

SUMMARY AND CONCLUSION

The thyroid gland maintains the level of metabolism in the tissues that is optimal for their normal function. Thyroid hormone stimulates the O_2 consumption of most of the cells in the body, regulates lipid and carbohydrate metabolism, and is also necessary for normal growth and maturation. The main function of the gland is to synthesize and secrete the thyroid hormones, namely, thyroxine (T_4), triiodothyronine (T_3) and calcitonine. The thyroid gland plays an important role in the normal metabolic rate and that is why a precise control system is operating to provide the right amounts of thyroid hormones at different conditions, both supraphyroid and autoregulatory mechanisms are involved in this control system.

The secretion of thyrotropin (TSH), which is the major modulator of thyroid function, is regulated at the level of the pituitary thyrotroph by the antagonistic effects of thyroid hormones and the TSH releasing hormone (TRH), the former inhibits and the latter stimulates the synthesis and secretion of (TSH). Therefore, excess thyroid hormone leads to decreased secretion of (TSH), and thyroid hormone insufficiency is associated with (TSH) hypersecretion, TSH stimulates all steps of thyroid hormone synthesis and secretion.

Ischemic heart disease is defined by world health organization as : myocardial impairment due to imbalance between coronary blood flow and myocardial requirement, caused by changes in the coronary circulation. In the last 20 years, epidemiologic and experimental studies have provided considerable evidence linking certain risk factors for coronary

atherosclerotic heart disease (CAHD), among many factors that have been shown to be important as risk factors of ischemic heart disease are hyperlipidemia, hypertension, cigarette smoking, sex, obesity, psychosocial tension, and diabetes mellitus. When risk factors coexist, they multiply the risk of chronic atherosclerotic heart disease (CAHD). The most frequently recognized cause of myocardial ischemia is occlusive coronary artery atherosclerosis, which either causes direct arterial narrowing or thrombous formation.

Patients with ischemic heart disease fall into two large groups: patients with stable angina secondary to chronic coronary artery disease and patients with acute coronary syndromes (ACS). The latter group, in turn, is composed of patients with acute myocardial infarction (MI) with ST-segment elevation on their presenting electrocardiogram and those with unstable angina (UA) and non ST-segment elevation MI (UA/NSTEMI).

The cardiovascular system is one of the most important targets on which thyroid hormones act. More than 80% of the biologically active hormone T_3 derives from peripheral conversion of T_4 secreted by the thyroid gland. Clinical and experimental evidence has shown that T_3 play a major role in modulating heart rate and cardiac contractility as well as arterial peripheral resistance. T_3 actions are carried out by binding with specific nuclear receptors that regulate responsive genes encoding for structural and functional cardiac proteins, direct, extranuclear, nontranscriptional effects, have also been described.

In severe illnesses of non-thyroidal origin including myocardial infarction and chronic heart failure, down regulation of thyroid hormone system and changes in thyroid homeostasis may occur. This condition which has been called “euthyroid sick syndrome” or “Low T_3 syndrome”.

However , as the severity of illness increase there is a drop in both serum T3 and T4.

The aim of the work is to study the thyroid functions in patients with ischemic heart disease in its different clinical presentations. The relation between the severity of IHD and its complication with thyroid function tests.

CRITERIA OF PATIENTS SELECTION:

The study included forty patients with ischemic heart disease.
Those were chosen as follows:

- Ten patients with stable angina “ SA” (group I) .
- Fifteen patients with unstable angina “ UA” (group II) .
- Fifteen patients with recent acute myocardial infarction “Recent AMI” (group III) .

In the AMI group five patients were presented by serious complications in the form of acute left sided heart failure, were treated and respond to treatment (two cases), cardiogenic shock and was treated but the patient not respond and was died (one case), ventricular arrhythmia and the patient was treated and respond to treatment (one case), cardiac arrest was treated by usual measures and D.C shock and not respond (one case).

We excluded from this study subjects with the following criteria:

- Patients with diseases that may affect thyroid functions (e.g. chronic liver and kidney diseases, malabsorption syndrome,etc.).
- Patients who take medications that affect thyroid gland functions (e.g. amiodarone, glucocorticoids, ,etc.).
- Patients with past history, investigations or treatment suggestive of thyroid gland diseases.
- Patients with ischemic heart disease and with any cardiac surgical interventions (e.g open heart surgery, percutaneous transluminal coronary angioplasty (PTCA) and stent, etc).
- Patients with any valvular heart diseases were excluded from this study.
- Patients with diabetes mellitus and hypertension were also excluded from this study.
- The patients included in this study was pure ischemic heart diseases as diagnosed on the clinical basis and simple non invasive investigation as [ECG , Echocardiography and assessment of cardiac enzymes (CK_{MB}, LDH and SGOT)] .

THE FOLLOWING INVESTIGATIONS WERE DONE TO ALL PATIENTS AND CONTROL SUBJECTS:

- Electrocardiographic examination (ECG) resting.
- Echocardiographic examination.
- Cardiac enzymes : Creatine- kinase isoenzyme (CK_{MB}), lactat dehydrogenas hormone (LDH) and serum glutamic oxaloacetic acid transaminase (SGOT).
- Total lipogram pattern: Serum total cholesterol, serum triglycerides (TG), high density lipoprotein

cholesterol (HDLc) and low density lipoprotein cholesterol (LDLc).

Estimation of thyroid functions : T3 , T4 , FT3, FT4 and TSH.

THIS STUDY SHOWED THE FOLLOWING RESULTS :

- Patients with (SA) had no significant changes according to the levels of TT3 , TT4 , FT3, FT4 and TSH in comparison to control group and also they had no significant changes according to the levels of cardiac enzymes and blood lipogram in comparison to control group.
- Patients with (UA) had a significantly lower levels of TT3 compared to the (SA) group and the control group, also they had no significant changes according to the levels of TT4, FT4, FT3, TSH in comparison to (SA) and the control group.
- Patients with (RAMI) had a significantly lower levels of TT3 compared to the (SA) group and the control group, and they had no significant changes according to the levels of TT4, FT4, FT3, TSH compared to the same groups.
- Patients with serious complicated infarction had lower levels of TT3, TT4 and TSH in comparison with the patients without serious complicated infarction in the (RAMI) group.
- Patients with (UA) had increase in the values of serum cholesterol, serum triglycerides and serum LDLc in comparison with the (SA) and the control groups .
- Patients with (RAMI) had increase in the values of serum cholesterol, serum triglycerides and serum LDLc in comparison with the (SA) and the control groups .
- Patients with (RAMI) had higher levels of serum CK_{MB} and serum LDH in comparison with (UA), (SA) and control groups.