SUMMARY

Endocrine disorders are well described in patients with beta-thalassemia major. They are among the most common consequences of the disease world wide. Affecting patients quality of life and causing considerable morbidity and mortality. Although data from developing countries are scant, investigations elsewhere have documented evidence of hypothalamic pituitary dysfunction, hypothyroidism, hypoparathyroidism, adrenal insufficiency and pancreatic dysfunction.

Endocrine problems in beta-thalassemia could result from A variety of factors, with most studies suggesting that chronic iron overloading secondary to hyper transfusion therapy is the major cause of the observed abnormalities. Iron overload as a consequence of blood transfusion is the primary therapeutic complication in thalassemia major.

The use of iron chelating drugs has been shown to delay the development of iron induced damage of cardiac and liver tissues, resulting in improved survival. The ability of desferrioxamine to prevent damage to endocrine functions is less clear.

Aim of this study : Evaluate thyroid function test in beta-thalassemic patients to determine the prevalence of abnormal thyroid function.

This study was conducted on 25 patients (16 males and 9 females) diagnosed with thalassemia major on regular blood transfusion and irregular iron chelation therapy. their ages ranging between 8 - 18 years .

Exclusion Criteria:

- Patients receiving blood transfusion for other causes rather than thalassemia major e.g. Aplastic anemia (AA), acute myeloid leukemia (AML), and sickle cell disease (SCD)….etc.
- The other common cause of acquired compensated hypothyroidism.
- Who had received fully iron – chelating therapy.

All patients were subjected to:

1- Full history taking with special emphasis on onset, duration of blood transfusion, type and dose of iron chelation therapy, symptoms of hypothyroidism.

2- Thorough clinical examination.

3- Anthropometric studies.

4-The following investigations:

- Complete blood count (CBC).
- Liver enzymes (AST, ALT).
- Serum ferritin.
- Serum T4 and TSH.

The study revealed the following results:

- Primary hypothyroidism was detected in 4 (16%) patients
- Euthyroid patients were 21 (84%)represented .

There was statistically significant decrease in height in cases compared to control groups but there was no statistically significant difference ($p > 0.05$) between cases and control groups as regard weight and BMI.

The comparison between hypothyroid & normal patients as regard laboratory data revealed no significant difference in all laboratory data . On the other hand TSH level was significantly higher in hypothyroid (5.5) than normal patients(2.4)(p=<0.001).

There was statistically significant difference in s.ferritin and AST in case with chelation therapy comparison to cases without chelation therapy but there was no statistically significant difference in ALT and Hb in cases with or without chelation therapy . there was no statistically significant difference in both serum level of TSH and FT4 in case with or without splenectomy**.**

There was highly statistically significant ($p< 0.05$) increase in TSH serum level in hypothyroid cases compared to euthyroid cases, but there was no statistically significant difference ($p> 0.05$) in FT4 serum level in hypothyroid cases compared to euthyroid cases.

There was a significant positive correlation between serum level of TSH and ALT & S.Ferritin but there was no significant correlation was found between TSH and both AST &HB. there was negative significant correlation between S.ferritin &level of FT4.but did not reach to statistically significant

Finally we can conclude that prolonged blood transfusion leads to increase iron load which in turn affects the endocrine functions including the thyroid gland, this can be demonstrated through assessing thyroid functions clinically and hormonal.