

ROLE OF PRIMING IN PERI-PUBERTAL GROWTH DELAYS: PRELIMINARY RESULTS OF A LARGE MULTICENTER STUDY

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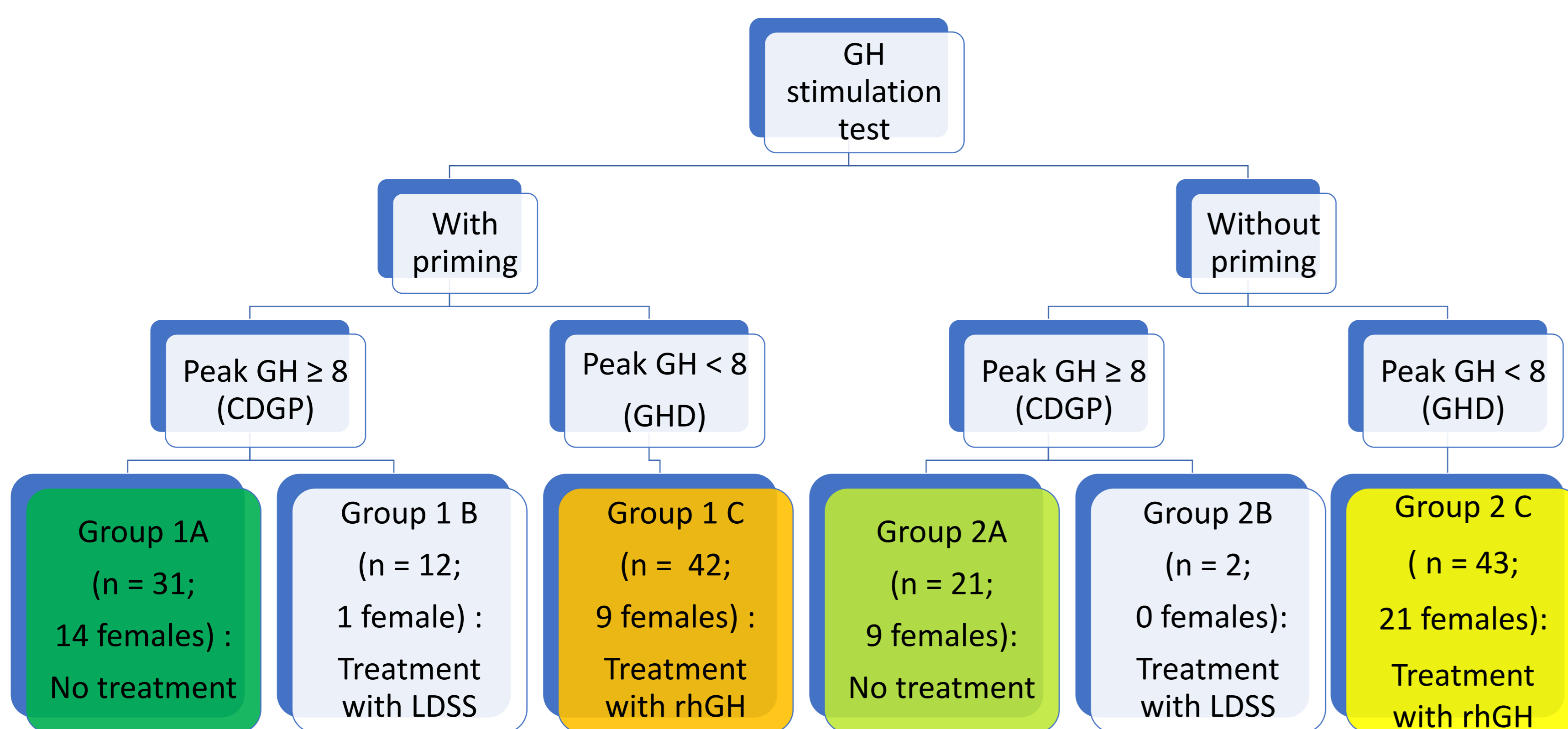
INTRODUCTION AND OBJECTIVES:

- Peripubertal children with delayed puberty frequently display a poor growth rate prompting endocrine work-up.
- Whether priming with sex steroids should routinely be performed in these patients to improve specificity of growth hormone stimulation tests (GHST) is unclear; treatment with sex steroids in constitutional delay of growth and puberty (CDGP) is also debated.

PATIENTS AND METHODS:

- This multicenter retrospective study included 151 normal weight children (54 females) presenting with short stature/poor growth rate and pubertal delay: inclusion criteria were age between 11-14 years for boys and 10-13 for girls. All patients included proved to have a normal or small pituitary on MRI (Magnetic Resonance Imaging). Mean age \pm SD of the cohort was 12.55 ± 1.82 years.
- Patients were diagnosed as CDGP if GH peak after a GHST was $\geq 8 \mu\text{g/L}$ or isolated growth hormone deficiency (IGHD) if $< 8 \mu\text{g/L}$.
- CDGP patients could receive no treatment or low-dose sex steroids (LDSS) for 3-51 months, as testosterone esters 25 up to 100 mg monthly for boys or as 25 μg estrogen patches at increasing dose twice weekly for girls. All IGHD patients received rhGH (25-35 $\mu\text{g/kg/day}$) till FH (final height).
- Within the IGHD cohort, 77/85 were retested at FH.
- Patients were divided into 6 groups: untreated CDGP, CDGP receiving LDSS and IGHD treated with rhGH, either diagnosed with or without priming [Fig. 1].
- Outcomes of interest were:
 - standard deviation score (SDS) FH
 - Δ SDS FH - SDS target height (TH)
 - degree of success (defined as $-1 \leq \Delta$ SDS FH - SDS TH ≤ 1)

Figure 1



RESULTS:

- SDS FH was higher in group 1C than 1A (-0.86 vs -1.43 , $p = 0.014$) and similar trend was found for Δ SDS FH-TH (1C -0.07 vs 1A -0.74 ; $p = 0.005$). SDS FH and Δ SDS FH-TH were comparable between groups 2C and 2A (-0.93 vs -0.99 , $p = 0.85$; -0.31 vs -0.46 , $p = 0.508$) [Fig. 2]
- IGHD patients showed the highest degree of success [Fig. 3], and above all group 1C [Fig. 4].
- At retesting, a higher proportion of permanent IGHD was documented in group 1C compared to group 2C (27% vs 17.5% respectively), not reaching statistical significance possibly due to low sample size.

Figure 2

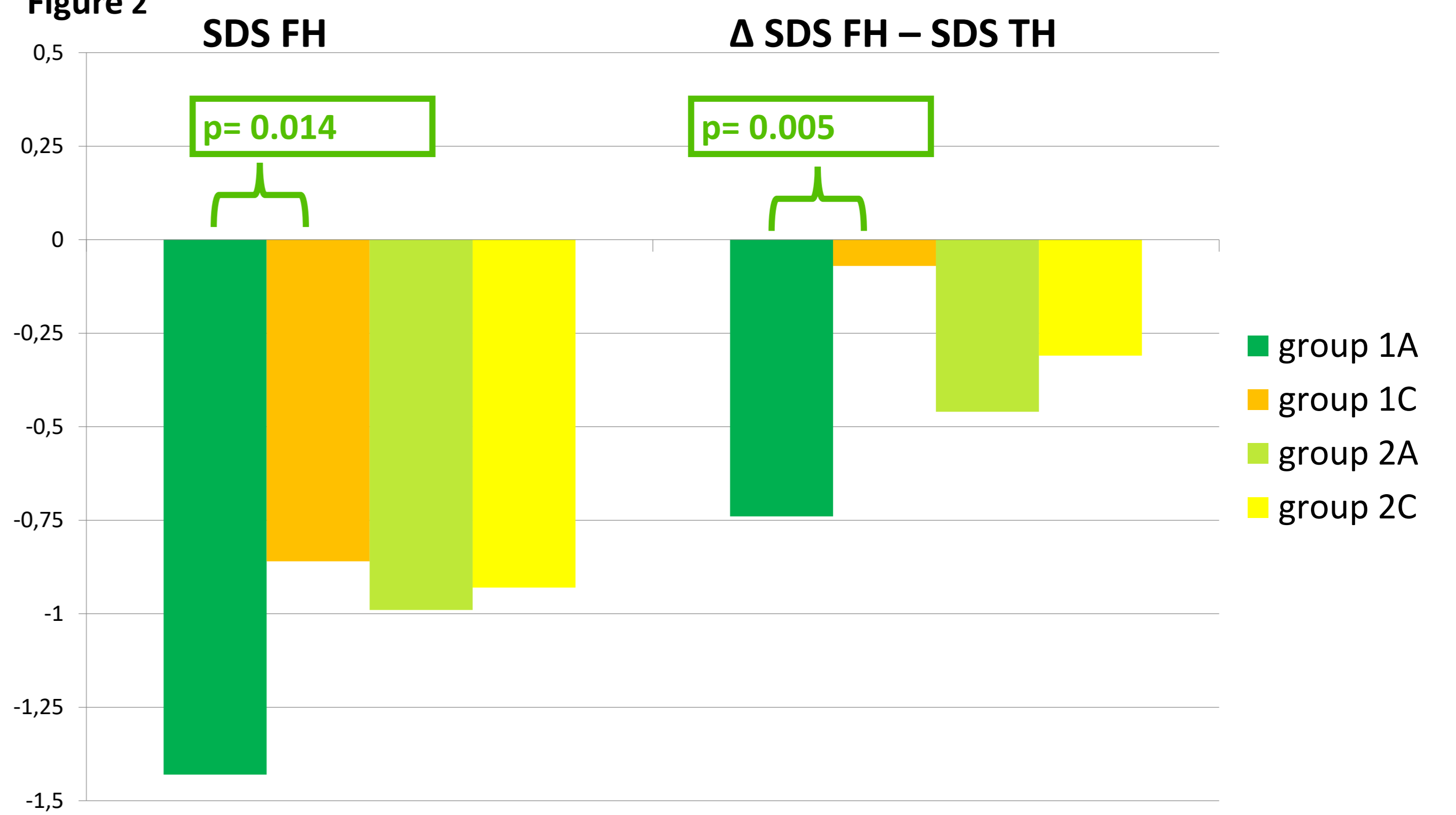


Figure 3

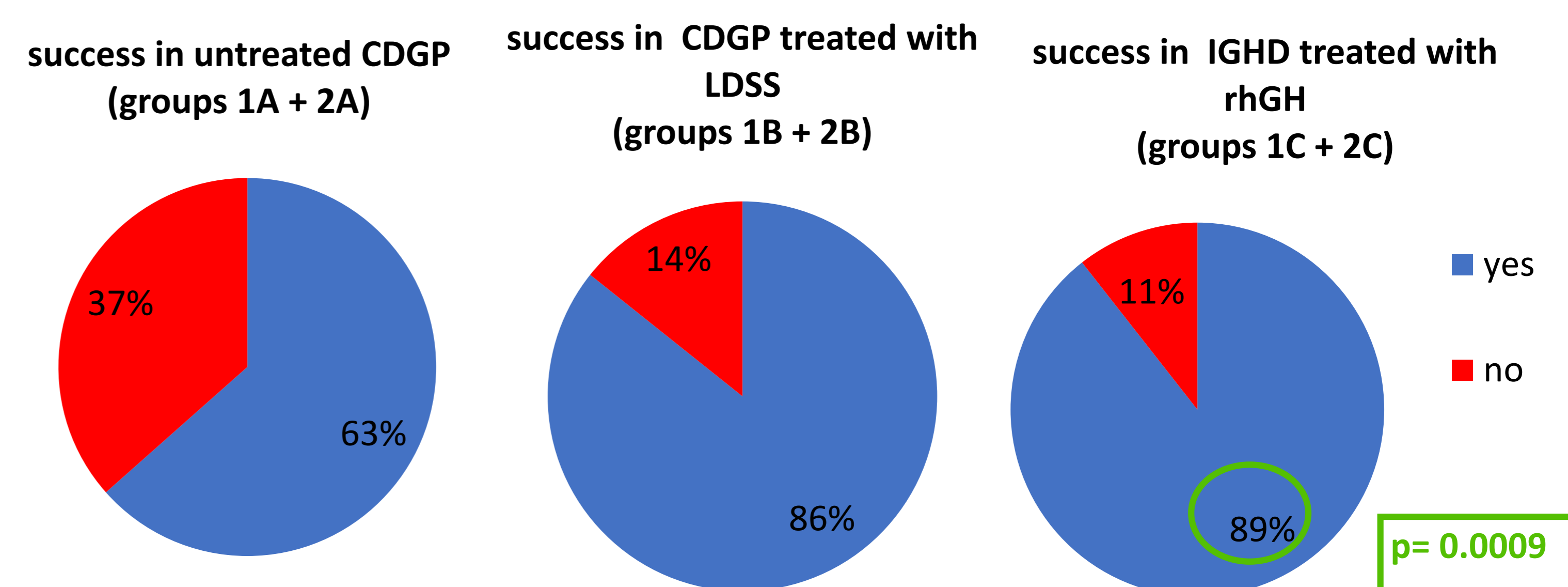
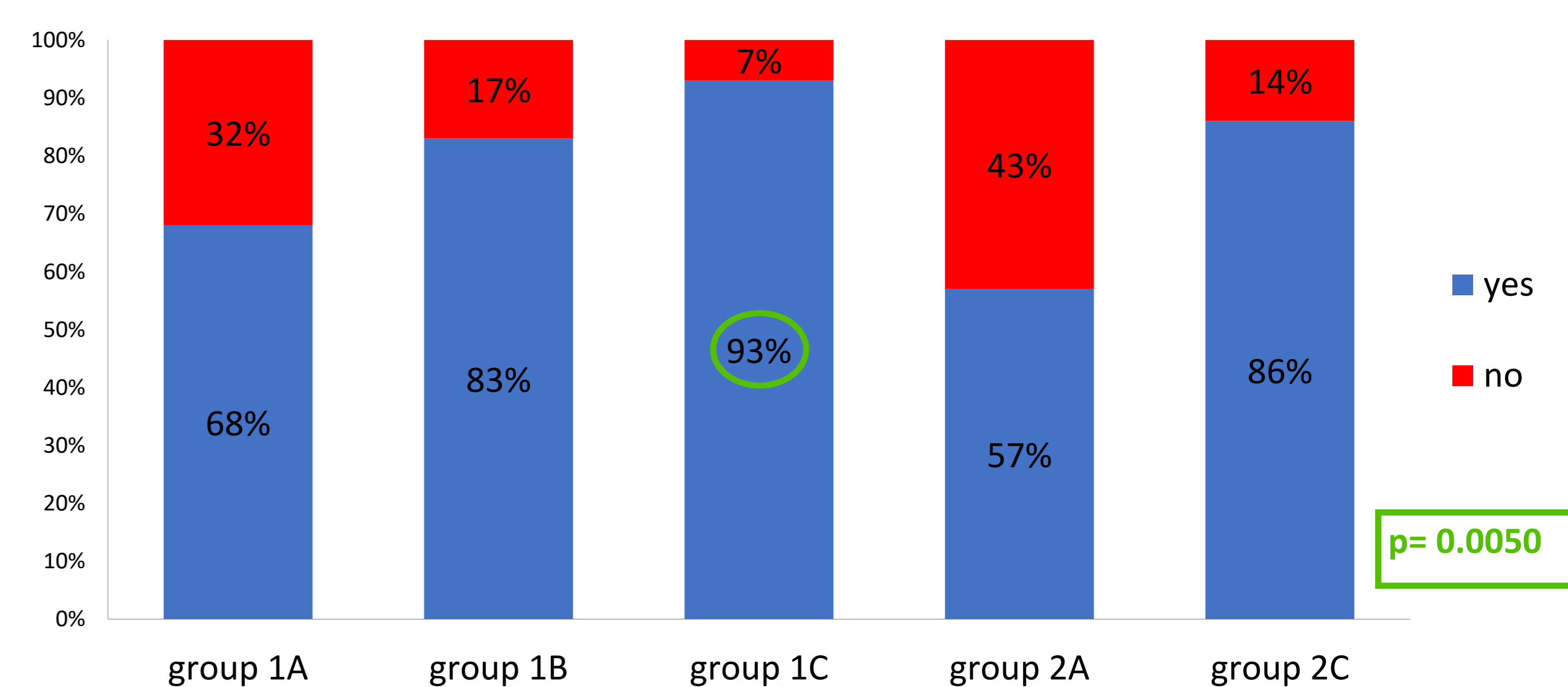


Figure 4



CONCLUSIONS: Priming with sex steroids in peripubertal short subjects may improve the ability to select those patients who are more likely to benefit from rhGH therapy. Indeed, rhGH treatment in IGHD seems to give advantages in terms of final height compared to untreated CDGP especially in those diagnosed with a primed GHST. Preliminary data indicate a potential increase of the growth success when CDGP subjects are treated with LDSS.

Reference:

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