



# AUTOIMMUNE THYROID DISEASE RELATED TO HELICOBACTER PYLORI CONTAMINATION



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## OBJECTIVES

Strong association between pathogenesis of autoimmunity and bacterial infection particularly *Helicobacter pylori* (H.Pylori) had been observed in numerous studies. Nevertheless the possible role of H.Pylori in progression of autoimmune thyroid disease is still discussed.

**The aim** of the study was to reveal the relation between Hashimoto thyroiditis (HT) and presence of H.Pylori as well as to analyze the impact of eradication therapy on level of the autoantibodies against thyroid peroxidase (anti-TPO).

## METHODS

One hundred forty six patients (112 females, 34 males) with HT were prospectively included in this study. All patients were receiving levothyroxine replacement therapy in a dosage to maintain basal TSH within the normal range (Tab.1). Control group consist of 90 volunteers without history of thyroid disease. Only 10% subjects totally had sporadic symptoms of dyspepsia.

Urea breath test had been used to detect H.Pylori in all subjects. In H.Pylori-positive patients the 14 days eradication therapy - clarithromycin 500 mg, pantoprazole 40 mg, amoxicillin 1 g twice a day had been prescribed. The anti-TPO level had been measured using ELISA kits on baseline, 15<sup>th</sup> and 30<sup>th</sup> days. High resolution ultrasound of the thyroid gland was performed, and echogenicity as well as the vascularity of the gland was investigated by power Doppler imaging and compared at the beginning and end of the study by an independent experienced investigator.

The results were analyzed using two-sided Fisher's exact test and the respective odds ratio (OR) was calculated.

Variables	Subjects with HT (n = 146)	Control group (n = 90)	P-value
Age (years)	54 (45–63)	47 (37–60)	>0,05
Gender (male/female, n)	34/112	18/72	>0,05
Systolic blood pressure (mmHg)	133 ± 15	125 ± 9	>0,05
Diastolic blood pressure (mmHg)	77 ± 8	79 ± 10	>0,05
Body mass index (kg/m <sup>2</sup> )	25 ± 4	23 ± 5	>0,05
Thyroid-stimulating hormone (mIU/L)	1.95 (1.35–3.25)	1.77 (1.12–2.89)	>0,05
Free T <sub>4</sub> (pmol/L)	14.5 ± 3.5	15.5 ± 3.8	>0,05
Free T <sub>3</sub> (pmol/L)	4.4 ± 0.6	3.86 ± 1.5	>0,05
<sup>13</sup> C urea breath test (positive/negative, n)	102/44	48/42	0.01

Table 1. Characteristics of study subjects.

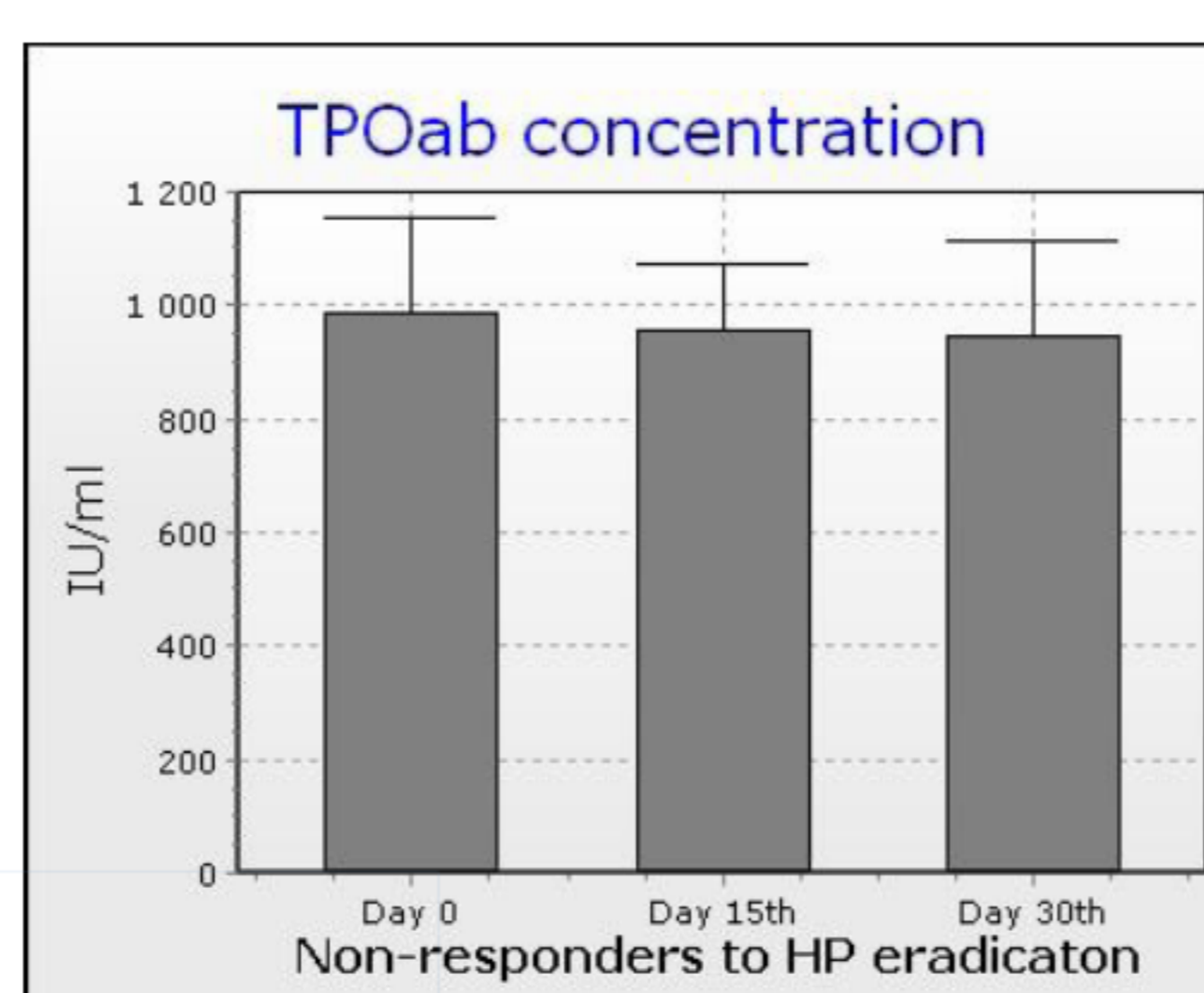
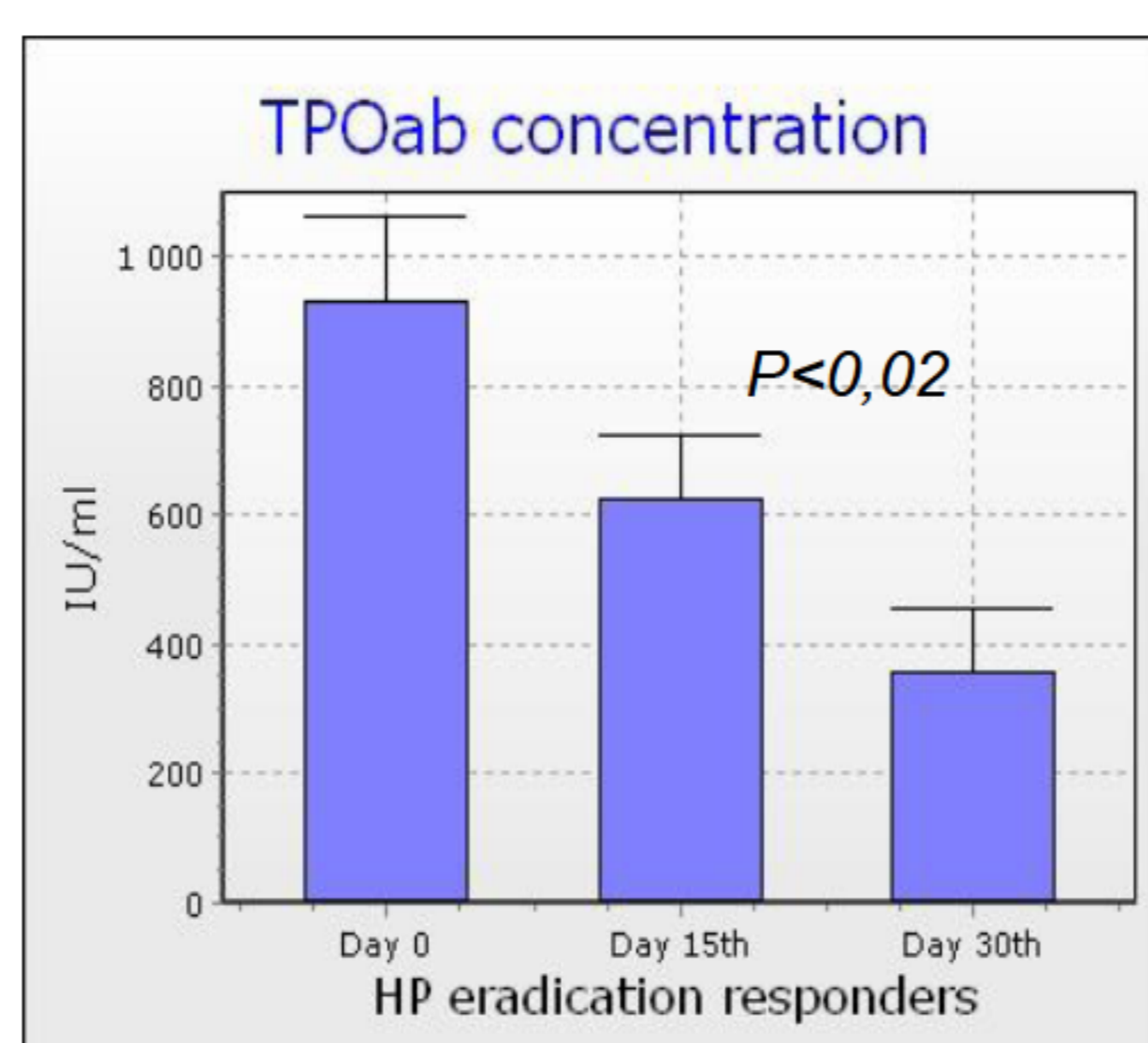
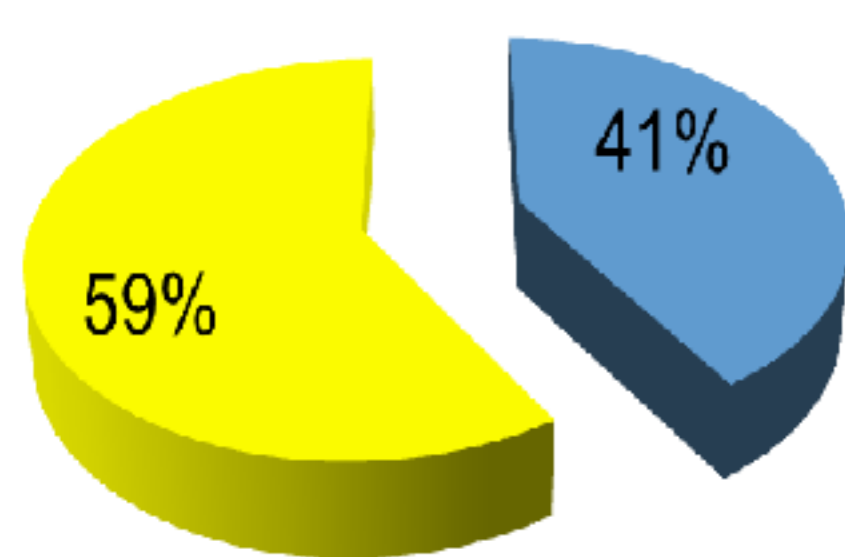


Fig.1. Dynamics of TPOab concentrations under HP eradication therapy

Before treatment (n= 88)



After HP-eradication

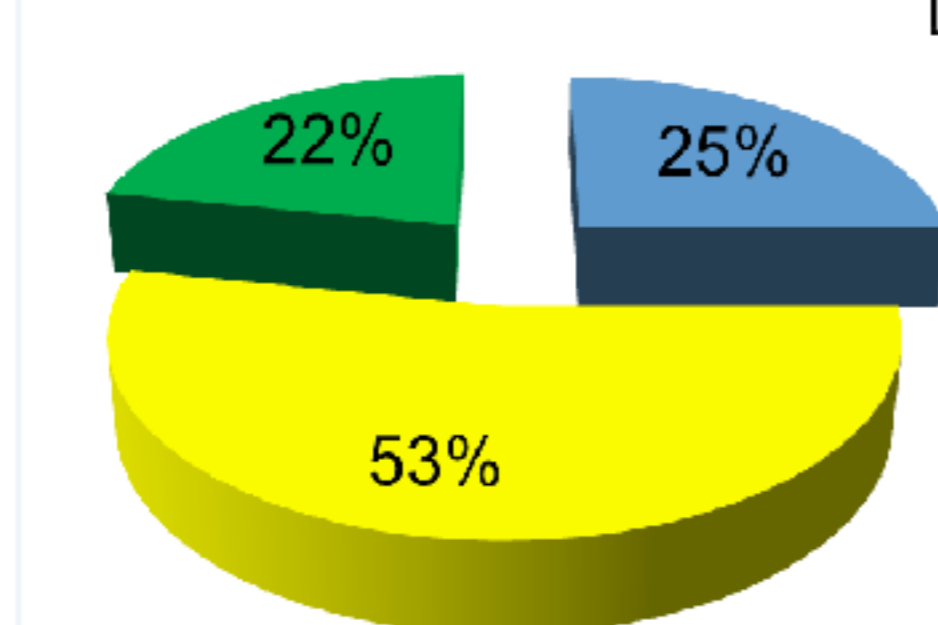


Fig.2. Improvement of ultrasound echogenicity (responders to HP eradication therapy)

## RESULTS

The rate of H.Pylori evaluation was 70% in HT patients compared with 53% in control group (OR=2,02, 95% CI 1,2-3,3; p=0,01). The successful HP-eradication rate was 86% total (83% - in HT group, 89% - in control, p>0,05). We revealed significant reduction of anti-TPO up to 38% (p< 0.001) on 30th day in successfully treated patients (Fig.1). In patients resistant to first-line therapy revealed a slightly non-significant decrease in antibody concentrations in this group on 5%. Free T<sub>4</sub> and T<sub>3</sub> as well as TSH values were unchanged in both groups, and all were within the normal range.

Notable reduction in the severity of tissue inflammation on ultrasound pictures had been observed under H.Pylori-eradication therapy (Fig.2).

## DISCUSSION & CONCLUSIONS

- ✓ It might be supposed H.Pylory is an important environmental factor initiating or maintaining autoimmune thyroiditis in people genetically susceptible for the development of organ specific autoimmunity.
- ✓ The sustained relationship between Hashimoto thyroiditis and presence of H.Pylori had been revealed.
- ✓ Encouraging data of HP-eradication influence on anti-TPO level suggests the need for further observations and possible optimization of autoimmune thyroiditis diagnostic and treatment protocol.

## References

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