



ASSOCIATION OF DEXA SCAN WITH SERUM FERRITIN LEVEL IN THALASSEMIA MAJOR PATIENTS

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ABSTRACT

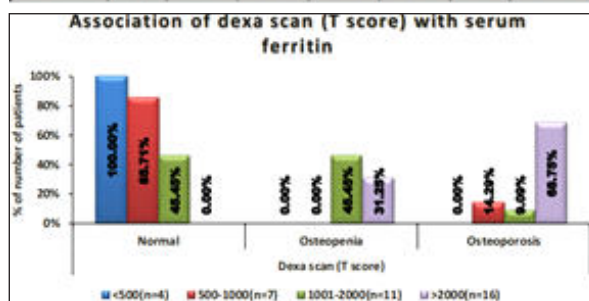
In thalassemia inadequate iron chelation leads to iron toxicity which stimulate osteoclast and accelerate bone break down and inhibit osteoblast maturation which inhibit bone formation. Monitoring of serum ferritin level which is an indirect marker for iron storage. We can predict the osteoporosis in thalassemia patient and in this study shows that high serum ferritin level had statistically significant association with reduced bone mineral density. ($P < 0.001$)

KEYWORDS : ferritin, osteoclast, osteoblast, thalassemia

INTRODUCTION

Beta thalassemia once considered to be the disease of "pediatric" age group, now with improved medical facilities and better self-care by patients has become one of the most prevalent hematological disorder seen in adolescent and young adults. Manifestation starts from 6 months of life when switchover from fetal hemoglobin (HbF) to adult hemoglobin (HbA) occurs physiologically in normal individual. In thalassemia major due to defect in beta globin gene, ineffective erythropoiesis occurs which results in marrow hyperplasia and hypersplenism, which in turn causes hemolytic anemia and excessive iron accumulation. Major symptoms are easy fatigability, generalised weakness, breathlessness on exertion, jaundice, growth retardation, endocrinopathies, cardiac dysfunction, bone deformities, liver dysfunction, splenomegaly, skin manifestations, etc.

| Dexa scan (T score) | <500 (n=4) | 500-1000 (n=7) | 1001-2000 (n=11) | >2000 (n=16) | Total | p value | Test performed |
|---------------------|------------|----------------|------------------|--------------|-------------|---------|-------------------|
| Normal | 4 (100%) | 6 (85.71%) | 5 (45.45%) | 0 (0%) | 15 (39.47%) | <.0001 | Fisher Exact test |
| Osteopenia | 0 (0%) | 0 (0%) | 5 (45.45%) | 5 (31.25%) | 10 (26.32%) | | |
| Osteoporosis | 0 (0%) | 1 (14.29%) | 1 (9.09%) | 11 (68.75%) | 13 (34.21%) | | |
| Total | 4 (100%) | 7 (100%) | 11 (100%) | 16 (100%) | 38 (100%) | | |



CASE STUDY

In the present study, 50 beta thalassemia major patients of more than 12 years of age visiting sir sayajirao general hospital (SSGH) medical OPD, Vadodara, or getting admitted for blood transfusion were enrolled in study from January 2020 to December 2020. And their serum ferritin levels are measured and dexa scan was done and the association between the dexa scan and serum ferritin level studied.

CONCLUSIONS

In our study 100% patients from <500ug/L ferritin group had normal dexa scan. 85.71% and 14.29% of patients from 500-1000ug/L ferritin group had normal and osteoporosis in their dexa scan respectively. 45.45%, 45.45% and 9.09% of patients from 1001-2000ug/L ferritin group had normal, osteopenia and osteoporosis in their dexa scan respectively. 31.25% and 68.75% of patients from >2000ug/L ferritin group had osteopenia and osteoporosis in their dexa scan respectively. P value of this association is <0.001 suggesting that association of osteopenia and osteoporosis is statistically significant with increasing levels of serum ferritin.

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