



Prevalence of subclinical hypothyroidism in general adult population of Northern India

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Abstract

Introduction: *Subclinical hypothyroidism is defined as elevated serum TSH concentration with normal Free Thyroxine (FT₄) and Free Triiodothyronine (FT₃) concentrations, unaccompanied by clinical signs and symptoms of hypothyroidism. It is reportedly a common thyroid disorder affecting 3-15% of the adult population in different parts of world. Community-based studies on prevalence of subclinical hypothyroidism in general adult population of India are almost non-existent. Hence, the present study was undertaken to find out the prevalence of subclinical hypothyroidism in general adult population of Rajasthan, a North Indian state.*

Material and Methods: *This study was conducted on 800 adult subjects of both sexes selected randomly from Amber Tehsil of Jaipur District (Rajasthan). Serum thyroid profile (FT₃, FT₄ and TSH) was analyzed by chemiluminescence. Serum TSH above 5 μ IU/ml (with normal FT₃ and FT₄) was considered as subclinical hypothyroidism.*

Results: *Subclinical hypothyroidism (serum TSH above 5 μ IU/ml with normal FT₃ and FT₄) was detected in 10.25% (N=82) of the study subjects. The prevalence was 12.8% in women and 8.8% in men.*

Conclusion: *The prevalence of subclinical hypothyroidism was found to be 10.25% in adult population of the study area. The prevalence was higher in women than in men.*

Introduction

Thyroid disorders are quite common. Hypothyroidism is reported to be more common than hyperthyroidism. Prevalence of hypothyroidism in developed countries is reported to be 4-5%.^[1,2] A multi-centric study in India has reported a 10.95% prevalence of hypothyroidism.^[3]

Subclinical hypothyroidism is defined as a combination of elevated serum TSH concentration and normal Free Thyroxine (FT₄) and Free

Triiodothyronine (FT₃) concentrations, with no associated signs and symptoms typical of hypothyroidism.^[4] It is reported to be a common thyroid disorder affecting 3-15% of the adult population in Western countries.^[5] In one study, subclinical hypothyroidism has been reported to have a prevalence of 4-10% in general population and 7-26% in geriatric population.^[6] Prevalence of subclinical hypothyroidism in women above 60 years is reported to be 4-8.5%.^[7]

After a thorough literature search, it was found that very little is known about the prevalence of subclinical hypothyroidism in the general adult population of India. Therefore, this study was planned to find out the prevalence of subclinical hypothyroidism in India and to compare the prevalence in men and women.

Material and Methods

This study was conducted on 800 adult subjects of both sexes selected randomly from Amber Tehsil of Jaipur District (Rajasthan). Simple randomization method was used for the selection of subjects. Every fiftieth house was selected in the defined area. One adult was taken from one house. Blood samples were collected from all the

selected subjects, and were analyzed by chemiluminescence for Free triiodothyronine (FT₃)^[8], Free thyroxine (FT₄)^[9] and Thyroid Stimulating Hormone (TSH).^[10]

Results

The concentrations of serum FT₃ and FT₄ were normal in all the subjects. Serum TSH was above normal (>5μIU/ml) in 45 out of the 511 male subjects and in 37 out of the 252 female subjects. Thus, the prevalence of subclinical hypothyroidism was 8.80% in men and 12.80% in women. When subjects of both the sexes were taken together, serum TSH was found to be above normal in 10.25% (82 out of 800) of the subjects (Table 1).

Table 1: Proportion of men and women having normal and high serum TSH (serum FT₃ and FT₄ were normal in all the subjects)

	Men(N=511)		Women(N=289)		Total(N=800)	
	N	%	N	%	N	%
With normal TSH (up to 5 μIU/ml)	466	91.20	252	87.20	718	89.75
With high TSH (>5μIU/ml)	45	8.80	37	12.80	82	10.25

Discussion

Data about the prevalence of subclinical hypothyroidism (SCH) in India are scanty. Some reports that are available describe the prevalence in children or in women or in pregnant women. In one study from Mumbai on adults of both the sexes, the prevalence of SCH was found to be 11.3%, but the subjects in this study were paramedical personnel of the hospital rather than general population.^[11] A study from Andhra Pradesh has reported a prevalence of 8.29% but this study was conducted on people coming to the hospital for check-up, and the upper limit of TSH was taken as 5.5 μIU/ml.¹² We could find a solitary report in which the prevalence of SCH was estimated by a cross-sectional population survey, and in this study from an urban area of Kerala, the prevalence of SCH in adults was found to be 9.4%.¹³ Our results are not quite different from this study from Southern part of India. We

have found a prevalence of 10.25% in Northern part of India, with women: men ratio of 1.45:1.

Conclusion

Prevalence of subclinical hypothyroidism was found to be 10.25% in the study population of Northern India. The prevalence was higher in women than in men.

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