

Effect of pubertal blockade and cross-sex hormone treatment on the growth spurt in young transgender adolescents: a first report

Oliver Loi-Koe, Matteo Catanzano, Gary Butler

University College London Hospital and UK National Gender Identity Development Service

Objective

International guidelines recommend GnRH analogues (GnRHa) for gender variant young people from Tanner stage 2 onwards and cross-sex hormones (CSH) from age 16yr onwards. However, no good evidence exists how these affect growth. This first report aims to determine the impact of GnRHa and CSH on growth in young transgender adolescents to help inform prescribing in this patient cohort.

Methods

This is a prospective study of 44 young transgender people, attending the national Gender Identity Development Service early intervention endocrine clinic, on GnRHa for 1.3-3.8 years, transitioned to CSH treatment aged 16yr. 14 attained adult height (7 transgirls and 7 transboys) thus far. Changes in height and height velocity were calculated at each transition point.

Subjects reaching adult height (mean + range)

7 transboys (registered female at birth)

Age at presentation 14.2yr (13.4-14.7)

All Tanner B5, menarche age 12yr (9-13)

GnRHa started at age 15.1yr (14.2-16.7)

CSH at age 16.5yr (15.8-17.7)

7 transgirls (registered male at birth)

Age at presentation 12.5yr (12-14)

GnRHa started at Tanner stage 3 (2-5) and age 13yr (12.2-14.6)

CSH started at age 16yr (15.9-16.6)

Auxology results (mean, range +/- SD)

Adult height

Transgirls: 180cm (167-190.1 SD 7.2)

Transboys: 162.5cm (157.7-165.3 SD 3)

Height velocity on GnRHa

Transgirls: 3.6cm/yr (0.03-5.5 SD 1.8)

Transboys: 0.9cm/yr (0-2.2 SD 0.7)

Height velocity on CSH

Transgirls: 3.5cm/yr (0.7-8.5 SD 3)

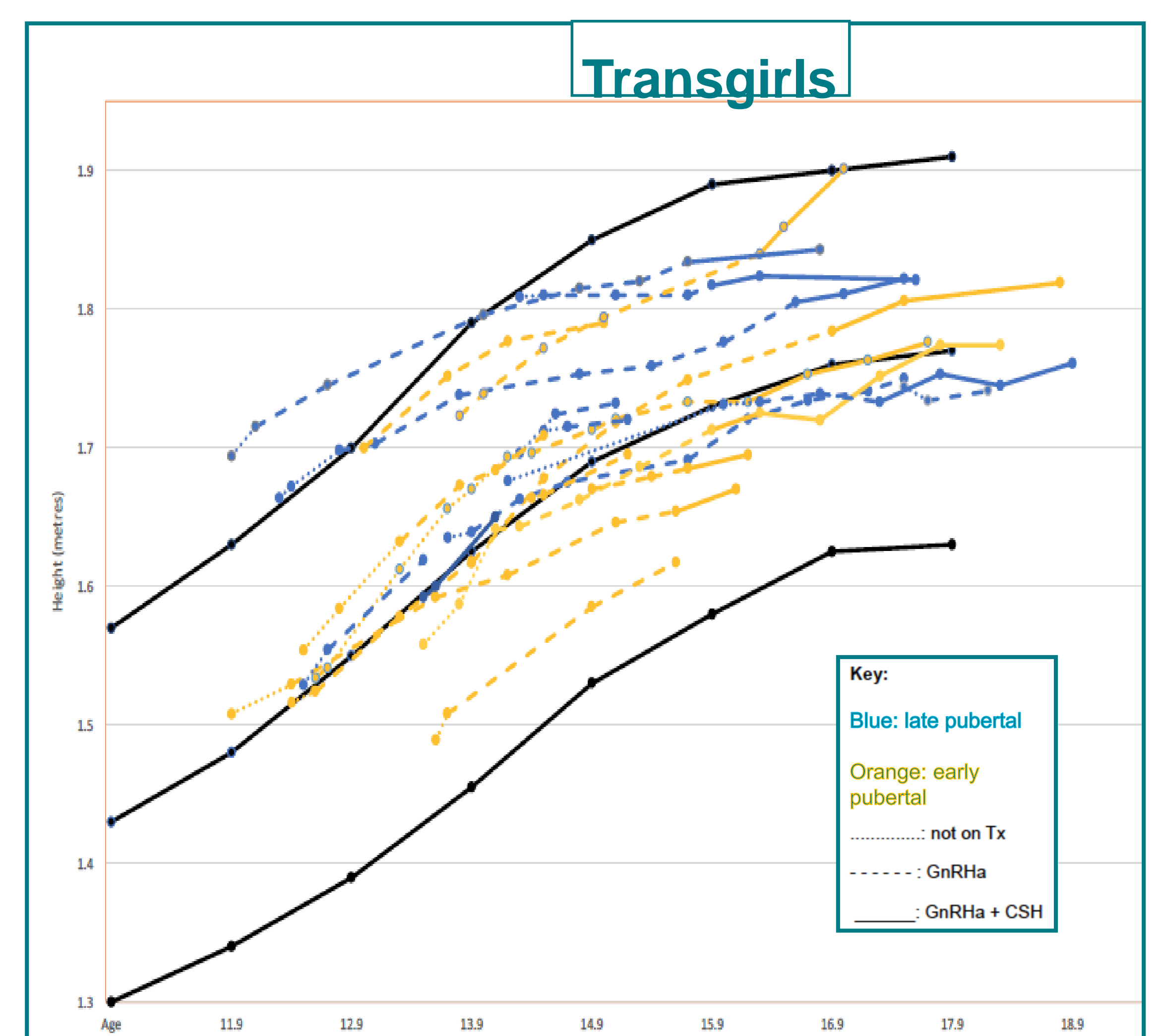
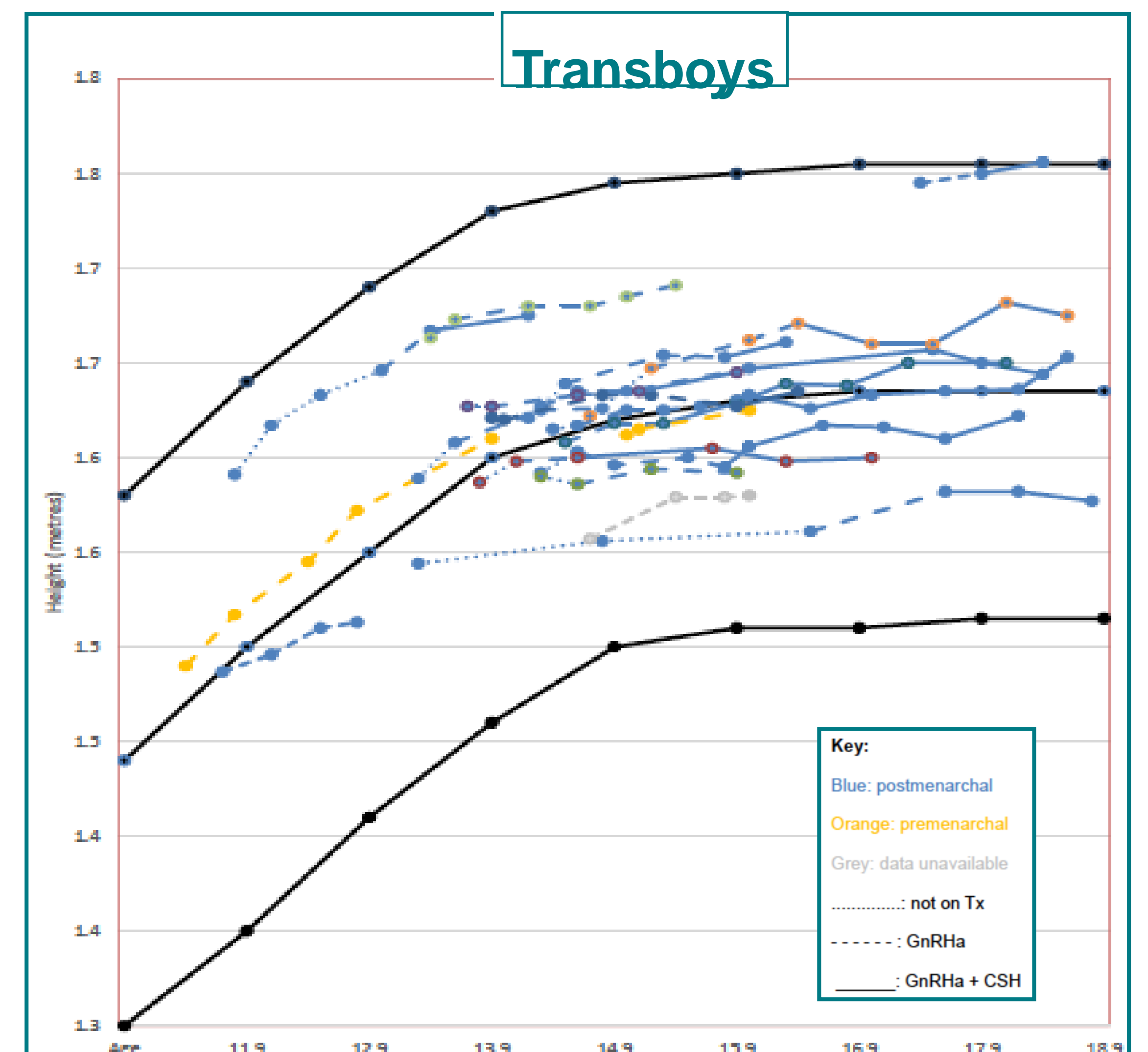
Transboys: 0.3cm/yr (0-0.8 SD 0.3)

Total pubertal growth

Transgirls: 16.8cm (1.2-24.2 SD 7.7)

Transboys: 2.3cm (0-4.2 SD 1.6)

Growth charts of all transboys (RFAB) and transgirls (RFAB) in the study



Conclusion

Transboys did not show significant growth on GnRHa or CSH, but they were older at presentation and all post-pubertal at start.

Transgirls grew extensively on GnRHa and then unexpectedly only had modest growth when female puberty was induced with oestradiol. This may have arisen from the extension of the *pre-pubertal* growth phase leaving little sex hormone driven growth potential. These are preliminary conclusions and further study is required.