have been proposed to play a role in the different incidence of osteoporotic hip fractures among different countries.

Objectives Our objective consisted of studying the normal distribution of HAL in the Portuguese population and try to identify clinical parameters capable of predicting HAL, therefore reinforcing indication of bone densitometry.

Methods A randomly selected sample of 1705 inhabitants from the centre of Portugal, (474 males; 1231 females), aged 19 to 89 were included in the study. HAL was evaluated by DEXA (Hologic) using inbuilt software. Patients were asked and examined for age, present height and weight and at age 25, age at menarche and arm span. Following correlation studies, significant variables were included in stepwise regression analysis (SPSS).

Results HAL was significantly longer in males than in females ($12,44 \pm 0,69$ vs $10,84 \pm 0,69$; $p < 0.001$). In men, significant correlations ($p < 0.001$) were found between HAL and height at age 25 ($r:0.483$), weight at age 25 ($r:0.176$) and arm span ($r:0.0272$). Using stepwise regression only height at age 25 was retained as significant (Model $r: 0.490$; Adj. $R^2: 0,238 - p < 0.001$). In women, age ($r: 0,06$), height at 25 ($0,304$), present height ($0,314$), weight at 25 ($0,214$), present weight ($0,058$) and arm span ($0,267$), all showed significant correlations. Stepwise regression showed significant contributions for armspan, height and weight at age 25. The best fitting model explained 16,5% of the variance. In our population no major difference in HAL has been observed between the young (20–30 years old) and the elderly (>70), the difference being less than 1%.

Conclusion Although HAL is correlated with height at age 25 for both sexes, and also with arm span and weight at age 25 in females, the percent variance explained by the best fitting model using these parameters is too small to allow for reasonable prediction and inherent implications.

SAT0178 VERTEBRAL DEFORMITIES IN 229 FEMALE RA PATIENTS ASSOCIATIONS WITH CLINICAL AND DEMOGRAPHICAL VARIABLES

¹RE Orstavik, ¹G Haugeberg, ¹TK Kvien, ²F Lilleaas, ³A Hoiseth. ¹Department of Rheumatology; ²Department of Radiology, Diakonhjemmet Hospital; ³Department of Rheumatology, Sentrum Institute of Radiology, Oslo, Norway

10.1136/annrheumdis-2001.665

Background

Objectives To examine the frequency of vertebral deformities in a population based cohort of female rheumatoid arthritis (RA) patients, and their relationship with bone mineral density (BMD) and demographic and clinical variables.

Methods Lateral radiographs of the spine were obtained from 229 female RA patients born 1926 or later (mean age (SD) 63.4 (6.7) yrs, mean disease duration 16.8 (10.4) yrs), recruited from a population based county RA register. Demographic and clinical variables were collected according to standardised procedures. Vertebral deformities were measured using a standardised semi-quantitative method described by Genant, by an experienced radiologist (AH). Deformities were classified as mild, moderate or severe (a reduction in any of the vertebral heights of 20–25%, 25–40% and more than 40%, respectively). The patients underwent BMD measurements by DEXA of the femoral neck, total hip and lumbar spine (L2–L4) (Lunar Expert). T-scores were computed as provided from the manufacturer.

Results The total number of deformities was 168 (87 moderate or severe). Forty-nine (21.4%) of the patients had at least two mild deformities or one moderate/severe deformity. Mean BMD

(SD) for femoral neck was 0,806 gm/cm² (0.152), total hip 0.836 gm/cm² (0.158) and L2–L4 1,053 gm/cm² (0,201). In bivariate analysis, vertebral deformities were associated with age, ESR, number of deformed joints, previous non-vertebral fracture, long-term corticosteroid use and with BMD at all three measurement sites ($p < 0.05$ for all variables). In logistic regression analysis, VD was independently associated with age, long-term corticosteroid use and with low bone mass at the hip.

Abstract SAT0178 Table 1

	β	SE	Odds ratio	Confidence interval
Age	0.16	0.04	1.17	1.08–1.28
Long-term corticosteroid use*	1.93	0.57	6.92	2.23–21.46
Previous non-vertebral fracture	1.34	0.46	3.82	1.55–9.41
Z-score ≤ -1 SD total hip	0.97	0.47	2.64	1.04–6.7

*12 months or more.

Conclusion This study indicates that several factors are independently related to vertebral deformities in RA, and should be considered when trying to identify patients with this complication. Physicians should probably be especially aware of vertebral deformities in patients with a history of non-vertebral fractures and long-term corticosteroid use.

SAT0179 BACK PAIN AND DISABILITY BEFORE, AND AFTER, CLINICALLY-DIAGNOSED VERTEBRAL FRACTURES

¹M Nevitt, ¹L Palermo, ²D Thompson, ¹D Bauer, ¹K Stone, ³K Ensrud, ³H Fink, ¹D Black. ¹Epidemiology and Biostatistics, University of California, San Francisco; ²Merck Scientific Communications, Rahway; ³Epidemiology, University of Minnesota, Minneapolis, USA

10.1136/annrheumdis-2001.666

Background Painful vertebral fractures that come to medical attention (CVFx) comprise less than a third of all new vertebral deformities (VDef), yet account for a large proportion of the pain and disability due to vertebral osteoporosis. Little is known about the natural history of back pain and related disability before and after a CVFx.

Objectives We compared prefracture levels of back pain and back disability in women who subsequently experienced a CVFx to levels of back pain and disability in women who did not have a CVFx, and examined the duration of increased back pain and disability for 12 months following a CVFx.

Methods We studied 6,459 women in the Fracture Intervention Trial, aged 55–80 with femoral neck BMD T-score < -1.6 . 33% had a baseline VDef. CVFx were self-reported community-diagnosed spine fractures confirmed by central comparison of the diagnostic spine films with the study baseline spine films. Back pain and back-related disability (score 0–20) in the past 4 weeks and number of days back disability (bedrest + limited activity) in the previous 12 months were assessed at baseline (prefracture) using validated instruments. Number of days of severe back pain and disability due to back pain were evaluated for successive 3 month intervals before, and after, a CVFx. Baseline and new VDef during 3 to 4.5 yrs of follow-up were assessed with morphometry.

Results Women who had a single new CVFx ≥ 6 months after baseline had greater baseline disability than women who had neither a CVFx nor a VDef during FU, adjusting for age, number of baseline VDef, spine BMD, prior Dx of spine

fracture, Geriatric Depression Score and treatment assignment. Women with only a new VDef but no CVFx had intermediate levels of prefracture back pain and disability. Women suffering a CVFx reported a mean of 6 days of severe back pain and 6 days of back disability for the 3 month period before the fracture, and 18 and 32 days (both $P < .05$ by Wilcoxon test), respectively, for the 3 month period after the fracture. By 5–7 months postfracture mean days of severe back pain were no longer elevated (10; $P = .44$), but mean days of disability were still increased (24; $P < .05$) at 9–11 months post fracture.

Abstract SAT0179 Table 1

	Severe back pain (%)	Back disability score, adj. mean (SE)	Days of disability past 12 months, adj. mean (SE)
Group 1. No new CVFx or VDef	3.9	0.8 (0.1)	13 (1)
Group 2. ≥ 1 new VDef,	6.6	1.0 (0.2)	18 (4)*
Group 3. 1 new CVFx	8.6	1.4 (0.2)*	26 (6)*

Baseline (prefracture) back pain and disability (* $P < .05$ vs Group 1).

Conclusion Older women who have chronic back pain are more likely to suffer a CVFx. In those who have a CVFx, average back disability remains above prefracture levels for at least a year after the fracture. Prevention of fractures may be especially beneficial in older women with chronic back pain.

SAT0180 DO REHABILITATION FACILITIES DIAGNOSE AND TREAT OSTEOPOROSIS IN HIP FRACTURE PATIENTS BETTER THAN ACUTE CARE HOSPITALS?

¹AG Juby, ²CM De Geus-Wenceslau. ¹Geriatric Medicine, University of Alberta, Edmonton, Canada; ²Geriatric Medicine and Rheumatology, Curitiba, Brazil

10.1136/annrheumdis-2001.667

Background One in four women and one in eight men over 50 years of age will suffer from osteoporosis. The lifetime prevalence of hip fracture is 18% for women, 6% for men. Mortality within a year of hip fracture is 6–44%. Morbidity is also significant, with many not returning to their premorbid level of function. Proven efficacious pharmacologic therapies are available to treat osteoporosis.

Objectives The objective of this study was to evaluate the diagnosis and treatment of osteoporosis in seniors after hip fracture both in the acute care hospital and in the rehabilitation facility, and to see if they differ.

Methods A retrospective chart review on consecutive hip fracture patients (over 65 yrs) admitted to an acute tertiary care referral hospital was carried out. Osteoporosis diagnosis and treatment was recorded. Additional data was collected on osteoporosis investigations including bone densitometry. The patients were then followed up in the rehabilitation facility and the same data collected. The results from the two groups were then compared.

Results Data was collected on 311 patients in acute care. Average age was 86 years, average length of stay in acute care was 11 days. 18 died and 41 either went straight home or to long term care. Data was unavailable in 26 patients. Therefore 226

were followed up in the rehabilitation facility. Osteoporosis was diagnosed on admission to: acute care in 11.9%; rehabilitation in 9.7% and on discharge from: acute care in 15.4%; and from rehabilitation in 11.2%. Osteoporosis was treated (any treatment) in acute care hospitals in 13% on admission and 9.7% on discharge and in rehabilitation facilities 12.8% and 10.2% respectively. In the majority of cases the treatment was calcium alone, specific osteoporotic drugs were used in <4% in both groups. There was no statistically significant differences between the groups, apart from the use of Vitamin D which was significantly less ($p < 0.05$) in the rehabilitation group compared to the acute care group.

Conclusion Rehabilitation facilities are no better than acute care hospitals at diagnosing and pharmacologically treating osteoporosis in seniors after hip fracture. The rate of treatment in both groups is unacceptably low. In spite of their more holistic and multidisciplinary focus the rehabilitation facilities still fared poorly in their approach to this disease. This puts the onus on primary care physicians to provide adequate osteoporosis treatment in this group of patients, otherwise elderly people will continue to be under-managed for this disease.

SAT0181 DOES A REVERSE YENTL SYNDROME EXIST IN OSTEOPOROSIS?

¹SE Green, ²SJ Davies, ¹EJ Price, ¹DA Collins. ¹Rheumatology, Princess Margaret Hospital, Swindon; ²Pharmacology and Therapeutics, Royal Hallamshire Hospital, Sheffield, UK

10.1136/annrheumdis-2001.668

Background The Yentl syndrome¹ occurs where a woman has to masquerade as a man in order to receive the same treatment. It was described in the management of ischaemic heart disease where women were shown to be undertreated in comparison to men until they suffered a defining event such as myocardial infarction.

Low energy fractures are a manifestation of established and developing osteoporosis. Women who sustain a wrist fracture within ten years of the menopause are at an eight-fold increased risk of hip fracture compared to the general population.² Osteoporosis also carries an appreciable risk of hip fracture in men.³

Objectives We hypothesised that men may receive less intervention than women after low energy fractures.

Methods All patients 40 years of age and over who had a distal radius fracture in a 3 month period (from 1.12.1999) at a General Hospital were identified from radiograph reports. The manner of injury and subsequent management were assessed from self-completed patient questionnaires. Low energy fractures were defined as a fall from standing height or less, at walking speed or slower and confirmed where necessary by case note review or telephone. Men and women who sustained low energy fractures were compared for advice, investigation and treatment relating to osteoporosis.

Results Ninety-one of 105 people identified (87%) returned the questionnaire, of whom 72 (79%) were judged to have sustained low energy fractures [12 males (17%) and 60 females (83%), with average age at fracture 63 (range 43–85) and 68 years (range 40–92) respectively]. By questionnaire, 8 women (15%) but none of the men were advised at the time of the fracture of the possibility of osteoporosis. Nine women (16%) and none of the men had been investigated (8 cases by DEXA scan, and one case by bone ultrasound). Sixteen women (28%) were currently taking bone protection therapy (5 hormone replacement therapy,