

Ministry of Higher Education & Scientific Research
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PHYSIOLOGICAL STUDY FOR β -THALASSEMIA MAJOR PATIENTS IN ALMUTHANNA PROVINCE

A thesis

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Summary

This study has included evaluation of the influence of iron accumulation on the following: Thyroid Stimulating Hormone (TSH), Thyroid Gland Hormones (T₄, T₃), Growth Hormone (GH), S.Iron, S.Ferritin, TIBC, in addition to serum liver enzymes activities (GPT, GOT). This study has also an evaluation of some further hematological parameters such as (RBCs, WBCs, Hb). The study has covered 75 patients they are suffering from β -Thalassemia major and, as control group, there 25 healthy persons. The ages of the patients and healthy persons ranged from (12 - 22) years.

The present study results shows :

*significant increase ($P < 0.05$) in S.ferritin levels where its concentration in males and females patients is (789.4 ± 12) ng/ml & (745 ± 28) ng/ml respectively in comparison with healthy group where its concentration in males and females is (15.34 ± 1.9) ng/ml & (14.7 ± 1.8) ng/ml respectively.

* significant increase ($P < 0.05$) in S.iron levels where its concentration in males and females patients is (49.1 ± 3.3) $\mu\text{mol/L}$ & (49.3 ± 3.1) $\mu\text{mol/L}$ respectively in comparison with healthy group where its concentration in males and females is (18.74 ± 1.0) $\mu\text{mol/L}$ & (16.29 ± 1.2) $\mu\text{mol/L}$ respectively.

* significant decrease ($P < 0.05$) in TIBC levels where its concentration in males and females patients is (19.32 ± 1.1) $\mu\text{mol/L}$ & (18.74 ± 0.93) $\mu\text{mol/L}$ respectively in comparison with healthy group where its concentration in males and females is (56.59 ± 2.4) $\mu\text{mol/L}$ & (55.88 ± 2.3) $\mu\text{mol/L}$ respectively.

* significant increase ($P < 0.05$) in liver enzyme GOT levels where its concentration in males and females patients is (37.0 ± 4.5) U/L & (36.0 ± 4.3) U/L respectively in comparison with healthy group where its concentration in males and females is (13.63 ± 0.86) U/L & (12.35 ± 0.77) U/L respectively.

* significant increase ($P < 0.05$) in liver enzyme GPT levels where its concentration in males and females patients is (39.0 ± 4.2) U/L & (40.0 ± 4.2) U/L respectively in comparison with healthy group where its concentration in males and females is (15.91 ± 1.0) U/L & (14.71 ± 0.91) U/L respectively.

* significant decrease ($P < 0.05$) in RBC count where its count in males and females patients is $(2.908 \pm 0.081) \times 10^6 \text{mm}^3$ & $(2.803 \pm 0.092) \times 10^6 \text{mm}^3$ cells respectively in comparison with healthy group where its count in males and females is $(5.298 \pm 0.12) \times 10^6 \text{mm}^3$ & $(4.785 \pm 0.084) \times 10^6 \text{mm}^3$ cells respectively. While its show significant increase ($P < 0.05$) in WBC count where its count in males and

females patients is $(23.1 \pm 2.9) \times 10^3 \text{mm}^3$ & $(27.7 \pm 4.3) \times 10^3 \text{mm}^3$ cells respectively in comparison with healthy group where its count in males and females is $(7.15 \pm 0.31) \times 10^3 \text{mm}^3$ & $(6.53 \pm 0.45) \times 10^3 \text{mm}^3$ cells respectively.

* significant decrease ($P < 0.05$) in Hb levels where its concentration in males and females patients is $(7.87 \pm 0.23) \text{g/dl}$ & $(7.75 \pm 0.26) \text{g/dl}$ respectively in comparison with healthy group where its concentration in males and females is $(13.23 \pm 0.48) \text{g/dl}$ & $(12.345 \pm 0.17) \text{g/dl}$ respectively.

* significant increase ($P < 0.05$) in TSH levels where its concentration in males and females patients is $(4.92 \pm 0.43) \mu\text{IU/ml}$ & $(4.77 \pm 0.42) \mu\text{IU/ml}$ respectively in comparison with healthy group where its concentration in males and females is $(2.426 \pm 0.12) \mu\text{IU/ml}$ & $(2.771 \pm 0.22) \mu\text{IU/ml}$ respectively.

* significant decrease ($P < 0.05$) in T4 levels where its concentration in males and females patients is $(2.409 \pm 0.12) \mu\text{g/dl}$ & $(2.68 \pm 0.28) \mu\text{g/dl}$ respectively in comparison with healthy group where its concentration in males and females is $(7.18 \pm 0.29) \mu\text{g/dl}$ & $(7.386 \pm 0.22) \mu\text{g/dl}$ respectively. Also it shows significant decrease ($P < 0.05$) in T3 levels where its concentration in males and females patients is $(0.80 \pm 0.029) \text{ng/ml}$ & $(0.784 \pm 0.037) \text{ng/ml}$ respectively in comparison with healthy group where its concentration in males and females is $(1.604 \pm 0.092) \text{ng/ml}$ & $(1.726 \pm 0.72) \text{ng/ml}$ respectively.

* significant decrease ($P < 0.05$) in GH levels where its concentration in males and females patients is $(20.41 \pm 1.5) \mu\text{IU/ml}$ & $(24.34 \pm 1.5) \mu\text{IU/ml}$ respectively in comparison with healthy group where its concentration in males and females is $(38.7 \pm 2.7) \mu\text{IU/ml}$ & $(44.6 \pm 3.5) \mu\text{IU/ml}$ respectively.

*The aim of research is study effect of the iron over load on hormonal parameters and biochemical parameters as well as liver enzymes activities (GOT,GPT) in β -thalassemia patients in AL-muthanna province.

*The study concluded that the iron over load in patients have effect on the hormonal parameters it causes decrease in secreted Growth Hormone , Thyroid Hormones while it causes increase in secreted Thyroid Stimulating Hormone , and biochemical parameters it causes increase S.Iron,S.ferritin while decrease TIBC , in addition to increase liver enzymes activities(GOT,GPT).

