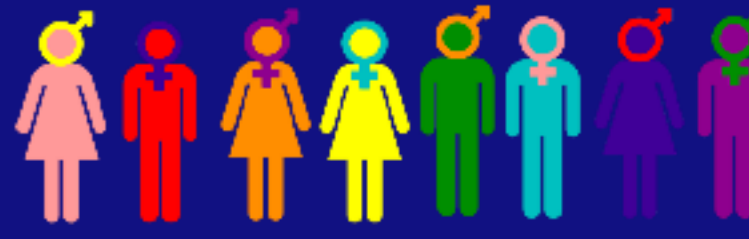


Serum prolactin levels in transgender persons during cross-sex hormonal treatment.



Nienke Nota¹, Maartje Klaver¹, Marieke Dekker¹, Mick van Trotsenburg¹, Annemieke Heijboer², Martin den Heijer¹

¹Department of Internal Medicine, Division of Endocrinology, VU University Medical Center, The Netherlands.

²Department of Clinical Chemistry, Endocrine Laboratory, VU University Medical Center, The Netherlands. *Email: n.nota@vumc.nl.

Background

Several studies assume a relationship between hormonal therapy and prolactin (PRL) levels in transgender persons. The cause of elevated PRL levels in male-to-female individuals (MtF's) is often assigned to estrogen supplementation in supraphysiological doses, the role of cyproterone acetate (CPA) remains unclear. Also the influence of testosterone supplementation at PRL levels in female-to-male individuals (FtM's) remains unclear.

Aim

The aim of this study was to get more insight into both PRL levels during the different phases of cross-sex hormonal therapy (CHT) as well as the predictors of PRL levels during CHT.

Methods

We prospectively examined PRL levels in 37 FtM's and 45 MtF's who have been systematically evaluated during the first year of CHT in the context of the European Network for the Investigation of Gender Incongruence (ENIGI). In addition we retrospectively examined PRL levels in 30 MtF's who have had sex reassignment surgery (SRS). Both populations were treated with comparable medications, testosterone (injections or gel) in FtM's and estradiol (patches or pills) with or without CPA (after SRS CPA is discontinued) in MtF's. PRL was measured by an immunometric assay (Centaur, Siemens).

Results

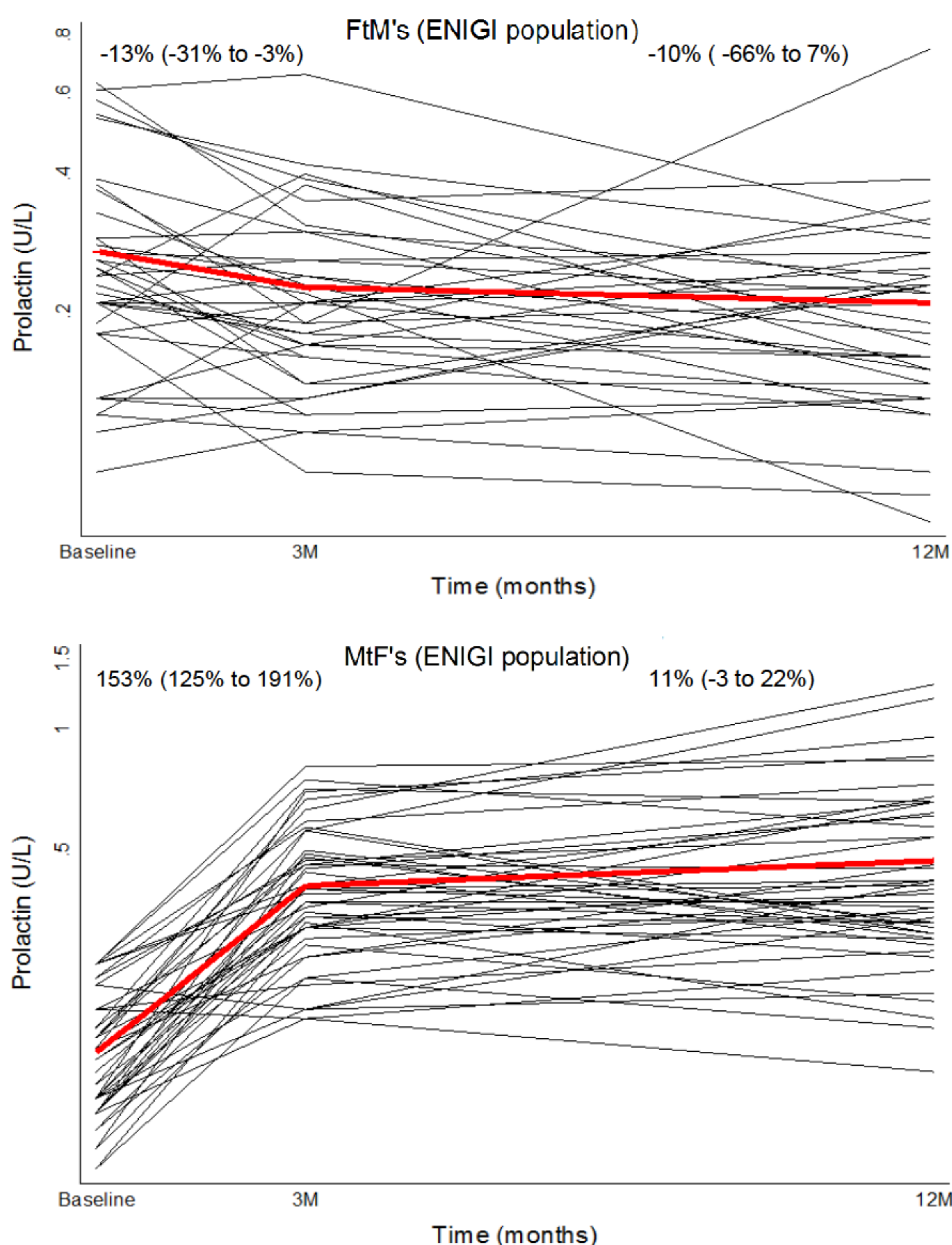


Figure 1: Changes in PRL levels per individual during first year of hormonal treatment, the red line displays the mean change in PRL concentration. Data were logarithmically transformed.

FtM's (ENIGI population)

	Univariate Analysis β (95% CI)	Multivariate Analysis β (95% CI)
Serum estradiol (pmol/L)	3% (1%, 6%)	3% (0%, 6%)
Serum testosterone (nmol/L)	1% (-1%, 4%)	2% (-1%, 5%)
Testosterone injections vs gel	16% (-15%, 60%)	-25% (-51%, 17%)
Age (years) ^a	1% (-4%, 6%)	-5% (-12%, 3%)
Smoking (yes/no) ^b	-12% (-42%, 32%)	-15% (-40%, 22%)

MtF's (ENIGI population)

	Univariate Analysis β (95% CI)	Multivariate Analysis β (95% CI)
Serum estradiol (pmol/L)	2% (0%, 3%)	1% (-1%, 3%)
Serum testosterone (nmol/L)	-2% (-5%, 2%)	-1% (-5%, 4%)
Estradiol patches vs pills	20% (-13%, 34%)	15% (-9%, 46%)
Age (years) ^c	-1% (-4%, 3%)	-3% (-7%, 1%)
Smoking (yes/no) ^d	-27% (-45%, -3%)	-34% (-53%, -8%)

Table 1: Influence of several variables at PRL levels after 3 months of treatment. Coefficients presented for age, estradiol and testosterone levels represent the percentage increase/decrease in PRL levels following a 10% increase in age, estradiol or testosterone levels.^a Geometric mean age (GMA): 27 years (range 19 - 52),^b N=8, ^c GMA: 32 years (range 19 - 69),^d N=9. Data were logarithmically transformed.

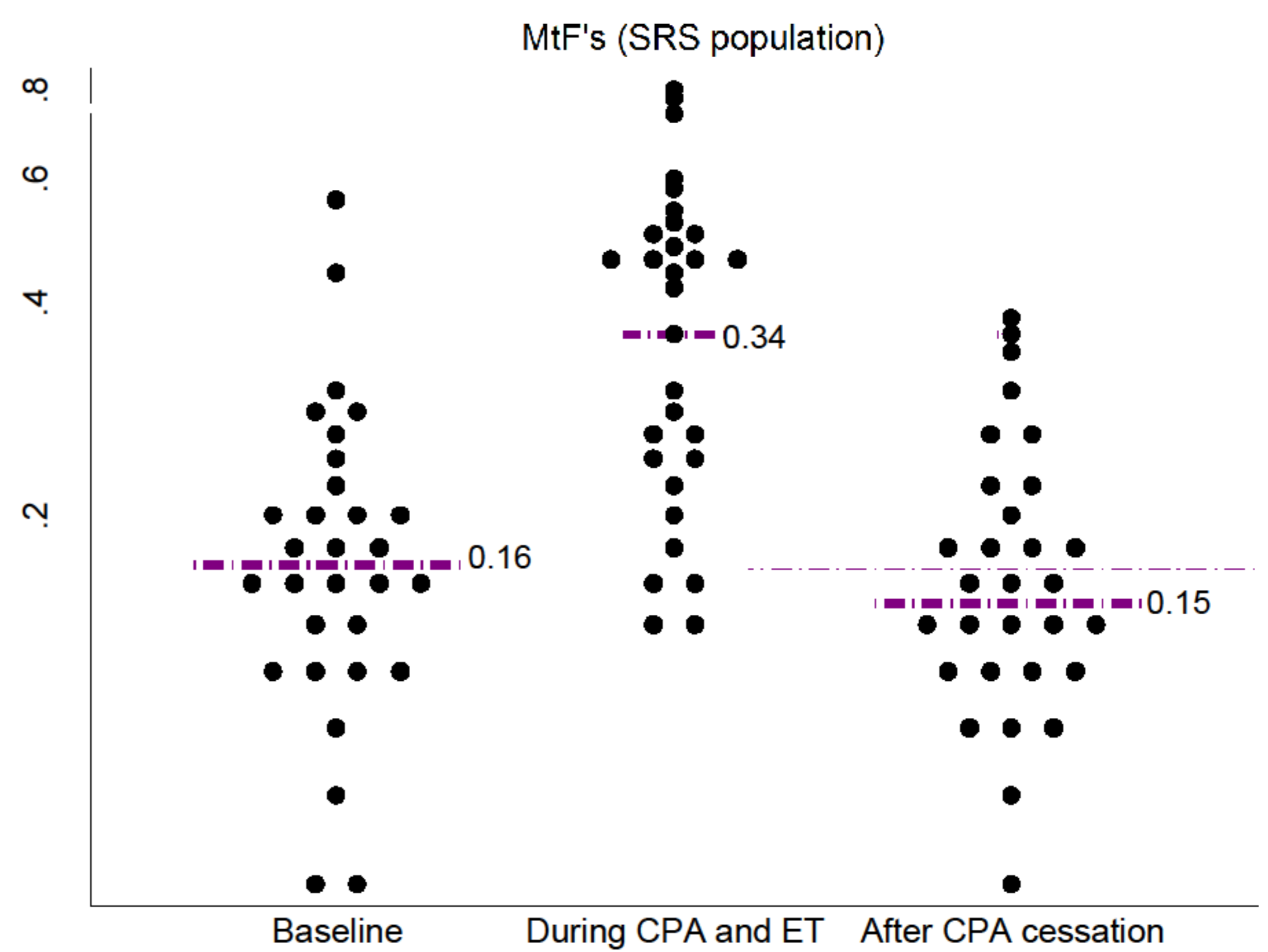


Figure 2: PRL levels during CHT with CPA and after its cessation. Mean treatment duration during CPA and estradiol therapy (ET): 639 days (range 108 - 1816), mean treatment duration after CPA cessation: 342 days (68 to 1219). PRL levels at baseline and after CPA cessation were comparable -6% (-35% to 15%). Data were logarithmically transformed.

Conclusion

During first year of CHT a moderate decrease in mean serum PRL levels was seen in FtM's while in MtF's a substantial increase was seen. In FtM's serum estradiol concentration positively influenced PRL levels slightly while in MtF's smoking negatively influenced PRL levels. The antiandrogen drug CPA possibly plays an important role in increasing PRL levels.

