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SERUM THYROID STIMULATING HORMONE CONCENTRATION IN PATIENTS WITH THYROIDITIS AND ITS RELATIONSHIP TO URINARY IODINE EXCRETION

B.E.U. Samarakoon[1, 2]*, R. Sivakanesan[2], S. Rosairo[3]

[1]Postgraduate Institute of Science University of Peradeniya, Sri Lanka
[2]Department of Biochemistry, Faculty of Medicine, University of Peradeniya, Sri Lanka
[3]Department of Radiology, Faculty of Medicine, University of Peradeniya, Sri Lanka
**eshani.samarakoon@yahoo.com*

Iodine is an essential component of thyroid hormones. Low or high intake of iodine may lead to thyroid disease. Excess iodine intake is known to result in hypothyroidism and autoimmune thyroiditis. In the present study serum TSH (Thyroid Stimulating Hormone) concentration in thyroiditis patients was measured and they were grouped in to hypothyroid, euthyroid and hyperthyroid states. Urinary iodine concentration (UIC) of the above groups was evaluated to assess iodine status.

A total of 42 (3 males, 39 females) patients with features of thyroiditis attending the thyroid clinic at Peradeniya Teaching Hospital were recruited based on ultrasonography of the thyroid gland. Ethical clearance was obtained from the Post Graduate Institute of Science, University of Peradeniya. Urinary iodine was measured using ceric ammonium sulphate method. Serum TSH was measured by enzyme linked immunosorbant assay. WHO recommended criteria were used to assess the iodine status of patients. As such they were categorized into four groups of <99 μg/l (mild iodine deficiency), 100–200 μg/l (adequate iodine status), 200–300 μg/l (more than adequate iodine status) and >300 μg/l (excessive iodine status).

According to TSH level, 25 (59.5%) patients were hypothyroid, 14 (33.3%) were euthyroid and 3 (7.1%) were hyperthyroid. The mean UIC of 333.3±169.3 μg/l in hypothyroid patients was similar to euthyroid patients (329.8±144.6 μg/l). Among the hypothyroid patients 2 exhibited mild iodine deficiency (UIC of 60.7, 64.1 μg/l), 3 showed adequate iodine status (UIC of 107.3,130, 173.7 μg/l) while 7 had more than adequate iodine status (UIC range, 211–290 μg/l) and 13 were diagnosed of excessive iodine status (UIC range, 332.5-646.8 μg/l). Among euthyroid patients 4 had adequate iodine status (UIC range 124.5-165.9 μg/l), 2 had more than adequate iodine status (244.7, 293.8 μg/l) and 8 were diagnosed of excessive iodine status (UIC range, 338.5–533 μg/l). Similarly, among the hyperthyroid patients 2 were in adequate iodine status (UIC 141.8, 155.6 μg/l) and 1 had excessive iodine status (UIC of 386.6 μg/l). Eighty percent (80%) of hypothyroid patients (n=20) (range, 211-646.8 μg/l) and 71% of euthyroid patients (n=10) (UIC of 338.5-533 μg/l) had UIC above 200 μg/l. Comparison of the number of hypothyroid and euthyroid patients having UIC >200 μg/l indicated that there was no difference in the incidence ($\chi^2 = 0.371$, p=0.542).

The study thus revealed that majority of patients with thyroiditis are hypothyroid and majority of patients showing hypothyroid and euthyroid states had high urinary iodine concentration suggesting excessive consumption of iodine.