Brief Communication

Prevalence and clinical usefulness of thyroid antibodies in different diseases of thyroid

Faiza A. Qari, *FRCP, ABIM.*

Thyroid dysfunction is common; the prevalence of hyperthyroidism being 1.1%, hypothyroidism 3%, while thyroid enlargement also affects 15% of the population.[1,2] Majority of patients with thyroid disease have an underlying autoimmune process Nearly all patients with Hashimoto's thyroiditis have high serum concentration of thyroglobulin (Tg) and microsomal (TPO) antibodies. These antibodies are also found, although in lower concentrations in patients with Grave's disease and in some subjects with no clinical or biochemical evidence of thyroid disease. The purpose of this study was to assess the prevalence of thyroid antibodies in patients referred to a thyroid clinic and hence assess their role in the diagnostic evaluation of common diseases of thyroid gland.

King Abdul-Aziz University Hospital (KAUH), Riyadh, Kingdom of Saudi Arabia, is a governmental teaching hospital providing health care to a multinational population of mixed socioeconomic status. A total of 200 positive thyroglobulin antibodies were collected in the immunology laboratory at King Abdul-Aziz University Hospital, Riyadh, KSA over a one year period between January 2001 through to December 2001. Clinical notes of patients with positive thyroid antibodies were reviewed. All patients had thyroid function tests, which included, free T4, thyroid stimulation hormone (TSH). Thyroglobulin and, microsomal antibodies that were carried out by radioimmunassay using commercial kits.

Relevant data such as the patient's age, sex, nationality, clinical and biochemical evidence of thyroid status, hypo, hyper, euthyroid were noted. The study group compromised of 200 patients who had their antibody status analyzed and were then divided into 4 clinical groups: 1. Primary hypothyroidism (Hashimoto's); not following thyroid surgery or radioactive iodine treatment (Hypothyroid group). 2. Grave's Hyperthyroidism, defined on the basis of having diffuse goiter, Ophthalmopathy. (Grave's group) 3. Euthyroid patients who presented with thyroid enlargement (Goiter group). 4. Thyrotoxic patients regardless of underlying diagnosis (thyrotoxic group). Microsomal (TPO) and throglobulin (TG) antibodies were measured in all 4 groups and titer of 1:160 was considered positive for both assays. Statistical Analysis was carried out using the Statically Package for Social Science (SPSS 7.5).

A total of 200 patients had positive thyroglobulin antibodies in immunology laboratory 108 patients were Saudis, 92 were non-Saudi. 105 (52.5 %) of them had autoimmune hypothyroidism (Hashmiot's hypothyroidism), 54 (27%) patients had immune hyperthyroidism (Grave's disease), 10 patients were

Table 1 - The difference between 4 groups with positive thyroid antibodies.

Characteristics of patients	Hypothyroidism	Grave's	Thyrotoxics group	Goiter
n patients (%)	105 (52.5)	54 (27)	10 (5)	31 (15.5)
Age	36 ± 13.2	31 ± 12.72	-	32 ± 11.02
Female:Male	92:13	46:18	7:3	30:1
Female:Male ratio	7:1	2.6:1	30.5 ± 14	30:1
FT_4	10.9 ± 4.2	67.85 ± 29.6	41 ± 19.6	14 ± 4.3
TSH	18.6 ± 0.18	0.005 ± 0.008	0.005 ± 0.0055	3.8 ± 2.43
Thyroglobulin antibodies	6400 ± 70310.26	6400 ± 25988	16000 ± 3024	6400 ± 25066.03
Anti microsomal antibodies	0 ± 3159.96	0 ± 1593	0 ± 2132	0 ± 2716
Mi AB : Tg AB	53:105	17:54	6:04	18:31
Mi AB : Tg AB ratio	1:2	1:3	1:0.6	1:1.7

FT_4 - free thyroxine 4, TSH - thyroid stimulating hormone, Mi - microsomal, AB - antibodies, Tg - thyroglobulin

thyrotoxic, 6 of them had thyrodities whereas 4 patients had multinodular goiter (MNG), while 31 (15.5%) patients were clinically and biochemically euthyroid.

Our study showed that the overall prevalence of anti-thyroglobulin antibodies was 100% in all groups, while TPO antibodies were positive in 91 patients (45.5%). Antimicrosomal TPO antibodies was positive in 58% in the goiter group, 50.4% in hypothyroid group, and around 30% in both Grave's and thyrotoxic group. In all 4 groups, the prevalence of positive Tg antibodies was significantly more than antimicrosomal antibodies with preponderance of females in all groups with p value <0.001. Autoimmune thyroid disease exists practically in all parts of the world but with different frequencies. Our data clearly showed female preponderance, finding which is consistent with other studies.[1,2] In this study we have assessed the relative prevalence of the TPO and Tg antibodies in patients with different thyroid diseases and have demonstrated that that measurement of Tg antibodies in the initial assessment of patients with primary hypothyroidism, Grave's disease and thyrotoxicosis due to different causes contributes little additional information to that provided by TPO antibodies. This is in contrast to other comparative of TPO and Tg antibodies carried out in the United Kingdom, and other countries. Presence of TPO antibodies was significantly higher than Tg antibodies in goiter patients who were clinically and biochemically euthyroid. This finding was a similar to those reported in other studies.[3,4] Factors responsible for the discrepancy between our results and the results of other studies could be related to the use of different commercial kits in different labs or related to genetic factors,[5] and human leukocyte antigen as some of the Saudi patients in the Western region of KSA were originally from different ethnic groups associations as patients were coming from different ethnic groups even in the Saudi patients in the Western region of KSA. We suggest routine measurement of both TPO and Tg antibodies in the initial assessment of patients with suspected autoimmune thyroid disease, although Tg antibodies are more sensitive in detecting autoimmune thyroid diseases.

Received 30th December 2001. Accepted for publication in final form 11th March 2002.

From the Department of Medicine, King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia. Address correspondence and reprint requests to Dr. Faiza A. Qari, PO Box 13042, Jeddah 21943, Kingdom of Saudi Arabia. Tel. +966 (2) 6743670. Fax. +966 (2) 6743781. E-mail: karifaiza@hotmail.com

References

1. Rallison ML, Dobyns BM, Meikle AW, Bishop M, Lyon JL, Stevens W. Natural history of thyroid abnormalities: Prevalence, incidence, and regression of thyroid diseases in adolescents and young adults. *Am J Med* 1991; 91: 363-370.
2. Farid NR. Immunogentics of autoimmune thyroid disorders. *Endocrinol Metabol Clin N Am* 1987; 16: 229-245.
3. Sulamani R, Al-Attas O, El-Desouki M, Eissa M, Al-Nuaim A, Al-Sekait M. Thyroid Autoantibodies: High prevalence among schoolchildren and adolescents in Gizan, Saudi Arabia. *Saudi Med J* 1995; 16: 287-290.
4. Nordyke RA, Gilbert FL, Miyamoto LA, Fleury KA. The superiority of anti-microsomal over anti-thyroglobulin antibodies for detecting Hashimot's thyrodities. *Arch Int Med* 1993; 153: 862-865.
5. Rose NR, Bigazzi PE, Wamer WC, Volpe R. The genetics and immunology of Grave's disease and Hashimoto's disease. Genetic control of autoimmune disease. *Am J Physiol* 1987; 12: 43-56.

Globalization and health: Challenges imposed upon the medical profession

Awad M. Ahmed, *MBBS, MD.*

As a modern concept, globalization is a state of increased integration of different societies and economies as a result of greater flow of goods, capital, people and ideas. Thus, globalization encompasses an accelerating process of economic and cultural openness and relentless breaking down of geographical boundaries. Since the early 1980s the process of globalization has been sped by the gross changes in international organizational architecture, domestic policies of reform and the dramatic improvements in communication technologies. For the purposes of this paper, I tackle globalization as a 2 arm process. The first arm is the economic openness or globalization, and the 2nd, is the information and communication technologies (ICTs).

Economic globalization. Economic globalization has been the fundamental driving force behind the overall process of globalization. The economic globalization is now a accelerating to the extent that trade and foreign assets have hit new highs relative to the world incomes.[1]

Linkage of economic globalization to health. In the age of globalization the interacting economic factors have a significant impact on health. The surges in economic growth of some globalizing countries namely Vietnam, India, has a positive effect on the health status of their peoples.[2] There is an increasing availability of financial flow to health expenditure. There are also positive effects on the individuals health due to impacts on the household incomes (namely, effects on nutrition, affordability to services for example). The economic globalization lead to high advancements in health care technologies, and improvement in the living standards, leading in turn, to increased demand on the costly advanced diagnostic and therapeutic procedures. Factors contribute to the high costs of