

LIVER FUNCTION TESTS IN PATIENTS WITH THYROID DISORDER

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ABSTRACT : Thyroid disorder is a common expression used to describe many disorders that affect thyroid gland. Thyroid disorders are divided into two main entities, hyperthyroidism and hypothyroidism; on the base of either the serum thyroid hormone levels (thyroxin and triiodothyronine) are elevated or dropped, respectively. Thyroid diseases generally may be further subclassified according to on etiologic factors, physiologic abnormalities, etc. The level of serum TSH in patients with hyperthyroidism lower than control subjects, while the T4 and T3 increased level in hyperthyroidism patients higher than control hormones levels. The level of serum TSH in hypothyroidism was significantly higher than control group, while T4 and T3 were decreased levels than control group. The aim of this study is to find the distribution of GOT, GPT, GGT in the three groups: Hypothyroidism (G1), Hyperthyroidism (G2) and healthy people (G3) and the relationships between LFT and the other parameters (gender and age) in some Iraqi patients. The study consists of (90) subjects (30) healthy, (60) patients with thyroid disorder. The age range for the subject is (18-55) years were examined and selected at The National Diabetic Center/Al Mustansirya University from (December 2020 to march 2021). Levels of Thyroid Stimulating Hormone, Thyroxin and Triiodothyronine in addition to LFT in serum was calculated by HumaReader HS using a calibration curve as determined by ELISA technique. According to current study, the distribution of hypothyroidism among patients was significantly high in females (90.00%) than males and among hyperthyroidism also female were higher with (73.33%). The results of age and BMI found that the highest rate of hypothyroidism in age (41.10 ± 2.26) and in hyperthyroidism in age (40.06 ± 2.14). The present study showed no significant difference between T_3 and thyroid disorders with (2.481 ± 1.03) in hypothyroidism and (3.322 ± 0.31) in hyperthyroidism, while T_4 , TSH and TPO were highly significant. In hypothyroidism patients T_4 was (78.99 ± 8.03 b), TSH was (29.25 ± 5.49 a) and TPO was (10.09 ± 0.19 b) and in hyperthyroidism patients T_4 was (160.61 ± 11.69 a), TSH was (0.061 ± 0.02 b) and TPO was (10.70 ± 0.36 b). Both hyper and hypo thyroid disorder showed a high significant differences with GOT as well as with GPT. In hypothyroidism patients GOT enzyme was (39.85 ± 3.12 a) and GPT enzyme (39.73 ± 3.38 ab). Hyperthyroidism patients with GOT enzyme was (44.95 ± 4.50 a), with GPT enzyme (46.51 ± 5.06 a).

Key words : Hypothyroidism patients, hyper and hypo thyroid disorder, systemic endocrine effects.

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INTRODUCTION

There is an intricate relationship between thyroid hormone metabolism and liver. Thyroid hormones regulate hepatic function by modulating the basal metabolic rate of hepatocytes; the liver in turn metabolizes the thyroid hormones and regulates their systemic endocrine effects (Mullur *et al*, 2014).

Liver plays an important role in the metabolism of thyroid hormones, as it is the most important organ in the peripheral conversion of tetraiodothyronine (T_4) to triiodothyronine (T_3) by Type 1 deiodinase (Punekar *et al*, 2018).

Thyroid hormone are important for normal organ growth and development. Thyroid hormones control the

basal metabolic rate of all cells, so change in there level can affects the whole metabolism (Pandey *et al*, 2014). Thyroid hormones regulate calorogenesis in tissues, including hepatocytes and there by modulate hepatic function. The liver in turn metabolizes the thyroid hormone and adjust their endocrine effect (Manjula *et al*, 2013).

A complex relationship happens between thyroid and liver in health and disease. Liver works an important physiological role in thyroid hormone activation and inactivation, transport and metabolism. In opposition, thyroid hormones affect actions of hepatocytes and hepatic metabolism. Serum liver enzyme abnormalities detected in hypothyroidism may be linked to impaired lipid metabolism, hepatic steatosis or hypothyroidism stimulated

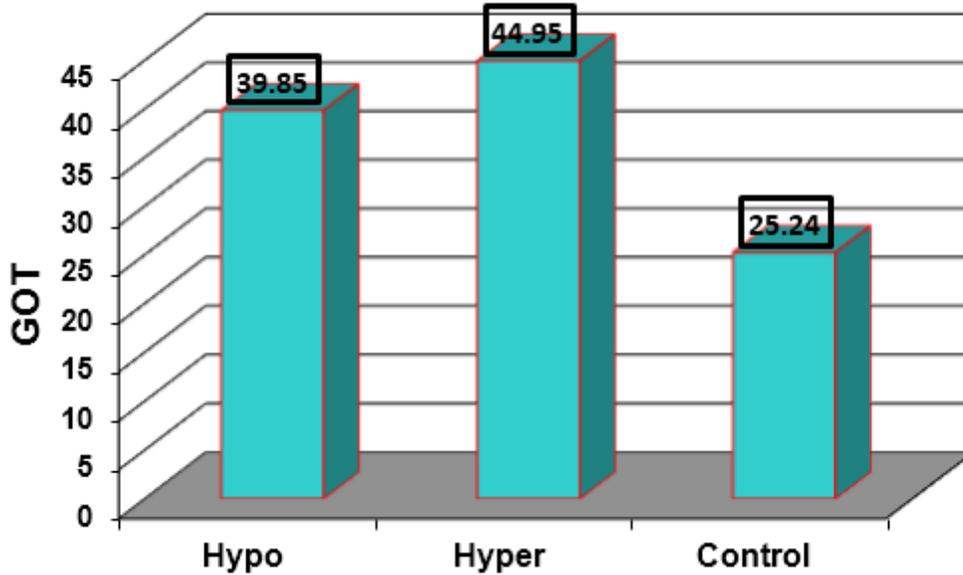


Fig. 5 : Compare between difference groups in GOT.

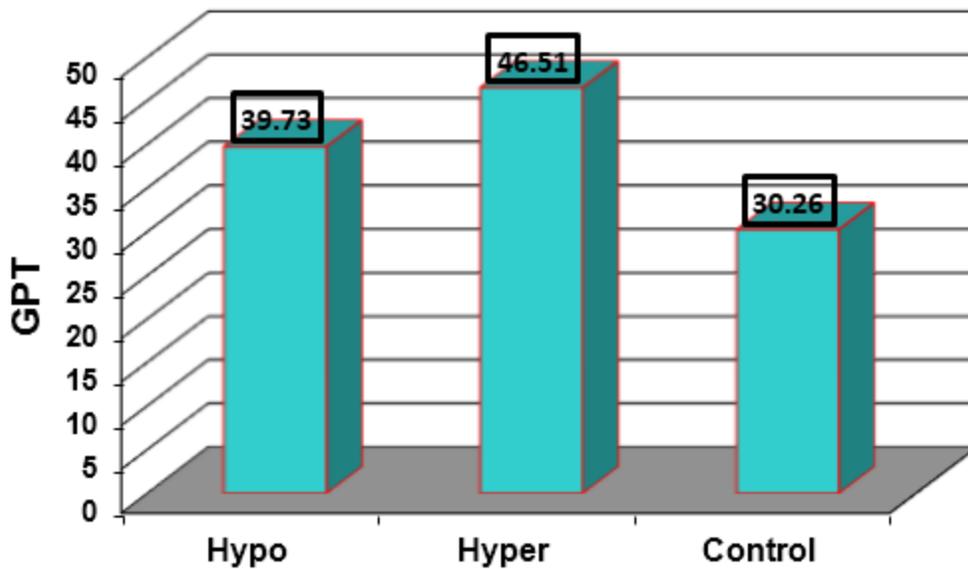


Fig. 6 : Compare between difference groups in GPT.

The current study is in agreement with the results of Malik and Hodgson (2002), Ajala *et al*, (2013) and Kim (2020)).

Previous studies have reported an association between hyperthyroidism and liver disease and indicated that the severity of hyperthyroidism is a risk factor for abnormal liver function tests (Lin *et al*, 2017).

CONCLUSION

1. The present study indicates that thyroid disorder might cause significant effect on metabolism of hepatocytes reflected by increase in biochemical parameters of liver function test GOT, GPT in both hyperthyroidism and hypothyroidism subjects. This recommends that patients should be regularly checked for biochemical parameters of liver function

tests.

2. Early detection and treatment can prevent the further complications related to the disorder and will be helpful during the management of thyroid patients.

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