Osteoporosis in SLE

Katarina Almehed

Department of Rheumatology and Inflammation Research
The Sahlgrenska Academy at University of Gothenburg
Guldhedsgatan 10A, 413 45 Göteborg, Sweden

Abstract

As the treatment of Systemic Lupus Erythematosus (SLE) has become more effective the focus has partly shifted from main concern of short term morbidity and survival to long term complications such as osteoporosis. The aims of this thesis were to a) determine prevalence and risk factors of osteoporosis and of b) vertebral fractures c) evaluate if adequate osteoporotic treatment was provided d) determine if resistin, an adipokine with proposed pro-inflammatory properties, was associated with markers of inflammation or bone mineral density (BMD) and to e) investigate patients self reported health related quality of life (HRQOL) and its relationship to disease variables and employment status in female SLE patients.

In this cross sectional study 163 female patients with SLE were examined during the winter and spring 2002-2003.

BMD was significantly reduced in patients compared to expected calculated reference values. Bisphosphonates were taken by 35% of patients with osteoporosis and 36% of patients with osteoporosis and/or osteopenia and concomitant glucocorticosteroid medication. Factors associated with low BMD in SLE were markers of inflammation, impaired kidney function and disease damage in addition to the conventional risk factors, high age and low weight. Glucocorticosteroid, current and cumulative doses, were associated with BMD in simple but not in multiple regression models.
Only 6 (4%) women had a history of a clinical vertebral fracture whereas 29% had radiological fractures. High age was the strongest risk factor of vertebral fracture. There were no significant differences regarding SLE specific variables or current or cumulative glucocorticosteroid doses between patients with or without vertebral fractures.

The SLE patients scored their HRQOL significantly lower than age and sex matched references in all SF-36 subscales. Prevalent vertebral fractures did not have a major impact on HRQOL. In patients 64 years old or younger (n=142) 54% worked full or part time. Working ability was associated with low age and high scores (indicating better health) in physical SF-36 subscales.

Serum levels of resistin did not differ between patients and controls. There were clear associations between high resistin levels and general inflammation, renal disease, treatment with glucocorticosteroids and bone loss in the SLE patient group. Resistin was independently associated to inflammation in multiple logistic regression analyses.

In conclusion, our results show that female patients with SLE have increased risk of low BMD and osteoporosis and few patients are treated adequately. Vertebral fractures are common but seldom diagnosed. More attention should also be given factors of importance to the patients HRQOL, which is scored considerably lower than in general population. We suggest that resistin has pro-inflammatory properties in SLE and possibly also influence bone quality negatively.

Keywords: Systemic lupus erythematosus, bone mineral density, osteoporosis, vertebral fracture, health-related quality of life, SF-36, resistin, cross sectional study

ISBN: 978-91-628-7630-2
Göteborg 2008

Osteoporosis in Systemic Lupus Erythematosus

AKADEMISK AVHANDLING

Som för avläggande av medicine doktorsexamen vid Göteborgs Universitet kommer att försvaras offentligt i Föreläsningssalen, våning 3, Guldhedsgatan 10A, Göteborg.

Torsdagen den 4:e december 2008, kl 13.00

av
Katarina Almehed

Fakultetsopponent:
Docent Anders Bengtsson
Reumatologi kliniken
Lunds Universitet
Sverige

Avhandlingen baseras på följande arbeten:

I. **K. Almehed, H. Forsblad d'Elia, G. Kvist, C. Ohlsson, H. Carlsten**
Prevalence and risk factors of osteoporosis in female SLE patients--extended report
Rheumatology 2007; 46; 1185–1190

II. **K. Almehed , S. Hetényi, C. Ohlsson, H. Carlsten, H. Forsblad d'Elia**
Prevalence and risk factors of vertebral compression fractures in female SLE patients.
Submitted for publication

III. **K. Almehed , H. Forsblad d'Elia, H. Carlsten**
Health related quality of life in Systemic Lupus Erythematosus and its association to disease and work disability.
Submitted for publication

IV. **K. Almehed, H. Forsblad d'Elia, M. Bokarewa and H. Carlsten**
Role of resistin as a marker of inflammation in Systemic Lupus Erythematosus.
Arthritis Research & Therapy 2008; 10(1):R15