FRI0478

SPINAL MOBILITY AND BONE MINERAL DENSITY IN SPONDYLOARTHRITIS

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Background: Osteoporosis is the most frequent comorbidity in axial spondyloarthritis (axSpA). The change in spinal mobility (traditional measures) in patients with axSpA has been associated with low bone mineral density (BMD) although the data are variable (DIM, lateral flexion, BASMI).

Objectives: The aim of our study is to understand the relationship between spinal mobility, BMD and fragility fractures.

Methods: Analytical, observational, longitudinal, and retrospective study of a cohort of patients with axSpA (ASAS criteria). Perimenopausal or menopausal women, diseases and/or osteopenic treatments, biological drugs, immunosuppressive drugs (at least one year before), and treatment with drugs that interfere in the bone metabolism were excluded; bisphosphonates, ranelate of strontium, selective modulators of the estrogen receptor, calcitonin, hormone therapy, denosumab and teriparatide, among others.

Results: 74 patients were studied, 67 were classified as axSpA and 7 as peripheral SpA. Bivariate analysis showed that the group of patients with osteoporosis (14,86%) had a worse DIM ($p = 0.001$), tragus-to-wall distance ($p = 0.001$) and lateral flexion ($p = 0.045$) than patients who did not have osteoporosis. The multiple regression analysis indicated that lumbar spine t/zscore was independently associated with BASMI index (B 0,682, $p=0,013$), femoral neck t/zscore was independently associated with BASFI index (B 1,575, $p=0,007$) and with lower levels of 25 OH vitamin D (B 0,895, $p=0,028$).

Conclusion: UCOASMI is a validated metrological index with three-dimensional measurements of human spinal mobility that shows higher levels of objectivity and precision than traditional measures. Subsequent studies will compare mobility parameters (UCOASMI) and BMD of patients with axSpA. Clarifying the relationship between spinal mobility, BMD and fragility fractures would help us to better understand the course of the disease in axSpA.

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TRENDS IN LOW TRAUMA DISTAL FOREARM FRACTURE INCIDENCE IN WOMEN AND MEN OVER 1995-2015 IN OLMSTED COUNTY, MINNESOTA, USA

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Background: It is unclear how recent practice changes of decreased use of hormone replacement therapy and drug holidays from bisphosphonate therapy have impacted incidence of fragility fractures. Fragility (low trauma) fractures at the distal forearm in women may be more likely to be impacted by these changes as compared with men.

Objectives: We examined the trends in distal forearm fracture incidence over 1995-2015, in both women and men, from Olmsted County, Minnesota, USA.

Methods: Using the Rochester Epidemiology Project, a unique medical records linkage system that allows access to all (inpatient and outpatient) community medical records for Olmsted County residents, we identified all incident distal forearm fractures among residents age ≥ 18 years between 1995-2015. Available medical records were reviewed by trained nurse abstractors to validate distal forearm fractures identified and to determine

their antecedent cause (pathological process [e.g., malignancy], severe trauma [e.g., motor vehicle accidents, sports/other recreational activities] and low trauma [by convention, equivalent to a fall from standing height or less]). Overall incidence rates were summarized separately for women and men, as well as by 5 year strata for different age groups (ages 18-39, 40-59, 60-79 and ≥ 80 yrs). Rates for women and men were each directly age-adjusted to the population distribution of US whites in 2010.

Results: Between 1995-2015, we identified 2727 distal forearm fractures in women (70%, median age 62 yrs; 1915 due to low trauma) and 1193 distal forearm fractures in men (30%, median age 48 yrs; 450 due to low trauma), 92.3% of which were in whites. The overall age-adjusted annual incidence of first distal forearm fracture over 1995-2015 was 233 per 100,000 person-years (p-y) for women and 113 per 100,000 p-y for men. When considering only fractures due to low trauma, the overall age-adjusted annual incidence of first distal forearm fracture over 1995-2015 was 169 per 100,000 p-y for women and 49 per 100,000 p-y for men. Rates of low trauma distal forearm fracture appear to be stable in younger (18-39 yrs) women, but since 2005, seem to be increasing in women age 40-59 yrs (Table). In contrast, rates in older women appear to be decreasing or are stable since 2005. In men, the rates of low trauma distal forearm fracture have been relatively unchanged over the past 20 years, except in men age ≥ 80 yrs where the rates have generally been lower since 2005 (Table).

Distal Forearm Fracture* Incidence per 100,000 p-y by Age Group

Years	18-39 yrs		40-59 yrs		60-79 yrs		≥ 80 yrs	
	Women	Men	Women	Men	Women	Men	Women	Men
1995-99	33	10	131	46	370	81	571	299
2000-04	27	17	102	40	415	72	690	297
2005-09	25	22	126	44	327	89	650	128
2010-15	30	10	145	43	332	75	594	161

*Incidence of fragility (low trauma) fractures at the distal forearm

Conclusion: The trend for increasing low trauma distal forearm fractures in women age 40-59 yrs may reflect the decreased use of hormone replacement therapy, which would likely have particularly impacted this age group. The decrease in fractures in men age ≥ 80 yrs may reflect greater recognition, in recent years, of osteoporosis in older men and initiation of treatment. Whether changes in practice patterns are actually contributing to these observed trends warrants further review.

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CHANGES IN CIRCULATING SCTL4 FOLLOWING ZOLEDRONIC ACID INFUSION

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Background: Acute phase response (APR) is a transient, flu-like reaction to first exposure to intravenous nitrogen-containing bisphosphonate (NBP). APR is characterised by a strong inflammatory response, associated with increases in circulating levels of IL-6 and TNF-, that is thought to be due to activation and increased proliferation of $\gamma\delta$ T cells related to the molecular mechanism of action of NBP.

Cytotoxic T-Lymphocyte Antigen-4 (CTLA-4), in both its soluble (s) and membrane-bound forms, is involved in the downregulation of T cell proliferation, cell cycle progression and cytokine production. High levels of serum sCTLA-4 have been reported in several autoimmune diseases, and its role as both inhibitor and enhancer of the immune response has been proposed.

Objectives: To evaluate the potential relationship between sCTLA-4 and the development of APR in patients treated with zoledronic acid (ZOL).