

Adverse effects after priming with testosterone in short-statured boys before growth hormone stimulation test.

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Background

The Consensus Guidelines for the Diagnosis and Treatment of Growth Hormone (GH) Deficiency in Childhood and Adolescence, which were published 16 years ago, found that „At the present time there is no consensus on the use of priming with sex steroids before GH tests“. This statement is still valid. A recently published study on priming across the UK showed that the testosterone preparation, the dose and the application time differed between various centres. The current guideline used in Germany recommends the priming with sex steroids. Until now, there is only few data in the literature on observed side effects of priming with testosterone.

Objective

To report our data on side effects and serum testosterone levels after priming with testosterone.

The data were obtained in a single tertiary centre.

Current recommendations for priming of short-statured boys in Germany

- Tanner stage: 1
- CA: ≥ 10 years
- Testosterone dose: 50 mg i.m.
- Time of application: 7 days prior to GH test

Patients and Methods

- Period of sampling: 2009-2016
- 188 short-statured boys
- IGF1 and IGFBP3 < 1 SDS
- Mean chronological age: 11.4 ± 1.25 years
- Tanner stage: 1
- Used drug: testosterone enanthate 250 mg/ml
- Testosterone injections were performed by the paediatrician or practitioner
- Testosterone dose:
 - 50 mg (n=136, 2011-2016)
 - 125 mg (n= 51, 2009-2010)
 - 250 mg (n=1, accidentally)
- Time between testosterone application and test: 7 days
- Testosterone measuring: LC-MS/MS [SI units: ng/ml x 3.47 = nmol/L]

Results

Serum testosterone levels after testosterone priming

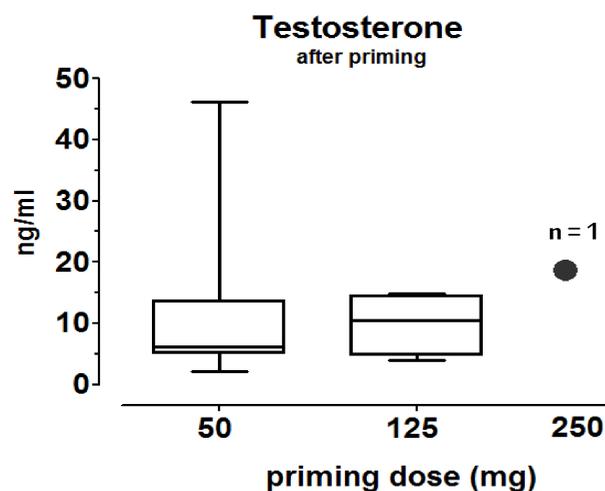


Fig. 1
Testosterone levels (ng/ml) after priming in boys without side effects; boxplot: whiskers min./max.

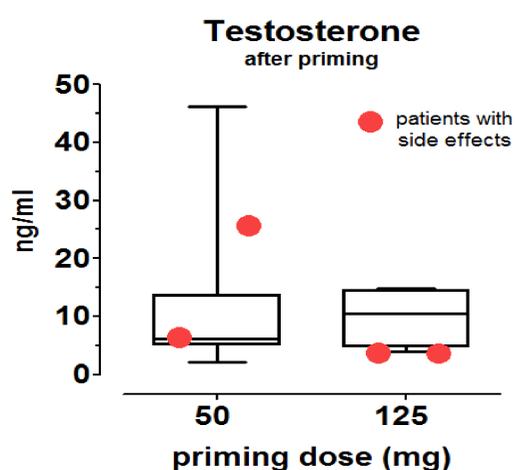


Fig. 2
Testosterone levels (ng/ml) after priming in 4 boys with side effects (pt. 1 – 4; no data for pt. 5); boxplot: whiskers min./max.

Side effects after testosterone priming

Patient	Priapism	Testicular pain	Testosterone dose (mg)
1	x	-	125
2	x	-	125
3	x	x	50
4	-	x	50
5	-	x	50

Table 1: Patients with side effects after priming with testosterone

Patients 1 + 2 (twins, CA 12 yrs.): severe low-flow priapism two weeks after the injection. In both cases, decompression of the cavernous bodies by blood aspiration was performed.

Patient 3 (CA 10 yrs.): stuttering priapism and testicular pain five days after the injection. The symptoms were self-limiting within a few days.

Patients 4 + 5 (CA 10 yrs.): testicular pain.

Conclusions

- Priapism and testicular pain are rare side effects of testosterone priming
- Rate of side effects after priming: 2.7 %
- Serum testosterone levels do not correlate with side effects

References

- Chesover, A.D. et al., Evaluation of growth hormone stimulation testing in children, *Clinical Endocrinology* 84: 708-714 (2016)
- Consensus Guidelines for the Diagnosis and Treatment of GHD in Childhood and Adolescence, GH Research Society, *JCEM* 85: 3990-3 (2000)

