DOES STEROID TREATMENT REDUCE BONE MINERAL DENSITY IN PATIENTS WITH RHEUMATOID ARTHRITIS?

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Background: Treatment of RA frequently utilizes steroid to control the inflammation caused by the disease. Both RA and steroids have detrimental effects on BMD. Van Staa previously suggested that steroids in RA worsen bone health. However, it is not known whether this affects cortical bone (hip) or trabecular bone (spine).

Methods: To investigate the impact of steroid use on RA patients independently on the BMD in the spine and femoral neck in RA patients referred for BMD estimation using DXA. All patients with RA attending for BMD estimation using DXA in a district hospital scanner between 2004 and 2011 were used. Within that cohort, two groups were identified: those who currently use steroids and those who were not using steroids at the time of DXA. The BMD in the lumbar spine and femoral neck was compared between the groups. The difference in BMD was ascertained using Student’s t-test. Logistic models were fitted examining the predictors of bone loss in each group.

Results: 810 patients with RA were referred in the study period. Mean age was 66.5 years (S.D. 11.6). 637 (78.6%) were female. 188 (23%) were on steroids at the time of DXA (mean age 65.2 years, S.D. 11.96) and 622 (77%) were not on steroids at the time of DXA (mean age 66.9 years, S.D. 11.5). For both groups, BMD was lower in the femoral neck than in the lumbar spine: current steroid use 0.83 g/cm² (95% CI 0.81, 0.85) vs 1.07 g/cm² (95% CI 1.05, 1.10), no steroid use 0.83 g/cm² (95% CI 0.82, 0.85) vs 1.08 g/cm² (95% CI 1.07, 1.10). Comparing the two groups, the mean difference in BMD was not significantly different in the lumbar spine (0.01 g/cm² 95% CI −0.02, 0.04) or the femoral neck (0.006 g/cm² 95% CI −0.02, 0.03). Logistic regression yielded an odds ratio of 0.496 (95% CI 0.124, 1.99, $P = 0.323$) and 0.670 (95% CI 0.276, 1.63, $P = 0.378$) when comparing steroid use with BMD in the femoral neck and the lumbar spine, respectively. Steroid users suffered 39 fractures (26%) compared with 141 (29%) with no steroid use.

Conclusion: In this group of RA patients referred for DXA, BMD is lower in the femoral neck than the lumbar spine. Steroid use in RA was not found to be associated with a lower BMD in the femoral neck or the lumbar spine of these patients. Although there are limitations to this study, including the lack of knowledge of the dosage and duration of the steroid therapy, it would appear that steroids do not independently increase bone loss in the femoral neck or lumbar spine.

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