

## The impact of thyroid autoimmunity on embryo quality in women undergoing assisted reproductive technology.

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**Context.** Autoimmune disorders tend to occur during the reproductive years in women, affecting fecundity and pregnancy outcome. The most prevalent autoimmune disease is thyroid autoimmunity that is characterized by the presence of thyroid autoantibodies (TAA): thyroid peroxidase autoantibodies (TPO-Ab) and thyroglobulin autoantibodies (TG-Ab), with or without clinical or subclinical thyroid dysfunction. Controversy exists on the role of TAA positivity on reproductive failure. Recent studies have shown an increased rate of early miscarriage a significant reduction of oocyte fertilization and good quality embryos in euthyroid women with TAA positivity compared with negative controls. **Objective.** Purpose of the study was to evaluate the influence of TAA on embryo quality in euthyroid infertile women undergoing ART. **Protocol and methods.** This is a observational retrospective study conducted from 2016 to 2017 at University Hospital of Padua. It investigated 100 embryos in 29 euthyroid infertile patients with TAA (cases) and 392 embryos in 94 euthyroid infertile patients without autoantibodies (controls). Patients had not to have deep endometriosis and partners had not to have a very poor semen quality. Age, BMI, baseline FSH, AMH, antral follicle count, TSH, FT3, FT4 and TAA assessments for TPO and TG were elvalutated for each woman. Embryo quality was assessed using criteria established in Instabul Consensus workshop. **Result.** There are not statistically significant differences between cases and controls about age, BMI, ovarian reserve and thyroid funcion. There is no significant difference of oocytes picked up and the number of fertilized oocytes between two groups. A impaired embryo quality was observed in women with at least one TAA ( $p < 0.01$ ). Positivity of both TAA seems to have a further negative impact on embryo quality ( $p < 0,05$ ). Antibodies titer does not seem to influence embryo quality. **Conclusions.** These results suggest a negative impact of thyroid autoimmunity on female fertility even in patients with normal thyroid function. Further study are needed to better evaluate this relation and to evaluate pregnancy rate in women with TAA positivity.

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