URINARY IODINE EXCRETION, SERUM THYROID STIMULATING HORMONE CONCENTRATION AND OXIDANT STATUS IN PATIENTS WITH THYROIDITIS

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Excess iodine intake is known to result in subclinical hypothyroidism and thyroiditis. Urinary iodine excretion is usually measured to assess iodine status of an individual and as such excess intake is reflected by an increase in iodine excretion.

In the present study serum TSH (Thyroid Stimulating Hormone) concentration in patients with thyroiditis and apparently healthy individuals (controls) was measured and patients were grouped in to hypothyroid, euthyroid and hyperthyroid states. Urinary iodine excretion was estimated in patients and compared with controls. Further the serum total antioxidant capacity (TAC) and protein thiols (PSH) concentration of the above groups were evaluated to assess antioxidant status and Thiobarbituric acid reactive substances (TBARS) level was measured to assess lipid peroxidation. Forty five patients with thyroiditis and 41 controls with normal thyroid gland were recruited following Ultrasonography of the thyroid gland. Thyroiditis was confirmed with either serological (Thyroid Microsomal Antibody) or fine needle aspiration cytology tests in 32 patients. Urinary iodine was measured using cerric ammonium sulphate method. PSH was measured by Ellman's method. Ferric reducing ability of plasma was measured to assess TAC by using ferric (Fe III) tripyridyltriazine. TBARS were assayed by colorimetric method. Serum TSH was measured using enzyme linked immunosorbant assay.

According to TSH level, 25 patients were hypothyroid, 14 were euthyroid and 3 were hyperthyroid. Among whole population 59.5% were in hypothyroid state. The mean Urinary Iodine Concentration (UIC) of patients (334.8 ± 158.4 μg/l) was similar to mean UIC of controls (343.1 ±182.3 μg/L). Twenty five patients (range, 332.5-646 μg/l) and 20 controls (range, 347-717 μg/L) were found to be in excessive iodine status. The mean PSH in patients (575.5 ± 77.1 μmol/L) was not significantly different from controls (568.2 ± 77.9 μmol/L) ($p= 0.66$). The mean TAC of 764 ± 175 μmol/L in patients was not significantly different to the controls (780 ± 154 μmol/L). The mean TBARS in patients (1.83 ± 1.29 μmol/L) was significantly higher to the controls (0.94 ± 0.33 μmol/L) ($p < 0.001$).

The study revealed majority of thyroiditis patients are in hypothyroid state. Both thyroiditis patients and healthy individuals had high urinary iodine concentration suggesting excessive consumption of iodine. Protein thiol, and total antioxidant values indicate that the antioxidant status in both patients and control group are similar. However, TBARS level, indicated oxidative stress in thyroiditis patients is significantly higher compared to the control group.