a complete physical examination was undergone. The following data were recorded: (1) gender, (2) menopausal status, (3) age, (4) body mass index (BMI), (5) duration of PsA, (6) type of PsA: oligoarticular (one to four swollen joints) or polyarticular (five or more swollen joints), (7) cutaneous involvement, (8) onychopathy, (9) uveitis, (10) glucocorticoid treatment, (11) disease modifying anti-rheumatic drugs (DMARD) use, (12) biological therapy use, (13) erythrocyte sedimentation rate evaluated by the Westergren method (the value of the last routine determination was considered), (14) functional status; it was measured by the modified Health Assessment Questionnaire (mHAQ), and (15) personal history of low impact fractures. All patients were referred to the Bone Densitometry Unit of our department. BMD (g/cm^2) was measured at the lumbar spine (L2–L4) and the hip by DXA (Hologic QDR 4500, Hologic Inc., Waltham, MA). The T-score (comparison with normal subjects of the same sex with peak bone mass) and the Z-score (comparison with age and sex matched normal controls) were established by comparison with data from the study of BMD at the lumbar spine and femoral neck in a Spanish population performed by the Multicentre Research Project on Osteoporosis (MRPO).[11]

Osteopenia (T-score between −1.0 and −2.5) and osteoporosis (T-score below −2.5) were defined according to the criteria of the World Health Organization.[12] Additionally, according to the International Society of Clinical Densitometry,[13] in premenopausal women and in male younger than 50 years, we calculated the percentage of patients that presented a BMD below the expected range for age (Z-score of −2 or lower).

In 2 patients with bilateral hip prosthesis, only lumbar BMD was available. In other 2 patients, lumbar BMD was not determined because of the antecedent of instrumented surgery of the spine.

Statistical analysis

The study variables were tabulated as means and standard deviations (SD), or proportions as applicable. Confidence interval (CI) was used to assess the difference between the mean Z-score at each site and the general population. Differences between groups of patients were assessed by ANOVA and chi squared tests. Statistical significance was set at $p < 0.05$.

Results

Table 1 shows the demographic and clinical characteristics of the patients included in the study.

Table 2 shows the densitometric status of the patients included in the study.

Table 3 shows the frequency of osteoporosis according to the WHO criteria in the whole series and in each defined subgroup.

In premenopausal women, the frequency of patients, that presented, in at least one of the evaluated sites, a BMD below the expected range for age was 15% (4/26); in males younger than 50, it was 19% (4/21).

Fifty-nine (38%) patients had a normal BMD (T-score ≥ -1 SD) both in the lumbar spine and hip (femoral neck and total hip). Patients with a normal BMD were younger (52.05 ± 11.92 vs 57.59 ± 14.07 years, $p < 0.05$), had a shorter duration of PsA (11.00 ± 7.39 vs 15.33 ± 10.11 years, $p < 0.01$), had a higher BMI (28.69 ± 5.19 vs 26.28 ± 4.43, $p < 0.01$) and presented a better HAQ (0.51 ± 0.46 vs 0.78 ± 0.67, $p < 0.01$).

No differences were found in BMD between patients with oligoarticular and polyarticular involvement.