

ABSTRACT

AIM OF THE STUDY:

Prospective observational study to evaluate the association between vitamin D and bone mineral density among postmenopausal women.

OBJECTIVES:

- 1) Whether level of vitamin D at which patients are prone for osteoporosis can be ascertained.
- 2) Whether supplementation with vitamin D can prevent or delay the onset of osteoporosis can be predicted.

STUDY DESIGN:

A Prospective observational study between September 2013 to september 2014 at Kilpauk medical college hospital,Chennai.

METHOD

Women attending Gynaec OP with age more than 50 years or

postmenopausal after getting informed consent for the study were evaluated

by

Questionnaire

General examination

Pelvic examination

Basic investigations

Serum 25(OH) vitamin D levels

Bone mineral density using DEXA machine

- In my study , findings showed a mean vitamin D levels of 30.926 ng/ml, in patients with adequate bone mineral density. Where as in patients with osteopenia, mean vitamin D levels were 24.722 ng/ml and in patients with osteoporosis, mean levels were 22.841ng/ml. This observation is statistically

significant [$P < 0.05$].The fact that even though these patients are osteoporotic they had slightly higher vitamin D levels when compared to osteopenic group is probably related to insufficient number in the osteoporotic group.

- So from my study, we predicted a cut-off value of vitamin D to diagnose osteopenia and osteoporosis. For diagnosing osteopenia, by keeping vitamin D level of ≤ 27.3 as cut-off, sensitivity is 88.8% and specificity is 77.1%. Whereas for osteoporosis ,by keeping vitamin D level of ≤ 23 as cut-off, sensitivity is 94.8% and specificity is 94.3%.
- So we can diagnose both osteopenia and osteoporosis by measuring vitamin D levels, which is cheaper with no adverse effects. Vitamin D is less costlier, and no adverse effects like radiation as in DEXA imaging which is most commonly used to diagnose osteoporosis
- A study by Daniele et al studied the effect of calcium and vitamin D on BMD and bone mineral content in peri & post menopausal women. It is a double blinded randomized control study. The results showed a positive effect of calcium and vitamin D supplementation on bone mineral density

and bone mineral content in both peri & postmenopausal women. This is in accordance with our study.

- A study by Lucy Cooper et al., a double blinded placebo controlled study which compares the effect of calcium Vs calcium and vitamin D in postmenopausal women. Results were vitamin D and calcium did not confer benefits on BMD than with calcium supplementation alone.
- A study by Francisco et al showed positive association between vitamin D and BMD in postmenopausal women. There is high prevalence of hypovitaminosis D in postmenopausal women which is in accordance with our study.
- A study by Labronite et al showed no independent association between vitamin D and BMD in healthy postmenopausal women which is in contrast to our study which showed a significant association between vitamin D and BMD.

CONCLUSION:

In my study,

- There exists a positive association between vitamin D and bone mineral density.
- Obesity doesn't show any significant relation with bone mineral density.

As age increases, bone mineral density decreases. Inverse relationship exists between age and bone mineral density