Autoimmune Thyroid Disease and IgG4-Related Disease

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Hashimoto's thyroiditis (HT) and Graves' disease (GD) are two common forms of autoimmune thyroid disease (ATD). GD is usually characterized by hyperthyroidism and some may present with ophthalmopathy and dermopathy clinically. Biochemical diagnosis relayed on elevated thyrotropin receptor (TSH-R) antibody. Female between 20 and 50 years are most commonly affected. HT is an autoimmune disorder leading to destruction of the thyroid gland and hypothyroidism. It affects up to 2–5 % of general population, and occurs predominantly in females over 40 years of age. Painless, diffuse enlargement of thyroid is the most common clinical presentation. Diagnosis of HT is confirmed by demonstration of serum anti-thyroid autoantibodies, including anti-thyroperoxidase (TPO) antibody and anti-thyroglobulin antibody.

IgG4-related disease (IgG4-RD) is a newly recognized fibro-inflammatory condition and is first described in 2001 in relation with autoimmune pancreatitis. Since then, IgG4-RD have been reported in virtually every organ system, such as pancreas, biliary tract, salivary glands, retroperitoneum, kidneys, lungs, lymph nodes, etc. Although many patients with IgG4-RD have either synchronous or metachronous lesions in several organs, some patients show involvement of only a single organ.

The high prevalence of hypothyroidism in patients with autoimmune pancreatitis is well known and has encouraged researchers to investigate a possible relation between IgG4-RD and HT. Otherwise, Riedel's thyroiditis (RT) is a fibro-inflammatory process of the thyroid gland of uncertain origin. Around 30% of patients with RT develop fibrosing disorders in other organ systems over a 10-year period. The morphological similarities between RT and IgG4-RD also suggest a possible link between both diseases.

Despite the growing number of studies on various forms of IgG4-RD, clinical reports focused on IgG4-related thyroiditis seem scarce and inconclusive. However, it has been suggested that IgG4-related thyroiditis is characterized by distinct clinical, serological, and sonographic signs distinguishing from non-IgG4-related thyroiditis. Clinically, IgG4-related thyroiditis is associated with younger age, lower female-male ratio, more rapid and aggressive course, more subclinical hypothyroidism, and higher

dose requirement of levothyroxine replacement. IgG4-related thyroiditis also had higher concentrations of serum anti-thyroid auto-antibodies in serology. Diffuse and more pronounced hypoechogenicity by ultrasound was noted in IgG4-related thyroiditis. Histopathologically, IgG4-related thyroiditis showed a higher grade of lympho-plasmacytic infiltration, interstitial fibrosis and follicular cell degeneration.

Recognition of the link between HT and IgG4-RD suggests endocrinologists to involve serum IgG4 measurement into the routine checking list of HT in the near future. As generally known, IgG4-RD often shows good responses to steroid therapy. Awareness of IgG4-related thyroiditis may help endocrinologist to guide treatment of patients with IgG4-related thyroiditis.