

Effects of low dose corticosteroids and the duration of steroid therapy on bone mass in Rheumatoid Arthritis: longitudinal study

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Abstract

Most of the investigators did not succeed to prove negative effect on bone mineral density (BMD) in Rheumatoid Arthritis (RA) patients treated with low dose of corticosteroids (CS), but few of them could not confirm this finding. The aim of this study was to investigate the effects of low dose CS on BMD of RA premenopausal and postmenopausal (PM) patients in Nis region of Serbia.

Measures and Results

A group of 352 female RA patients were categorized according to age in premenopausal and postmenopausal group. Each group was subdivided to two sub-groups of premenopausal and PMs (on 5mg CS; and 6-10±1 mg/daily), as well as according to duration of CS therapy (1 year, 2-5, 7-11, and over 11 years). BMD was measured by DEXA densitometer in the beginning of the trial, 6 months and 1 year after. Control group were healthy persons categorized by age and RA premenopausal and PM patients on non steroid anti-inflammatory drugs (NSAID). BMD of CS (5 mg/day) and NSAID RA premenopausal patients is significantly lower ($p < 0,050$) compared to adequate age matched control group, with no difference between CS and NSAID treated group after 1 year follow up. BMD of CS treated (6-10±1 mg/daily) RA premenopausal patients is lower than NSAID treated group ($p < 0,01$). BMD analysis in RA-PM patients on CS 5mg/day gave the same results. BMD of these patients is significantly lower than control group (0,994 compared to 1,106 g/cm², $p < 0,01$), but with no difference to NSAID group with BMD of 1,058 g/cm². BMD of RA-PM patients treated with 6-10 mg/day is significantly lower compared to NSAID treated RA-PM and control (0,992 compared to 1,058 and 1,106 g/cm²). The duration of 1 year and 2-6 years CS therapy in RA premenopausal patients gives significant difference when compared to controls ($p < 0,05$ and $p < 0,01$ respectively). RA PM patients on CS in duration of 1, 2-6 and 7-11 years did not have significantly lower BMD compared to NSAID treated RA-PM patients, but the difference was significant when CS treatment last more than 11 years (0,847 compared to 0,980g/cm², $p < 0,01$).

Conclusion

Low dose of CS-5mg/day do not have negative effect on BMD of RA premenopausal and RA-PM patients. Doses of CS up to 6-10±1mg/day have negative effect on BMD of both groups. Despite the multifactorial etiology of generalized osteoporosis we can suggest that the duration of CS therapy more than 11 years combined with a CS dose up to 10mg/day makes this group of RA-PM at highest risk to develop significant generalized osteoporosis.