



# PREPUBERTAL ULTRA-LOW-DOSE ESTROGEN THERAPY IS ASSOCIATED WITH BETTER LIPID PROFILE THAN CONVENTIONAL ESTROGEN REPLACEMENT FOR PUBERTAL INDUCTION IN ADOLESCENT GIRLS WITH TURNER SYNDROME – PRELIMINARY RESULTS

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## INTRODUCTION AND OBJECTIVES

Estrogen replacement is a treatment of choice for pubertal induction in adolescent girls with ovarian failure due to Turner syndrome (TS). Recently published data show, that prepubertal low dose estrogen replacement is more physiologic, and can optimize response to growth hormone treatment, pubertal timing, and improve cognition. The metabolic effects of such treatment regimen have not been fully investigated to date.

### Objective and hypotheses:

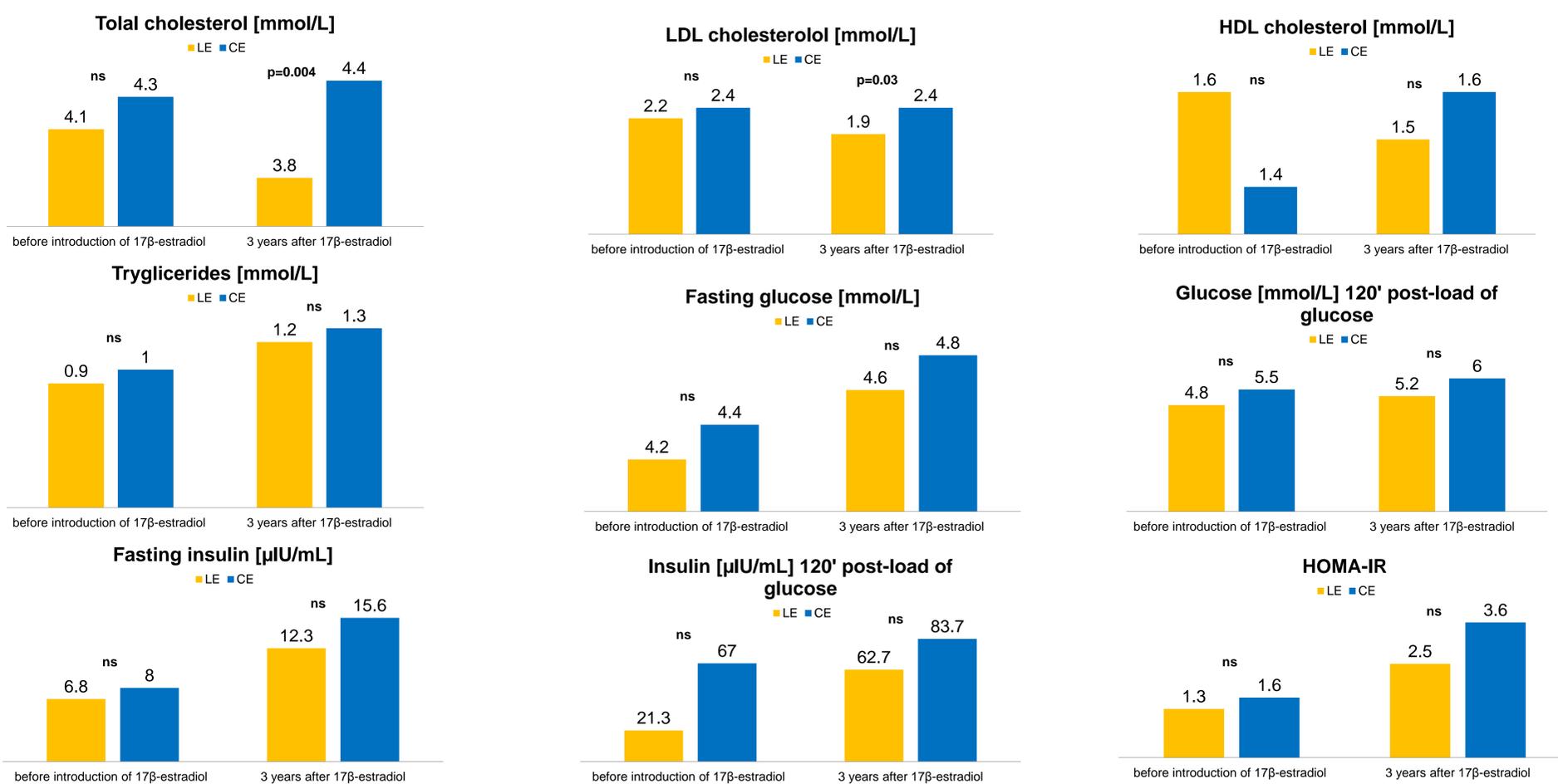
The study aimed to compare the impact of **prepubertal low-dose estrogen therapy (LE)** vs. **conventional estrogen replacement (CE)** on glucose and lipids metabolism in adolescents with TS.

## METHODS

The study included 28 TS patients treated with human recombinant growth hormone. In **LE group** (n=14, mean age 13.8, SD 1.55) low dose of oral 17β-estradiol (62.5 μg daily) was introduced before age 12 (mean 10.5, SD 0.95) and followed by a pubertal induction regimen after age 12, in **CE** (n=14, mean age 16.4, SD 1.64) pubertal induction was started after age 12 (mean 14, SD 1.96). In all participants before, and 3 years after starting 17β-estradiol, total cholesterol (TC), LDL cholesterol (LDLc), HDL cholesterol (HDLc) and triglycerides (TG) were measured. Standard oral glucose tolerance test was performed with the assessment of fasting (G0) and after 120' post-load of glucose (G120), and insulin levels (I0, I120). Insulin resistance index (HOMA-IR) was calculated.

## RESULTS

There was no significant differences between LE and CE in any parameters before introduction of 17β-estradiol (TC 4.1 vs. 4.3 LDLc 2.2 vs. 2.4 HDLc 1.6 vs. 1.4 TG 0.9 vs. 1.0 G0 4.2 vs. 4.4 G120 4.8 vs. 5.5 mmol/L; I0 6.8 vs. 8.0 I120 21.3 vs. 67.0 μIU/mL; HOMA-IR 1.3 vs. 1.6). Three years after 17β-estradiol: TC and LDLc levels were significantly lower in LE group (3.8 vs. 4.4 mmol/L, p=0.004; 1.9 vs. 2.4 mmol/L, p=0.03). The other parameters did not differ significantly (HDLc 1.5 vs. 1.6 TG 1.2 vs. 1.3 G0 4.6 vs. 4.8 G120 5.2 vs. 6.0 mmol/L; I0 12.3 vs. 15.6 I120 62.7 vs. 83.7 μIU/mL; HOMA-IR 2.5 vs. 3.6).



## CONCLUSIONS

Prepubertal LE is associated with better lipid profile than CE in girls with TS. LE should be considered for girls with TS not only due to positive effects on growth and puberty course, but also because its positive metabolic effects.

## References

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