BONE

Effects of breast cancer therapy on bone structure

Aromatase inhibitors adversely affect hip structural geometry in women with breast cancer and chemotherapy-induced menopause, but once-weekly risedronate provides a protective effect, according to a new study. However, risedronate treatment has a greater protective effect in patients not taking aromatase inhibitors than in those who receive these agents.

Adjuvant hormonal therapy with aromatase inhibitors in postmenopausal women with breast cancer induces bone loss, an adverse effect that can be reduced by treatment with bisphosphonates. However, the effects of this cancer therapy on bone structure—another important component of bone strength—are not well understood. Furthermore, bisphosphonates might prevent the adverse structural changes to bone induced by aromatase inhibitors, but the effects are unknown.

Van Londen *et al.* assessed the hip structural geometry changes of 67 women (mean age 50 years) with nonmetastatic breast cancer and chemotherapy-induced menopause who were randomly allocated to receive 35 mg risedronate once weekly or placebo as part of a 2-year double-blind trial. This trial had previously shown beneficial effects of risedronate on spine and hip BMD. A number of the women changed their cancer therapy from another type of medication (such as tamoxifen) to an aromatase inhibitor during the trial; only four women in the placebo group and four in the risedronate group were receiving aromatase inhibitor at baseline.

To assess hip structural geometry, the researchers used a hip structural analysis (HSA) program that uses data from dual-energy X-ray absorptiometry images to measure dimensions of bone cross sections of the narrow neck, intrachanteric region and femoral shaft of the hip. Women receiving aromatase inhibitor at baseline who were in the placebo group had the most adverse BMD and HSA indices. Compared with placebo, risedronate treatment improved BMD and structural integrity at the interochanter site independent of the concurrent use of aromatase inhibitors. Nevertheless, greater hip structural improvement was observed for women receiving bisphosphonates but not receiving aromatase inhibitors.

The researchers hope that their findings will provide useful insights to protect the bone health of postmenopausal women with breast cancer.

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Original article Van Londen, G. J. *et al.* The effect of risedronate on hip structural geometry in chemotherapy-induced postmenopausal women with or without use of aromatase inhibitors: A 2-year trial. *Bone* doi:10.1016/j.bone.2009.10.019