Aim: To analyze long-term changes in bone mineral density (BMD) in women with premature ovarian failure (POF) treated with hormone therapy (HT).

Methods: A longitudinal cohort study was conducted to investigate 132 women diagnosed with POF who sought care in a tertiary healthcare center. Parameters analyzed were: bone mineral density measurements of the lumbar spine (LS) in L1-L4 and femoral neck (FN), age, BMI, age at the last menstrual period (POF), years of POF, type of HT, at baseline and every 2 years for 6 years.

Results: The mean age of the women was 33.1±7.4 years, BMI was 25.6±5.5kg/m², BMD in the LS and FN at baseline was 1.03±0.17g/cm² and 0.91±0.16g/cm², categorized as normal in 54.4% and 75.4% of women, osteopenia was found in 28% and 23.2% and osteoporosis in 17.6% and 1.4% of women, for LS and FN, respectively. The women were treated with HT (81.4% used conjugated equine estrogen or estradiol plus progestin, 7.2% used combined oral contraceptive containing EE 30mcg or tibolone). Of the women examined, 11.4% did not adhere to HT. After 6 years of HT, BMD was normal for LS and FN in 48% and 60%; it indicated osteopenia in 36% and 40% and osteoporosis in 16% and 0%, respectively.

In comparison to baseline values, there was a significant loss of bone mass in LS, from -0.089±0.08 (p=0.001). However, for the FM, the difference of -0.091±0.209 was not significant (p=0.13). Using Spearman's correlation, the variables age, BMI, age at the last menstrual period (POF), years of POF were not correlated with variation in BMD.

Conclusion: Although BMD of the femoral neck did not show any significant loss after 6 years of treatment, for the lumbar spine, hormone therapy was not adequate to maintain bone mineral density. Further reassessment of therapeutic strategies is required.