



**Disclosures**

T. Reinehr and D. Chrysis are members of the KIGS Steering Committee. A. Lindberg, J. Cara, and C. Camacho-Hübner are full-time employees of Pfizer Endocrine Care. This study has been sponsored by Pfizer Endocrine Care.

**Background**

In girls with Turner Syndrome (TS) treatment with growth hormone (GH) increases BMI-SDS resulting in an increased number of patients reported to be overweight at near adult height (1,2). Therefore, we hypothesize that puberty induction in TS is associated with weight gain. There is a larger increase in BMI-SDS in girls with TS not treated with GH compared to healthy girls of same age (3).

1: Reinehr et al.: Clin Endocrinol (Oxf.). 2014 Nov; 81 (5): 721-6 2: Blackett et al.: Int J Obes Relat Metab Discord 2000; 24 (2): 232-235 3: Rongen-Westerlaken et al., Acta Paediatr., 1997;86(9):937-942

**Methods**

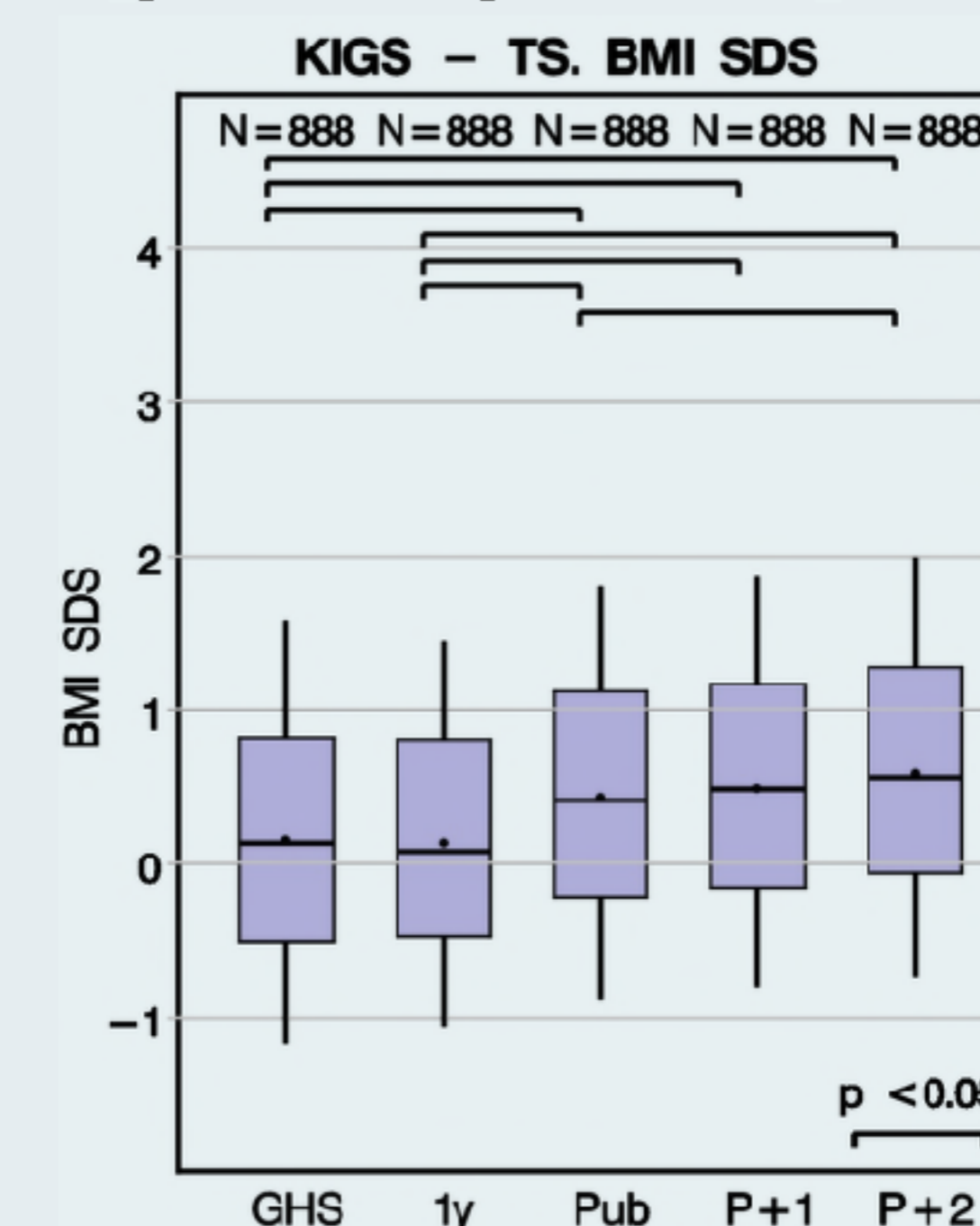
We analyzed the weight changes (BMI-SDS) of 888 girls with TS in the Pfizer International Growth Database (KIGS). Overweight was defined by a BMI >90th percentile and obesity by a BMI >97th percentile. For univariate statistical comparisons, Wilcoxon rank sum test was used. For proportions,  $\chi^2$  or Fisher Exact test was used for comparisons.

**Results**

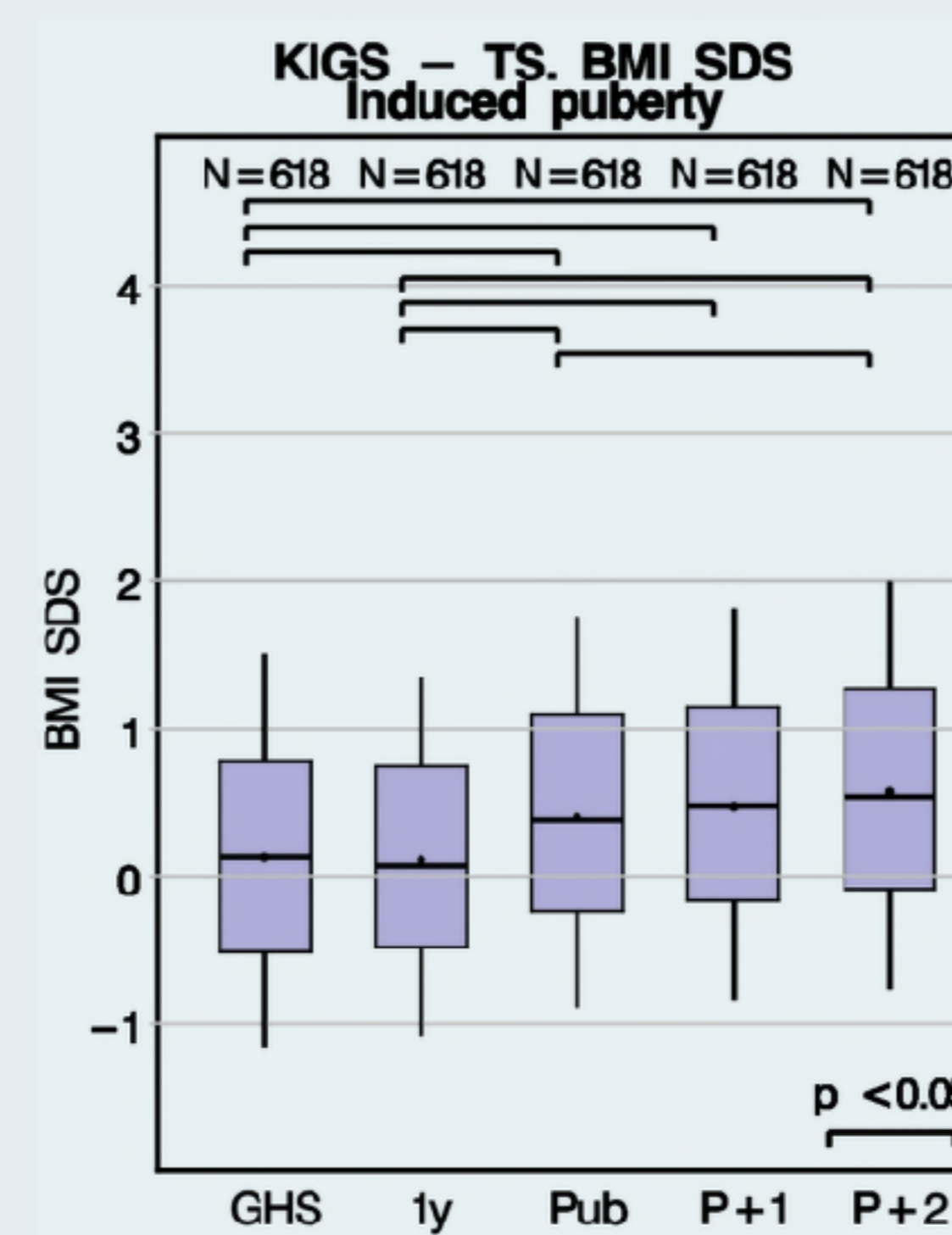
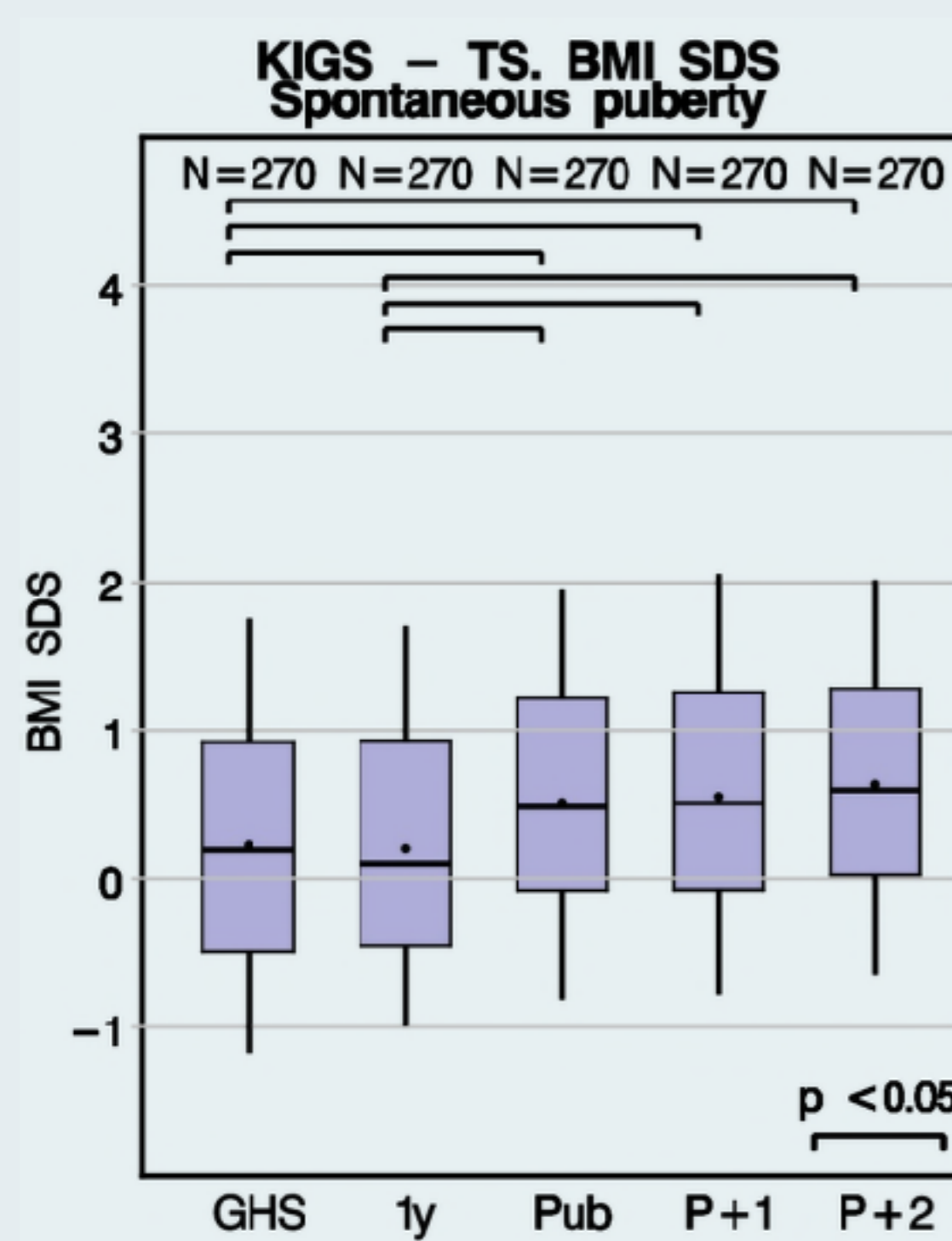
- A total of 888 girls with Turner Syndrome were included in the analyses. The patient characteristics are demonstrated in table 1. Puberty was induced in 618 (70%) girls.

Variable	Baseline (GH start)	1 year on GH	Puberty onset	Puberty at 2 yrs
Age (years)	9.1(4.9-12.7)	10.1(5.9-13.7)	13.1(11.0-15.0)	15.0(13.0-17.0)
BMI-SDS	0.1(-1.2-1.6)	0.1(-1.1-1.4)	0.4(-0.9-1.8)	0.6(-0.7-2.0)
Overweight	13.9%	11.8%	17.3%	20.3%
Obese	3.4%	3.2%	4.1%	5.3%

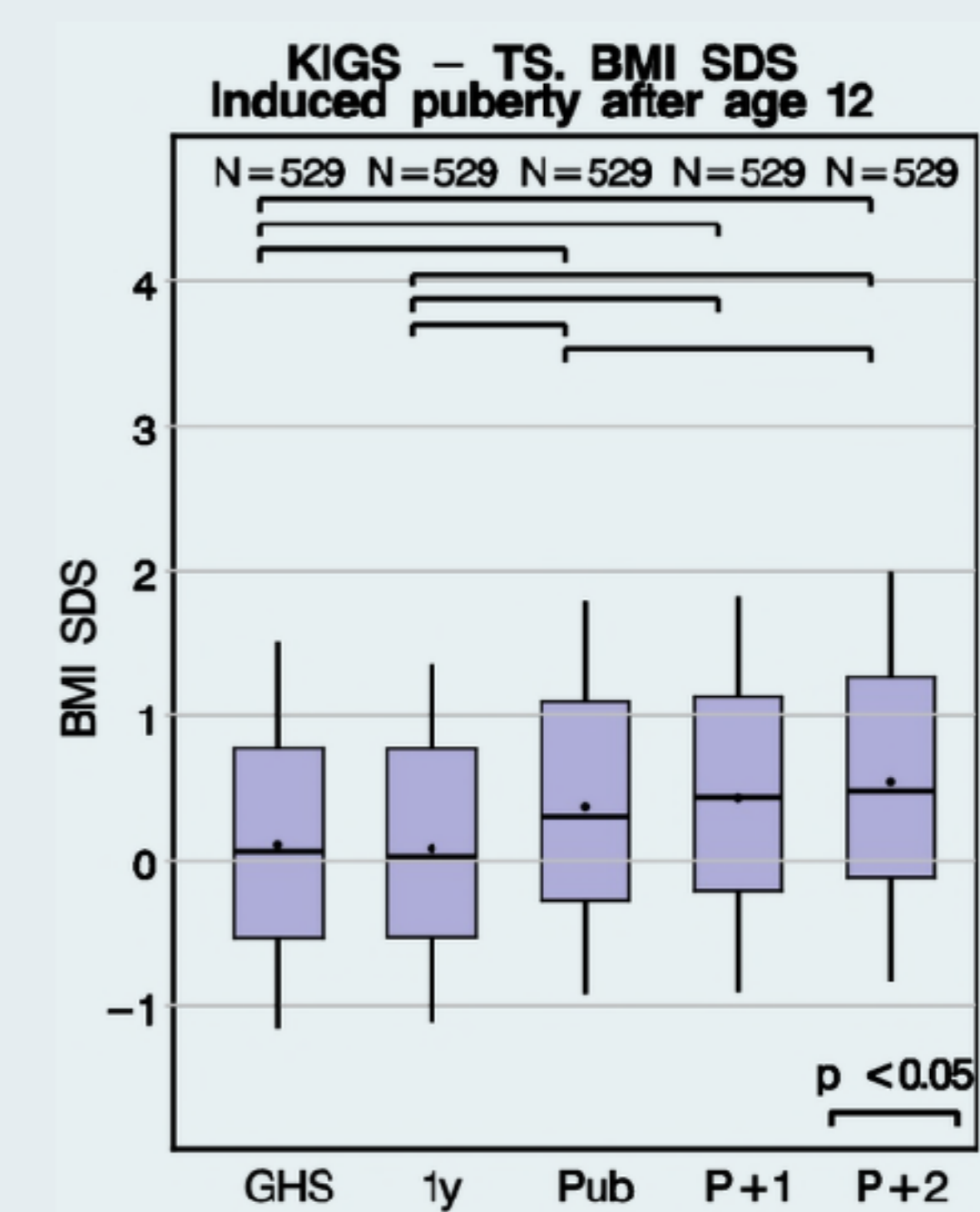
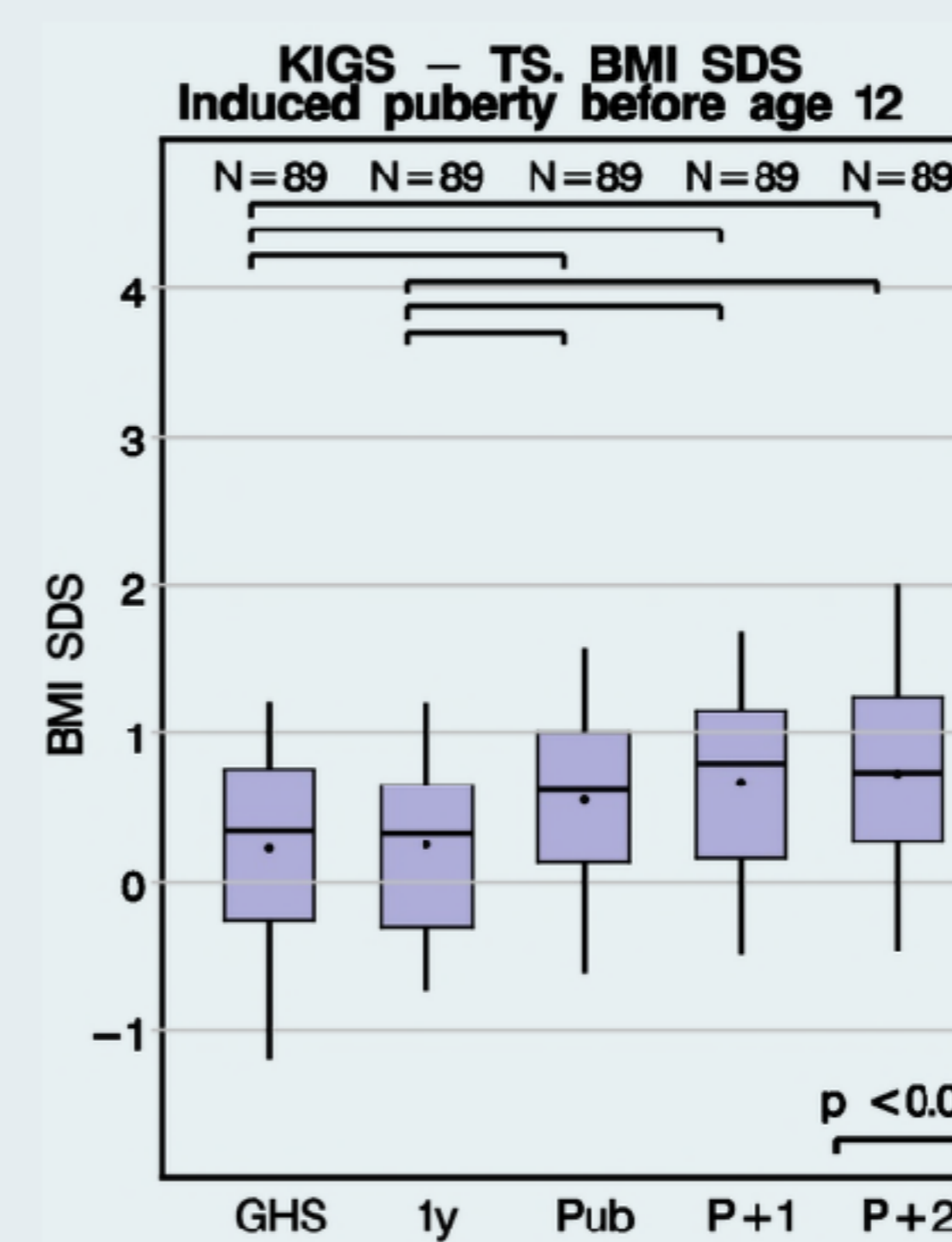
- BMI-SDS did not change between onset of GH treatment and 1 year later, but increased afterwards (+0.2 until onset of puberty,  $p < 0.05$ ; +0.2 between onset of puberty and 2 years later,  $p < 0.05$ ).



- Girls with spontaneous (S) and induced (I) puberty showed similar BMI-SDS changes (increase until start of puberty [S:+0.2;I:+0.2,  $p = 0.61$ ]) and in first 2 years of puberty [S:+0.1;I:+0.2,  $p = 0.11$ ]).



- BMI-SDS changes did not differ between early (E:<12 years,  $n = 89$ ) and late (L:>12 yrs;  $n = 529$ ) induced puberty (increase until onset of puberty [E:+0.2;L:+0.1,  $p = 0.57$ ] and in first 2 years of puberty [E:+0.2;L:+0.2,  $p = 0.80$ ]).



- No evidence that doses or route of delivery of estrogens are associated to weight gain in girls with TS.
- Additional factors such as karyotype, oxandrolone or thyroxin treatment had also no impact on weight change.

**Conclusion**

Puberty seems not to play a major role in the weight gain in girls with TS since the majority of the increases in BMI-SDS occurred before puberty.

**Acknowledgments**

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