Methods: We have retrospectively analyzed the 10-year risk of major osteoporotic fracture calculated with the DeFRAc79 tool in postmenopausal women aged over 50 years that were initiating an anti-osteoporotic treatment (fully reimbursed according to the Nota 79). DeFRAc79 is a new web-based fracture risk-assessment tool (https://defra-osteoporosi.it) that algorithmically adjusts the risk based on multiple risk factors contemplated by the Nota 79, which regulates the reimbursability for osteoporosis medications in Italy (Italian Agency for Drugs, AIFA), including demographic and anthropometric data, femoral and/or lumbar spine BMD T-score, family history of femoral or vertebral fractures, number and site of previous osteoporotic fracture (including vertebral, femoral, and non-vertebral non-femoral fractures), glucocorticoid treatment (>3 or >12 months, ≥5mg prednisone or equivalent), adjuvant hormone therapy, for breast cancer, and comorbidities that induce an increased risk of fracture (rheumatoid arthritis and other connective tissue diseases, chronic obstructive pulmonary disease, inflammatory bowel diseases, Parkinson's disease, multiple sclerosis, human immunodeficiency virus infection, diabetes, or severe physical handicap). This is a sub-analysis of the cross-sectional observational study to validate and further develop the DeFRA algorithm for the estimation of the risk of osteoporotic fractures, promoted by Verona hospital with the unconditional support of Amgen Srl.

Results: Among 208 women, 116 (55.8%) were treated with adjuvant hormone therapy for breast cancer and 92 (44.2%) were on glucocorticoid ≤5mg/day. Women on glucocorticoids had a greater mean 10-year risk of fracture compared to women on adjuvant hormone therapy for breast cancer (67.0% vs 39.1%, p<0.01). 50.7% of women on adjuvant hormone therapy for breast cancer were prescribed with denosumab, 28.0% zoledronic acid and 17.3% alendronate. Women treated with teriparatide, 37.3% alendronate, 28.0% zoledronic acid and 17.3% alendronate. In glucocorticoid-induced osteoporosis, 17.6% of the women used teriparatide, 37.3% alendronate, 28.0% zoledronic acid and 17.3% denosumab.

Conclusion: In our cohort of patients, treatment with adjuvant hormone therapy for breast cancer was slightly more common than glucocorticoids. Women with glucocorticoid-induced osteoporosis had a greater risk of fracture compared to patients treated with adjuvant hormone therapy for breast cancer. Half of the patients on adjuvant hormone therapy for breast cancer were prescribed with denosumab. One-fifth of the patients with glucocorticoid-induced osteoporosis was treated with teriparatide. DeFRAc79 is a useful and practical tool for the integrated evaluation of fracture risk in drug-induced osteoporosis.

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