PREDICTORS OF OSTEOPATHY AMONG ADULT PATIENTS WITH THALASSAEMIA MAJOR

Thesis

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ABSTRACT

Beta-thalassemia is a hereditary disease due tounbalanced globin chain synthesis with ineffectiveerythropoiesis and increased peripheral hemolysis**(Rafsanjani et al**., ٢٠٠٩**).**

In spite of the improved treatment of this hematologic disorder and its complications, β-thalassemia patients exhibit an unbalance in bone mineral turnover with increased resorptive rates and suppressionof osteoblast activity, resulting in diminished bone mineral density (BMD) more evident in the lumbar spine **(Nawar et al., ٢٠١٤)**.

A cross- sectionalstudy included ٨٠ patients with β-thalassemia major. Thirty seven were males (٤٦.٣ %) and ٤٣ patients were females (٥٣.٨ %). Their ages ranged from ١٥ to ٣٣ years with a mean of ٢٠.٦ ± ٤ years. All patients were subjected to full medical history, full clinical examination, and investigations which included: ALT, AST, bilirubin (total and direct),serum creatinine, calcium, phosphorus, ٢٥(OH) vitamin D, ALP, FBG, ٢hPPBG, TSH, freeT٤ and ferritin levels. Assessment of BMD was done by DEXA scan at three sites (AP-spine, left femur and right forearm).

Seventy nine(٩٨.٧%) patientshad abnormal BMDwhere ٣٤ (٤٢.٥%) patients were osteoporotic, ٦ (٧.٥%) were osteopenic and ٣٩ (٤٨.٧%) had both osteopenia and osteoporosis.

Bone mineral density was postively correlated with:

- **Vitamin D**levels(r= ٠.٣٠, P= ٠.٠٠٨ & r= ٠.٣٦, p=٠.٠٠١) at left femur and AP spine respectively
- **Calcium**levels (r= ٠.٢٩, p= ٠.٠٠٨, r= ٠.٣٢, p=٠.٠٠٤ and r= ٠.٢٢,p=٠.٠٥) at RT forearm, LT femur and AP spine respectively.

We observed a significant **positive** correlation (r=٠.٢٩, p=٠.٠٠٨) between right forearm DEXA scores and calcium levels, and a**negative** correlation with ٢ hours post prandial blood glucose and ferritin levels. Regarding DEXA scores at left femur, a significant **positive** correlation

was observed with vitamin D (r= ٠.٣, p= ٠.٠٠١) and calcium (r=٠.٣٢, p= ٠.٠٥) levels, and a **negative** correlation with the following variables:

- FBG (r= -٠.٢٨, p= ٠.٠٠٦)
- ٢h post prandial blood glucose (r= -٠.٣, p= ٠.٠٠٢)
- ALP (r= -٠.٣٢, p= ٠.٠٠٢)
- Ferritin levels (r= -٠.٤٦, p= ٠.٠٠١)

There was a statistically significant difference with p-value of ٠.٠٢ between number of sites affected and history of splenectomy, where (٤٠.٦%) of these who underwent splenectomy had affection in ٣ sites.

There was statistically significant difference (p= ٠.٠٠١) between different DEXA results at left femur regarding**hypogonadism**in males and females while it was statistically significant at right forearm and AP spine only in female patients (p= ٠.٠٤ and ٠.٠١).

Keywords: β-thalassemia major, bone mineral density, osteopathy, ٢٥(OH)vitamin D.