

Autoimmune thyroiditis: Association with two common polymorphisms of the RAGE gene and oxidative stress

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Introduction – Aim of the study

Polymorphisms of the receptor for advanced glycation end products (AGEs), RAGE, have been associated with autoimmune disorders and their complications. There are no studies concerning Hashimoto's thyroiditis; the aim of our study was to investigate the possible role of two RAGE polymorphisms (-429T>C, -374T>A) in combination with indices of oxidative status in women with Hashimoto's thyroiditis (HT).

Patients and Methods

300 euthyroid women were examined (44.8±13yrs)

205 women had HT all with positive thyroid antibodies [ThAb (+)]:

- **96 with treatment**
- **109 without treatment**

95 women with ThAb(-) and negative family history for HT (**control group**)

For the evaluation of oxidative stress, total lipid peroxide levels in serum (**TOS**) were measured.

The RAGE polymorphisms **-429T>C Alu I** and **-374T>A Mfe I** were studied by RFLP in genomic DNA.

Results

- Women with HT on T4 had higher TOS levels compared to those without treatment and to controls (mean TOS: 520 µmol/l vs 421.04 µmol/l vs 447.6 µmol/l, respectively, p=0.026, figure 1).
- The prevalence of -429T>C RAGE polymorphism was significantly higher in this group compared to HT without treatment and controls (18.8% vs 11.9% vs 6.3% respectively, p=0.032, figure 2).
- In the entire cohort, increased TOS and carrying the -429T>C polymorphism were independent predictors of HT (OR1.64, OR1.60 respectively, figure 3). The coexistence of these factors had an additive effect (OR 5.4, figure 3).
- There was no difference in the prevalence of -374T>A polymorphism between the studied groups.

Figure 1

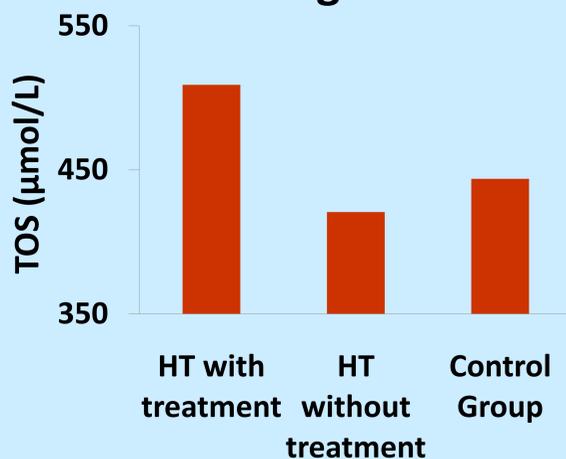
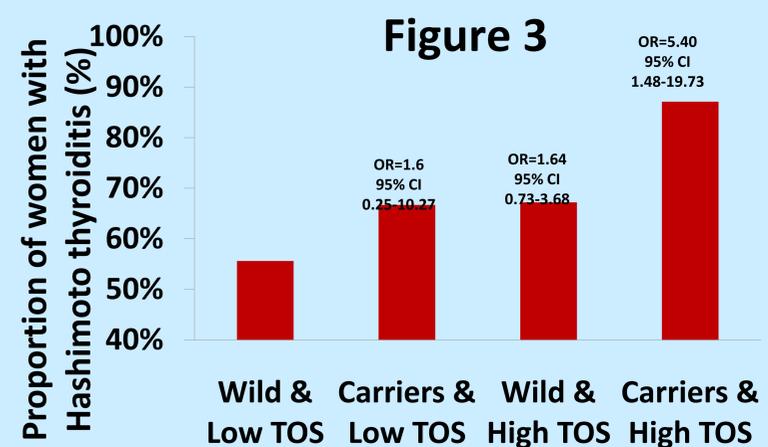
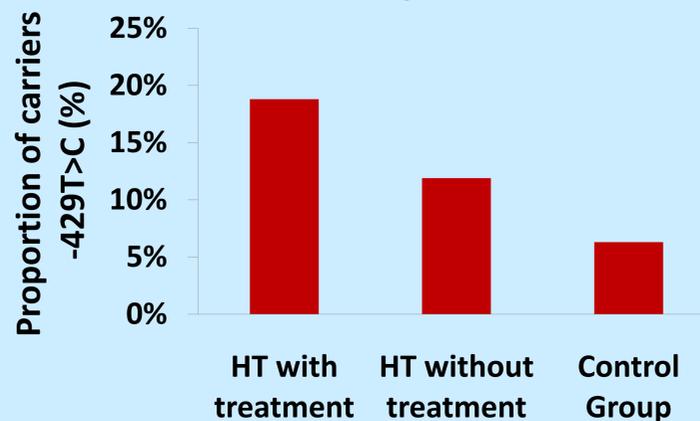


Figure 2



Conclusions

Women with increased TOS levels who are also carriers of the -429T>C polymorphism of RAGE are at increased risk to have Hashimoto's thyroiditis and receive T4 replacement. These findings possibly suggest a role of this system in the elevated oxidative stress accompanying autoimmune thyroiditis.