



# Higher glucose levels and prevalence of prediabetes in patients with autoimmune thyroiditis

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## Introduction

Thyroid autoimmunity and DM2 are the commonest endocrine disorders in the general population.

## Aim of the study

The aim of the study was to investigate a possible association between thyroid autoimmunity and  $\beta$ -cell secretion in patients with impaired fasting glucose and/ or impaired glucose tolerance.

## Methods

604 patients (457 females) 46.5 $\pm$ 14.2 years old with impaired fasting glucose (IFG) and/ or impaired glucose tolerance (IGT). The population was divided in 2 subgroups according to the presence of autoimmune thyroiditis (AIT, TgAb and/ or TPOAb positive) with normal TSH or not (non-AIT).

Characteristics such as age, gender, waist circumference (cm), BMI were analysed.

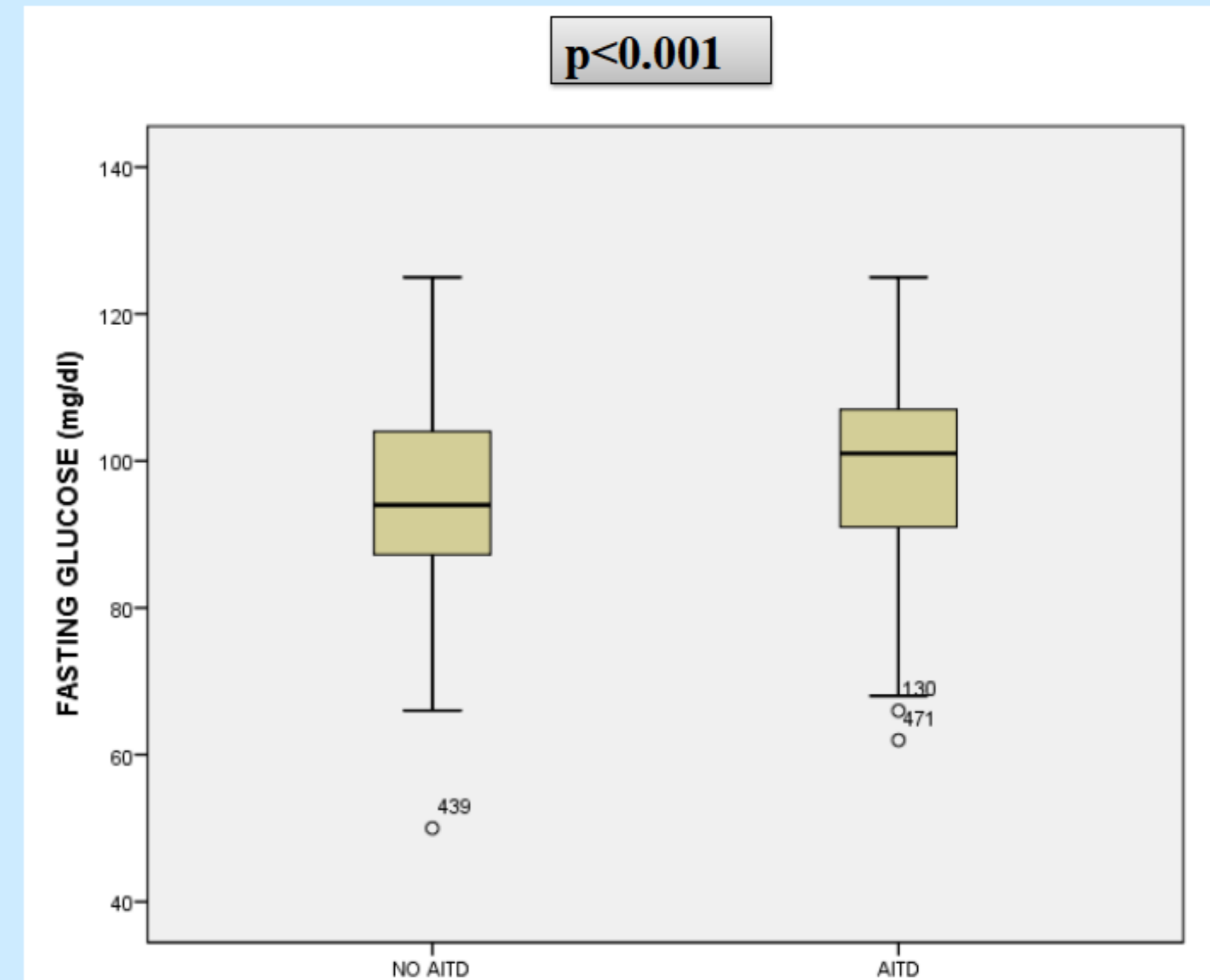
291 patients underwent an OGTT after oral administration of 75 gr glucose. Glucose (mg/dl) and insulin ( $\mu$ IU/mL) at 5 different times (0-30-60-90-120 min), 1<sup>st</sup> and 2<sup>nd</sup> phase of insulin sensitivity index (ISI) and ISI were assessed (from the rest patients only fasting glucose and insulin were measured).

Glycated hemoglobin (HbA1c), HOMA and QUICKI insulin-resistance (IR) indices, and IR status as HOMA >2.16 and QUICKI <0.34 were also assessed.

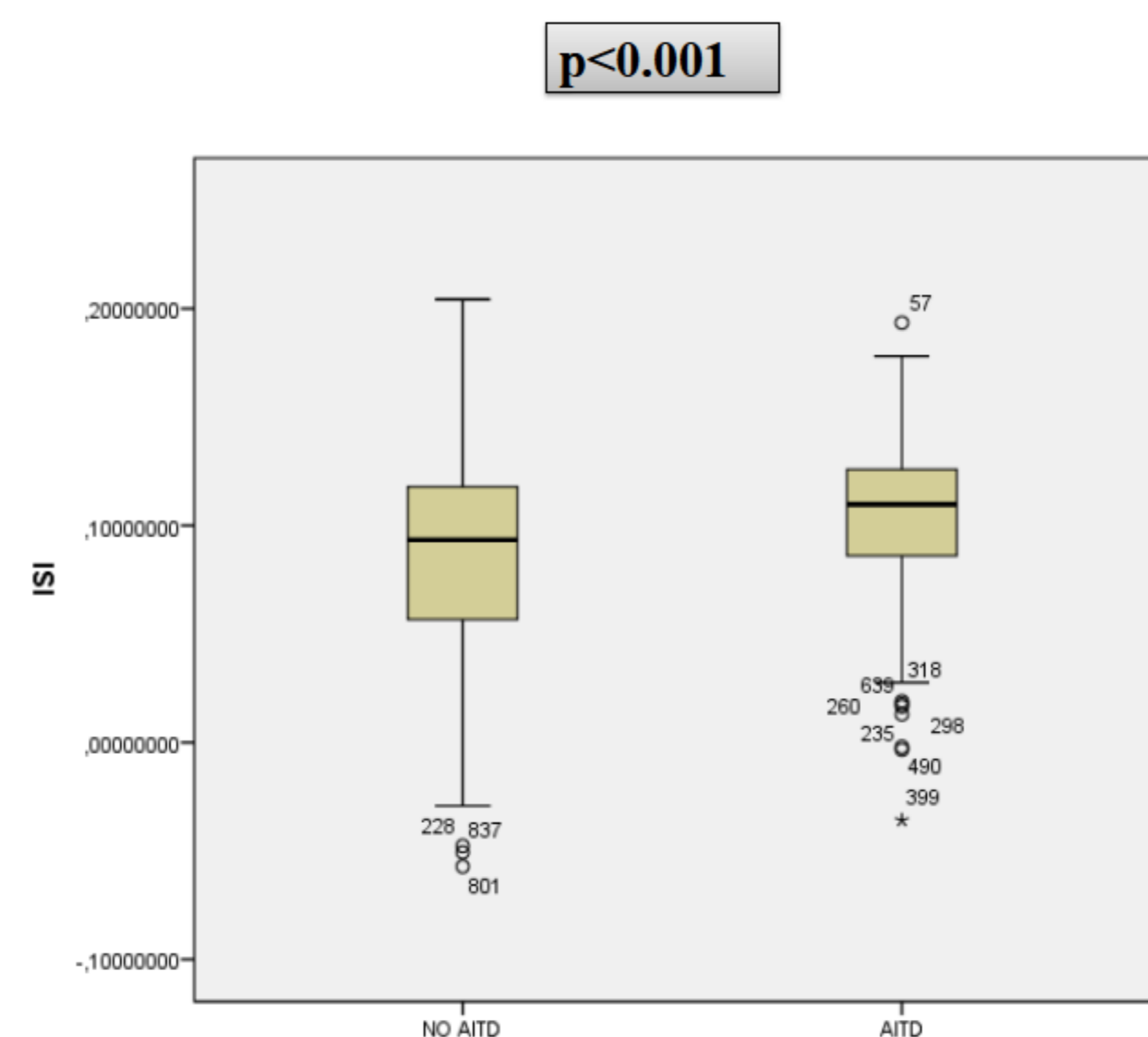
**Exclusion criteria:** Patients with hypothyroidism or diabetes mellitus DM2 were excluded from the study.

## Results

Patients with AIT (N=311) were older compared to the non-AIT (N=293) [49.2 $\pm$ 13.9 vs. 44.2 $\pm$ 14.7 (p<0.001)], had higher glucose levels [99.9 $\pm$ 12 vs. 95.5 $\pm$ 12.5 (p<0.001)], and higher rates of prediabetes: 71,2 % (IFG and/ or IGT) (chi-square=27.2, p<0.001) **but** similar rates of IR (44.6%) (chi-square=21.5, p<0.001).



IN ALL THE POPULATION STUDIED



IN PREDIABETIC PATIENTS ONLY

Prediabetic patients with AIT who underwent OGTT (N=221) had higher 1<sup>st</sup> phase of ISI (1470.9 $\pm$ 458.2) and ISI (0.1 $\pm$ 0.03) compared to those without AIT (1<sup>st</sup> phase of ISI: 1262.8 $\pm$ 596.4, p<0.001; ISI: 0.09 $\pm$ 0.05, p<0.001).

## Conclusion

- Patients with AIT and impaired  $\beta$ -cell secretion had higher glucose levels with similar rate of insulin resistance and higher rates of prediabetes compared to non-AIT.
- Thyroid autoimmunity could be eventually a possible factor modifying  $\beta$ -cell secretion. Nevertheless further studies are needed to confirm these findings.

## References

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3. Kasagi K et al. Thyroid function in Japanese adults as assessed by a general health check up system in relation with thyroid-related antibodies and other clinical parameters. Thyroid 2009

