

ASSESSMENT OF THYROID FUNCTIONS USING SERUM TSH MEASUREMENT IN A GROUP OF ADULT FEMALES; A PROSPECTIVE STUDY

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Introduction

The clinical manifestations of hypothyroidism and hyperthyroidism are extremely diverse and diagnosis based on clinical features alone lacks both sensitivity and specificity (Webber, 1997). Hence reliance is placed on measurement of thyroid stimulating hormone (TSH) to confirm or rule out thyroid dysfunction (Vanderpump *et al.*, 1995). American Thyroid Association guideline has recommended that all adult females should have their serum TSH levels measured beginning at age 35 and every 5 years thereafter (Kung *et al.*, 1995; Landerson, 2001). An elevated serum TSH level was a sensitive marker of thyroid deficiency in the elderly and was often the only way to detect it (Sawin *et al.*, 1985). Aim of this study was to assess the baseline thyroid gland function in a group of female presented to the Nuclear Medicine Unit (NMU), Peradeniya.

Method

Adult female patients presented to the NMU for biochemical thyroid functions tests were selected. Of them females between 18-65 years of age, who presented for investigation of thyroid gland function for the first time were identified. Finally those females who were not on any kind of thyroid replacement or antithyroid

drugs at the time of test or before were selected. This study was carried out as a prospective study and data was collected for the period of one year (2002-2003). All of them had their blood tested for serum TSH, Total Thyroxin (TT4) and Triiodothyronine (T3) measurements at the NMU. The age at presentation, clinical history and thyroid status by inspection and palpation were recorded. Serum TSH, T3 and TT4 tests were carried out using immunoradiometric assay (IRMA) and radioimmuno assay (RIA) respectively. Diagnosis of hypothyroidism or hyperthyroidism (thyrotoxicosis) was based on TSH values and confirmed with TT4 and T3 vales. Cut-off values used for TSH, TT4 and T3 are 0.38-4.9 mIU/L, 0.92-3.4 nmo/L and 51.4-154.4 nmol/L respectively.

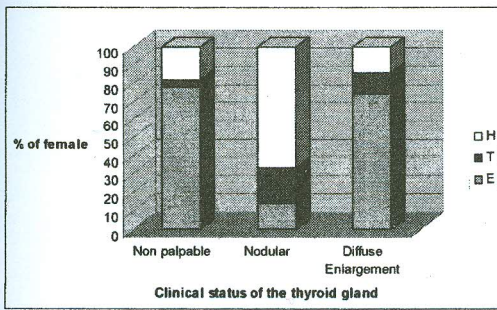
Ethical clearance was granted by the Committee on Research and Higher Degree and Ethical clearance, Faculty of Medicine, Peradeniya on 3rd June 2002.

Results and Discussion

Total 1226 females were selected using the above mentioned selection criteria for data analysis. The mean age of the study group was 37.5years (range 18-65y). 24.7% of them had family history of thyroid disease. Of them 55% (n=672) exhibits thyroid

nodules; Multiple nodules (n=410) and solitary Nodules (n=262). 25% (n=312) had diffuse thyroid enlargement (DE) and 20% (n=242) had no visible thyroid enlargement. Approximately 1/3 (29.5%) of the study population showed abnormal thyroid gland functions.

Fig 1.0 shows the comparison of the biochemical and the clinical status of the thyroid gland function in this study group.



H=Hypothyroidism, T= Thyrotoxicosis and E= Euthyroid

Fig 1: Comparison of the biochemical status and the clinical status of the Thyroid gland in the study group

This study showed that 90% of the females with nodular goiter were associated with TSH derangements indicative of hypothyroidism or hyperthyroidism. Irrespective of the thyroid gland size and the texture hypothyroidism was the common finding among these females.

Conclusion

This study revealed that 1/3 of the females investigated were having thyroid dysfunction. Nodular goiter is frequently associated with thyroid

dysfunction (hypothyroidism or hyperthyroidism). Measurement of serum TSH is justified for all adult females especially with nodular goiter to detect thyroid dysfunction early.

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