

Hypo- and Hyperthyroidism and Associated Risk Factors in Northwestern Iran

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Abstract—Thyroid disorders are among the common clinical disorders occurring in most communities. The main aim of this study was to determine the associated causes of hypo- or hyperthyroidism occurrence. This study was a cross sectional retrospective study conducted to investigate hypo- or hyperthyroid patients and contributing causes of hypo- or hyperthyroidism occurrence during 2003-2007 in Hamadan. Data were analyzed using t- and Chi-square tests. There were more hypothyroid than hyperthyroid patients ($p < 0.05$). Hypothyroidism or hyperthyroidism was higher in females than males ($p < 0.001$). Daily intake of meat, cereal and grains was lower than standard minimum daily requirement in patients ($p < 0.001$). History of familial marriage was observed in 38.5% of parents of patients with hyperthyroidism and in 18.39% of parents of patients with hypothyroidism. History of psychological problems (stress, anxiety, depression, etc.) were observed in 41.25% of patients with hyperthyroidism and 60.3% of patients with hypothyroidism and history of negative life events (spouse addiction, discovery of serious illness in the family, death of loved ones, and etc) were observed in 45.5% of patients with hyperthyroidism and 64.4% patients with hypothyroidism. The present study indicates that people with thyroid disorders in comparison with standard diet had lower meat and cereal intake. Occurrence of hyperthyroidism or hypothyroidism was more common in females than males. Genetic background, familial history, psychological problems were among the important causes associated with hypo- or hyperthyroidism occurrence in patients in Hamadan.

Keywords—Hypothyroidism, Hyperthyroidism, Associated Factors, Iran.

I. INTRODUCTION

HYPERTHYROIDISM and hypothyroidism are the most common disorders of the thyroid gland. Hyperthyroidism symptoms include weakness, fatigue, and some specific diseases such as cardiovascular diseases, neuro-muscular and skeletal disorders [1]. Hypothyroidism is a deficiency in the production of thyroid hormones [2]. Studies show that the age and gender are important factors associated with thyroid disorders [3]. There is also association between diet and occurrence of various diseases including thyroid disorders

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[4]-[6]. The reports also indicate that there is interrelationship between thyroid disorders and mental illness [7]. Considering the great importance of thyroid disorders and their complications, this study aims at to determine associated risk factors in occurrence of hypo- and hyperthyroidism in patients in Northwestern Iran.

II. MATERIAL AND METHODS

This study is a retrospective cross-sectional study. Target population was individuals with hypothyroidism or hyperthyroidism referred to hospitals or clinics in Hamadan province – Northwestern Iran- during the years 2003-2007.

Data were collected using food frequency questionnaire and interview. In our study data of 1080 cases diagnosed as hypo- or hyperthyroidism were collected and analyzed using Chi-square or t-test by SPSS software version 16.

III. RESULTS

There were more hypothyroid than hyperthyroid patients ($p < 0.05$). Hypothyroidism or hyperthyroidism was higher in females than males ($p < 0.001$). The results of this study showed that daily intake of dairy products, vegetables and fruits in patients with hypothyroidism or hyperthyroidism was in accordance with standard minimum daily requirement of these food groups; however, daily intake of meat, bread and grains was lower than standard minimum daily requirement ($p < 0.001$).

The majority of patients with hyperthyroidism was at the age of 27 to 31 years old and the majority of patients with hypothyroidism was at the age of 12 to 16 years old.

History of hyperthyroidism or hypothyroidism was observed in 10.75% or 8.97% of first-degree relatives of patients with hyperthyroidism or hypothyroidism.

History of familial marriage was observed in 38.5% of parents of patients with hyperthyroidism and in 18.39% of parents of patients with hypothyroidism.

History of psychological problems (stress, anxiety, depression, etc.) was observed in 41.25% of patients with hyperthyroidism and 60.3% of patients with hypothyroidism and history of negative life events (spouse addiction, discovery of serious illness in the family, death of loved ones, and etc) was observed in 45.5% of patients with hyperthyroidism and 64.4% patients with hypothyroidism. According to findings, tremor (88.75%), fatigue and weakness (81.6%), constipation (65.4%), dizziness (64.25%), puffiness of the eyes (56.2%) and myalgia (55%) were the most common symptoms in patients with hypothyroidism. On the other hand, increased

sweating (95.5%), nervousness, and irritability (91%), sleep disorders (90.75%), tremor (88.75%) and depression (88%) were the most common symptoms in patients with hyperthyroidism.

IV. DISCUSSION

The results of the study indicate that daily intake of meat, bread and grains was lower than standard minimum daily requirement. In this regard, studies show that there is association between iodine intake and thyroid disorders [8]. Consumption of canned foods can also play a role in hyperthyroidism development [9]. The research shows that selenium intake through diet is also effective in the regulation of thyroid hormones and thyroid disorders [10]. In addition to chemicals, some food supplies are also goitrogenic [11]. The role played by omega-6 fatty acids in thyroid disorders occurrence also have been proved [12].

The results of the present study indicated that frequency of patients with hypothyroidism was higher than the frequency of patients with hyperthyroidism. In line with this finding, other studies in some other areas of Iran indicate that hypothyroidism is more prevalent than hyperthyroidism [13].

The results of this study indicated that hyperthyroidism was lowest in the age range from 52 to 56 years old. This finding is consistent with results of previous studies suggesting that hyperthyroidism is not common in older age groups [14], [15].

The results of this study also indicate that a significant proportion of patients with hypothyroidism or hyperthyroidism had a familial history of thyroid disorders. There are other studies showing the effects of genetic background and family history on thyroid disorders occurrence [16]–[20].

In our study, a history of psychological problems and negative life events were observed in considerable proportion of patients with hypo- or hyperthyroidism. The results of many studies also indicate that there is a significant relationship between stressful events and thyroid disorders [21]–[24].

The most common symptoms reported in patients with hyperthyroidism or hypothyroidism in this study were in accordance with the most common symptoms observed in patients with hyperthyroidism or hypothyroidism in other areas of world [25], [26].

V. CONCLUSION

Conclusively, this study suggests that history of diet, history of psychological problems and negative life events, age range and familial history of thyroid disorders play a considerable role in occurrence of hypo- or hyperthyroidism in Northwestern Iran.

ACKNOWLEDGMENT

This research has been done with the support of Islamic Azad University-Hamedan Branch. We appreciate all who helped us to exert the present study.

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