Clinical value of thyroid-stimulating immunoglobulin in pediatric autoimmune thyroid diseases

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OBJECTIVE

In Autoimmune Thyroid Diseases (AITD) two types of TSH receptor antibodies (TSHR-Ab) may be distinguished: thyroid-stimulating immunoglobulin (TSI) that promotes the production of thyroid hormones and thyroid-blocking immunoglobulin (TBI) inhibiting the activity of TSH what leads contrarily to hypothyroidism. The aim of this study was to compare mean TSI and TBI levels in large paediatric cohort withAITD and control.

METHODS

TSHR-Abs imitate the receptor’s ligand by elevating (TSI) cAMP level in thyroid cells or act as an antagonists (TBI) inhibiting CAMP production. It is utilized in novel, cell-based tests (bioassays), which measure luciferase activity induced by CAMP. Chinese hamster ovary cells, stably express a chimeric human TSH-receptor. Available bioassays can differentiate whether TSHR-Abs have stimulatory or blocking properties. Results relevant to TSI are presented as percentage of specimen-to-reference ratio (SRR%), cutoff 140%. TBI are reported as percentage of inhibition – cutoff 40%.

RESULTS

A total of 240 serum samples were obtained from 206 paediatric patients with autoimmune diseases: 33 with Graves’ disease (GD, 29 female, mean age 13.18 ± 4.22 years ), 69 with Hashimoto’s thyroiditis (HT, 58 female, 13.33 ± 2.98 yrs ), 66 with type 1 diabetes (DT1, 32 female, 13.43 ± 3.17 yrs), 5 with juvenile arthritis (JA, 2 female, 13.8 ± 3.27yrs) and 33 healthy controls (C, 11 female, 11.85 ± 4.56 yrs).

CONCLUSION

1. These results indicate strong correlation between TSI and GD.
2. Occurrence of orbitopathy associates with TSI’s presence both in GD and HT.
3. Higher TSI levels in group with vs. without TAO are observed.
4. TBI’s utility seems to be uncertain.

REFERENCES