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PP354-T

Periarticular and generalised bone loss in patients with early rheumatoid arthritis (ERA). Influence of alendronate (AL) and glucocorticoid treatment, and disease activity

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Abstract: Aim: To investigate the influence of AL therapy on bone mineral density (BMD) in hand and axial BMD in lumbar spine (LS) and femoral neck (FN) in ERA with active disease during one year of intensive therapy. **Methods:** 160 patients with ERA were randomised to methotrexate (MTX) + cyclosporine (CYA)/placebo. Patients had betamethasone injections in all swollen joints (max 4) at each visit. BMD in the metacarpal bones by digital X-ray radiogrammetry (DXR), BMD in LS and FN by DXA-scan and radiographs were made at inclusion and after 12 months. 83 patients with Z-scores <−1.0 were treated with AL (49 and 48% of the patients in the two groups). **Results:** AL did not influence the decrease in hand DXR and during the one-year study the change in DXR-BMD in the hand was −0.0087 g/cm² (−1.8%) and −0.0088 g/cm² (−2.6%) in the non-AL- and AL groups, respectively. In contrast, a significant shift in the changes in LS-BMD: −0.026 g/cm² (−2%) and 0.016 g/cm² (1.9%) and in FN-BMD: −0.005 g/cm² (−2.2%) and 0.004 g/cm² (0.5%) was observed between the non-AL- and AL groups. The change in radiological score did not differ between the non-AL and AL groups. Within the non-AL and AL groups there were no significant differences in the DXR- and DXA-BMD parameters in patients achieving or not achieving ACR50-response. However, patients treated with AL decreased significantly less in LS-BMD and FN-BMD than non-AL treated patients, whatever the ACR50-response. Changes in LS- and FN-BMD were negatively correlated to the cumulated betamethasone doses. This relationship was not observed for DXR-BMD. **Conclusion:** Alendronate did not affect the decrease in periarticular bone loss. Alendronate therapy reduced the axial bone loss, whether the patients achieved ACR50-response.

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Peripheral quantitative ultrasound for the prediction of fracture over five years: The Canadian Multicentre Osteoporosis Study (CAMOS)

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Abstract: The purpose of this investigation was to assess the ability of Beam-Med (previously Sunlight) Omnisense quantitative ultrasound (QUS) to predict fractures over a five year follow-up period. A total of 1108 men and 2633 women were assessed with QUS at the tibia, radius and phalanx sites as part of the Canadian Multicentre Osteoporosis Study (clinical sites included Saskatoon, Calgary, Hamilton, Quebec City, Halifax and St. Johns). Following QUS assessment, clinical vertebral and nonvertebral fracture incidence was recorded over five years with yearly questionnaires. Reported fractures were verified through

patient medical and radiological records. Survival analyses (proportional hazards regression) were completed for each QUS site independently with age and sex included in the models. Hazard ratios (HR) were constructed assuming a 150 m/s change in the speed of sound (SOS) measure as assessed by the QUS. Censoring variables included loss to follow-up, death and end of follow-up with the time to censor included in the model. The mean (SD) ages were 63.3 (13.0) and 66.1 (11.5) years for the men and women, respectively (range 30–97 years). The mean (SD) SOS (m/s) measures were 4044 (150) at the radius, 3868 (144) at the tibia, and 3819 (215) at the phalanx sites. A total of 204 fractures were recorded over the follow-up period. When all fractures were considered, an increase of 150 m/s in the SOS measure was associated with a decrease of fracture risk by 25% when measured at the radius (HR = 0.746, p < 0.001), by 30% when measured at the tibia (HR = 0.701, p < 0.001) and by 7% when measured at the phalanx (HR = 0.929, NS). When fractures were limited to only nonvertebral fractures (187 fractures), an increase in the SOS by 150 m/s was associated with a decrease in fracture risk by 26% when measured at the radius (HR = 0.743, p < 0.001), by 30% when measured at the tibia, and by 8% when measured at the phalanx (HR = 0.923, NS). At the radius and tibia sites, a change in SOS by approximately one standard deviation was associated with a 25–30% change in five-year fracture risk. The Beam-Med Omnisense multisite ultrasound has demonstrated to be a valuable tool for fracture risk assessment.

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PP356-M

Patient-relevant benefits of osteodensitometry in primary and secondary osteoporosis: A systematic review

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Abstract: Objectives: The aim of this health technology assessment was the systematic review of patient-relevant benefits of osteodensitometry (OD) for the prevention of osteoporotic fractures and potential disease-related complications in persons without pre-existing fractures. **Methods:** We performed a systematic search in bibliographic databases for studies investigating the benefit of OD in adult Caucasians without pre-existing osteoporotic fractures in respect of the incidence of symptomatic fractures and disease-related complications. Benefit assessment was performed by means of 2 approaches: (1) comparison of a healthcare strategy containing OD as a diagnostic instrument with a strategy without OD use (direct benefit assessment, sub-goal A); (2) assessment of therapeutic studies in which BMD was used as an inclusion criterion (assessment of consequences of OD results, sub-goal B). **Results:** For sub-goal A, 2 RCTs were identified. Data from these 2 RCTs do not provide indications of benefit or harm from a procedure for diagnosing osteoporosis and estimating fracture risk as an intervention. This applies to prevention of symptomatic fractures and improvement in quality of life (QoL). No data were reported on fracture-related functional limitations and pain, mortality, or adverse events (AEs). For sub-goal B, 15 RCTs, mostly drug trials, were identified. Data provide an indication of a benefit of treatment for postmenopausal women without fractures who have a BMD of T < −2.5 measured with central DXA. This applies to specific fracture types. Interaction between BMD and therapy effect was seen in 1 study. No informative data were reported on fracture-related functional limitations and pain, mortality or improvement in QoL. In the AE assessment, indications of harm from specific drugs were inferred. Besides central DXA, it was not demonstrated for any other diagnostic procedure for detection of low BMD that persons identified with this procedure can benefit from therapy. **Conclusion:** Despite the numerous studies assessed, there is only limited evidence for patient-relevant benefits of OD. No direct statement on the benefit or harm of a healthcare strategy containing OD can be inferred. However, data provide an indication that DXA can help distinguish between postmenopausal women for whom treatment is meaningful and those for whom benefit from treatment is not to be expected. This distinction is a prerequisite for the construction of beneficial diagnostic pathways.

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Trabecular thickness from granulometry – Measurements in the regime of limited resolution

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