

GLOBAL ACADEMIC RESEARCH INSTITUTE

COLOMBO, SRI LANKA



GARI International Journal of Multidisciplinary Research

ISSN 2659-2193

Volume: 06 | Issue: 03

On 30th September 2020

<http://www.research.lk>

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GARI Publisher | Public Health | Volume: 06 | Issue: 03

Article ID: IN/GARI/ICID/2020/114 | Pages: 05 - 08 (04)

ISSN 2659-2193 | ISBN 978-955-7153-02-5

Edit: GARI Editorial Team | Received: 20.08.2020 | Publish: 30.09.2020

PREVALENCE OF OVERWEIGHT, OBESITY AND HYPOTHYROIDISM AMONG HYPERTENSIVE PATIENTS AT TEACHING HOSPITAL BATTICALOA

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ABSTRACT

The aim of the study was to determine the prevalence of overweight, obesity and hypothyroidism among hypertensive patients. It was a descriptive study on 50 patients (28% were males and 72% were females) who follow the medical clinic at teaching hospital Batticaloa. Overweight and obesity were defined according to the cut-off values of body mass index (BMI) for Asian population. Thyroid stimulating hormone (TSH) level was used to assess the functional status of thyroid gland. Results showed, 8% were underweight, 28% were normal weight, 36% were overweight and 28% were obese among the hypertensive patients. 94% of the hypertensive patients had normal thyroid functions. 4% and 2% of the total population had hypothyroidism and hyperthyroidism respectively. Those patients with overweight, obesity and abnormal thyroid functions were reassessed clinically and further investigations and management were implemented. In conclusion the BMI distribution of the population sample revealed more people that is 36% were predominantly overweight. Approximately 2/3 of the total population is above the target BMI, which is overweight or obese. Furthermore, 94% hypertensive patients had normal thyroid functions. Only 6% of the population sample was abnormal in their thyroid status and only 4% had hypothyroidism, which was not clinically significant. Therefore routine screening of

hypertensive patients to assess their BMI is an important step as majority are above the target BMI. However routine screening of TSH is not recommended to all the hypertensive patients. Thyroid functions should be done only if clinically indicated.

Key words: Overweight, Obesity, Hypothyroidism and Hyperthyroidism

INTRODUCTION

Prevalence of overweight and obesity have been increasing worldwide. These are the risk factors for almost all of the non-communicable and communicable diseases. According to the World Health Organization (WHO), obesity has been tripled worldwide since 1975. Considering the population of more than 18 years of age, 39% and 13% were overweight and obese respectively worldwide¹. Likewise Sri Lanka also significantly affected by overweight and obesity. This was evidenced by a study done by Kalulanta et al showed 25.2% were overweight and 9.2% were obese among the population over 18 years of age in Sri Lanka². It is well known that overweight and obesity are the risk factors for hypertension³.

Studies conducted in Northern Europe, Japan and the USA have found that the prevalence of hypothyroidism ranges in between 0.6 and 12 per 1000 women and between 1.3 and 4.0 per 1000 in men⁴. However there are no much studies on Sri

Lankan adult population about hypothyroidism. As everyone knows hypothyroidism is associated with overweight and obesity. In addition it causes significant metabolic effects, such as hypercholesterolaemia, hypertension and accelerated atherosclerosis, which lead to increased cardiovascular mortality^{3, 5}. At the same time it could be diagnosed and treated very easily when we identify the symptoms early and prevent the metabolic complications⁶. Therefore this project has been design to study about the prevalence of overweight, obesity and hypothyroidism among hypertensive patients.

RESEARCH DESIGN AND METHODOLOGY

It was a descriptive study among hypertensive patients who follow-up the medical clinic at teaching hospital, Batticaloa, Sri Lanka. Ethical clearance for this study was obtained from Ethical Review Committee, Faculty of Health-Care Sciences, Eastern University of Sri Lanka. Total of 50 hypertensive patients were included and the study was conducted from August 2017 to October 2017.

Data collection was done after obtaining informed written consent from the subjects and every other 5th hypertensive patient was selected for this study after careful evaluation with exclusion criteria. The exclusion criteria were anyone on pharmacological treatment for weight reduction and past history of hypothyroidism or on treatment with thyroxin.

The participants' height (in centimetres) and weight (in kilograms) were measured and the body mass index (BMI) was calculated. Overweight and obesity were defined according to the non-communicable disease unit, ministry of health care and nutrition, Sri Lanka's BMI

cut-off values for Asian population as follows⁷.

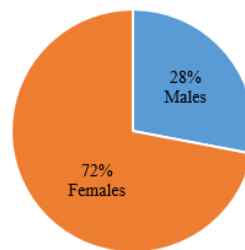
- BMI ≤ 18.4 kg/m² - Under weight
- BMI is 18.5 – 23 kg/m² - Normal
- BMI is 23.1 – 27.5 kg/m² - Over weight
- BMI ≥ 27.6 kg/m² - Obesity

Hypothyroidism had been defined as TSH more than 4.68 mIU/L (this is the upper limit of normal reference range at teaching hospital Batticaloa).

Results of this study were analyzed as per SPSS 19 package.

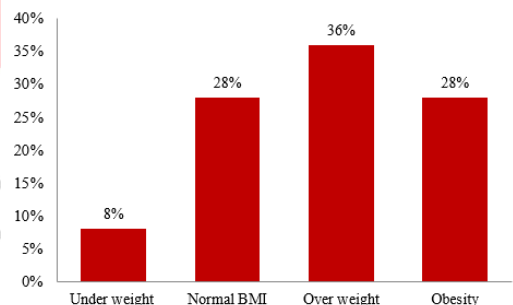
RESULTS

Figure 1 - Sex Distribution



Study population comprised of 50 hypertensive patients and 28% of them were males (14) (Figure 1).

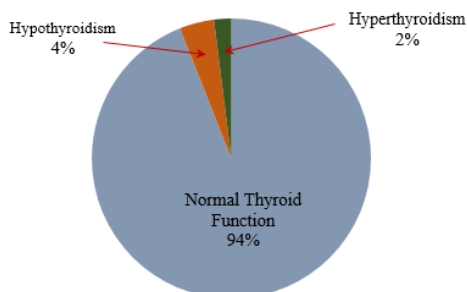
Figure 2 - BMI Distribution



BMI of the study population demonstrated 8% (4) were underweight, 28% (14) were normal BMI, 36% (16) were overweight and 28% (14) were

obese among the hypertensive patients (Figure 2).

Figure 3 - Distribution of Thyroid Status



Thyroid status of the population showed that 94% (47) of the hypertensive patients had normal thyroid functions. 4% (2) and 2% (1) of the total population had hypothyroidism and hyperthyroidism respectively (Figure 3).

Both hypothyroid patients were under the category of obesity in this study population.

DISCUSSION

The BMI distribution of the population sample revealed that more people that is 36% were predominantly overweight. Approximately 2/3 of the total population (64%) is above the target BMI, which is overweight or obese. These findings are compatible with prevalence of overweight and obesity among adults in Sri Lanka as well as world wide population^{2,1}. Interestingly these proportions are exactly similar to the proportions of the general population, not among hypertensive subjects. This is clearly evident that everyone in the society needs BMI calculations and majority of them need lifestyle modifications to keep the ideal BMI.

Furthermore, 94% hypertensive patients had normal thyroid functions. Only 6% of the population sample was abnormal in their thyroid status and only 4% had

hypothyroidism, which was not clinically significant. There are no much studies in Sri Lanka or globally to compare these findings of prevalence of hypothyroidism among hypertensive patients. Even though hypothyroidism and obesity are the risk factors for hypertension and both increases cardiovascular mortality, no much recommendation to do the routine screening for hypothyroidism among asymptomatic individuals⁸.

Those patients with overweight, obesity and abnormal thyroid functions in our study were reassessed clinically and further investigations and management were implemented.

CONCLUSION

Routine screening of hypertensive patients to assess their BMI is an important step as majority are above the target BMI. However routine screening for hypothyroidism is not recommended to all the hypertensive patients. Thyroid functions should be done only if clinically indicated.

Conflicts of interest

None

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