

The efficacy and safety of gonadotropin-releasing hormone agonist treatment to suppress puberty in gender dysphoric adolescents

Introduction

Current guidelines recommend puberty suppression using gonadotropin releasing hormone agonists (GnRHa) as initial treatment for gender dysphoric adolescents¹. However, few data are available on the efficacy and safety of this treatment in this group. The Endocrine Society guideline therefore recommends frequent monitoring of gonadotropins, sex steroids, renal and liver function.

Methods

Forty-nine MtF (male-to-female) and 67 FtM (female-to-male) gender dysphoric adolescents treated with triptorelin were included in the study. At 3 monthly visits physical examination, including assessment of Tanner stage, was performed. Blood samples from the start and after 12 months of treatment were analysed. Body composition was evaluated using dual energy X-ray absorptiometry.

Results

At the start of GnRHa treatment adolescents had a median Tanner G/B stage of 4 (table 1). During GnRHa treatment testicular volume decreased (figure 1A). Gonadotropins and sex steroid levels were suppressed although FSH remained higher in natal females (figure 1C-F) compared to natal males. No persistent abnormalities of liver enzymes or creatinine were observed. Alkaline phosphatase decreased, probably related to reduced growth velocity as height SDS decreased in both sexes ($p < 0.001$). BMI SDS did not significantly change in MtFs but increased in FtMs ($p = 0.01$, fig 1B). Fat percentage significantly increased during the first year of treatment in both sexes, whereas lean body mass percentage significantly decreased (table 2).

	MtF	FtM
Age (yr) median (range)	13.6 (11.6 - 17.9)	14.2 (11.1 - 18.6)
Tanner G/B stage median (range)	4 (2-5)	4 (2-5)

Table 1. Baseline characteristics.

Conclusions

Triptorelin effectively suppresses puberty in gender dysphoric adolescents. Routine monitoring of gonadotropins, sex steroids, creatinine and liver function does not seem necessary. Whether changes in height SDS and body composition can be reversed during subsequent cross sex hormone treatment is currently unclear.

References

1. Hembree, W.C., et al. *Endocrine treatment of transsexual persons: an Endocrine Society clinical practice guideline*. J Clin Endocrinol Metab, 2009. 94(9): p. 3132-54

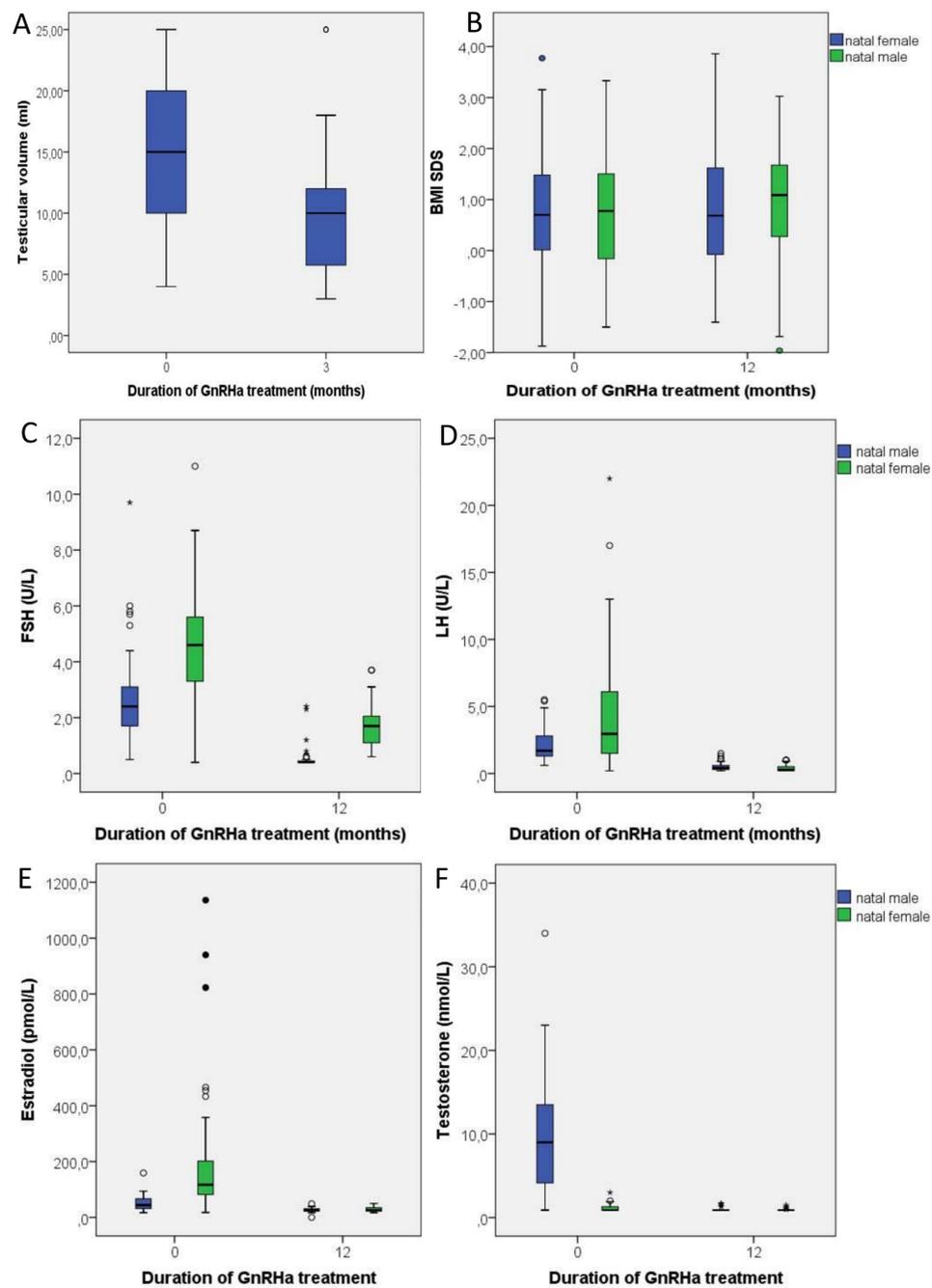


Figure 1. Changes in testicular volume (A), BMI SDS (B), serum levels of FSH (C), LH (D), estradiol (E) and testosterone (F) during GnRH analogue treatment.

	MtF		p-value	FtM		p-value
	Start	1 yr GnRHa		Start	1 yr GnRHa	
Fat percentage mean (SD)	22.4 (6.9)	26.8 (6.6)	<.001	25.0 (6.9)	29.5 (7.3)	<.001
Lean body mass % mean (SD)	74.6 (6.4)	70.9 (7.3)	.001	71.5 (6.7)	67.7 (6.7)	<.001

Table 2. Changes in fat percentage and lean body mass percentage during GnRH analogue treatment.

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