

## INTRODUCTION

The normal recovery of the hypothalamic–pituitary–gonadal axis after discontinuation of therapy with GNRH analogue for precocious puberty has been proven and documented in the last decades.

There has been no report in the literature of patients in which a history of GNRH treatment of precocious puberty is correlated with premature ovarian failure.

## OBJECTIVE AND HYPOTHESES

The aim of the authors is to evaluate the possibility of a correlation between the development of premature ovarian failure and the previous therapy with GNRH analogue.

## METHODS

We describe the case of a patient followed for precocious puberty treated with GNRH analogue until the age of 11 years. After menarche, which occurred 9 months after the discontinuation of treatment, the menstrual cycle has come back only the following month.

The patient then developed secondary amenorrhea of 9 months duration for which she came to our attention.

She carried GNRH test, complete blood count, TSH, fT4, fT3, prolactin, total testosterone, SHBG, DEAS, 17  $\beta$  estradiol, glucose, insulin, tumor markers, karyotype, array cgh, organ and no organ specific autoimmunity, brain MRI with contrast and pelvic ultrasound.

## RESULTS

All tests performed were normal with the exception of the GNRH test that showed values of FSH and LH indicative of ovarian failure ( $>$  di 90 mUI/ml basal e  $>$  di 150 mUI/ml after stimulation) and a prepubertal value of 17  $\beta$ -estradiol. Pelvic ultrasound has always shown uterus and ovaries of prepubertal size and morphology.

## CONCLUSIONS

Owing to the normality of all the hormonal tests performed, the absence of autoimmune diseases, and the exclusion of genetic causes predisposing the patient to early menopause, we have to consider the possibility of an association between treatment with GNRH analogue and the development of premature ovarian failure.