

URINARY IODINE EXCRETION AND SERUM THYROID STIMULATING HORMONE IN PATIENTS WITH SUSPECTED THYROID DYSFUNCTION

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Iodine is essential for normal growth and development as it is a vital component of thyroid hormones. Most of the ingested iodine is excreted in urine. Therefore, it is a good indicator of the adequacy of the iodine intake and can be used to determine the status of iodine nutrition of an individual. According to the WHO recommendations, urinary iodine concentration (UIC) of adults should be between 100 and 199 µg/L, and <99 µg/L reflects iodine deficiency. UIC between 200 and 299 µg/L reflects more than adequate iodine intake and above 300 µg/L indicates excess iodine intake.

The objective of this study was to estimate urinary iodine excretion and serum thyroid stimulating hormone (TSH) in 93 consecutive patients aged between 15 and 85 years, referred to the Nuclear Medicine Unit for assessment of thyroid function from September to December 2013. At the time of sample collection patients were not on thyroxine or antithyroid drugs. Ethical clearance for the study was obtained from the Postgraduate Institute of Science, University of Peradeniya. Serum TSH was measured by immuno-radiometric assay (IRMA). UIC was estimated by Ceric ammonium sulfate method.

The study population (n=93) had a mean UIC of 268.8±197.0 µg/L. Only 1 patient (1.1%) had UIC 91.2 µg/L indicating iodine deficiency, 48 (51.6%) had normal UIC (Range: 100.8 - 193.4 µg/L), 21 (22.6%) had UIC more than adequate range (Range: 200.1 - 294.1 µg/L), and 23 (24.7%) had excess UIC status (Range: 314.2 - 1068.4 µg/L). Mean TSH of the study population was 5.4±12.3 mU/L (Range: 0.1 - 58.0 mU/L).

In the study population, 9 patients (9.7%) were hyperthyroid (Range= 0.1 - 0.2 mU/L), 68 (73.1%) were euthyroid (Range: 0.4 - 4.0 mU/L) while 16 (17.2%) were hypothyroid (Range: 4.2 - 58.0 mU/L). From the euthyroid patients 52.9% had normal UIC, while 45.6% had more than adequate or excess UIC. There was no significant correlation between UIC and TSH level ($r=-0.036$, $P=0.731$). The mean UIC was higher in hyperthyroid (282.4 µg/L) patients than euthyroid (275.3 µg/L) and hypothyroid (233.5 µg/L) patients but the differences among the three groups were not significant. In the study group, 22 patients (23.7%) were aged below 35 years, 37 (39.8%) were aged between 35 to 50 years, while 34 (36.5%) were aged above 50 years. Mean UIC and TSH of the different age groups did not differ significantly. The study revealed that, nearly half of the study group had high UIC despite normal TSH levels.