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Intratesticular Testosterone Concentrations Comparable With Serum Levels Are Not Sufficient to Maintain Normal Sperm Production in Men Receiving a Hormonal Contraceptive Regimen

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Intratesticular testosterone (ITT) is thought to play a key role in the control of spermatogenesis in man but is rarely measured. The purposes of this study were 1) to examine the relationship between intratesticular fluid and serum testosterone (T) at baseline and during treatment with a contraceptive regimen known to suppress spermatogenesis and 2) to measure intratesticular fluid androgenic bioactivity. Seven men received 6 months of T enanthate (TE) 100 mg weekly intramuscularly plus levonorgestrel (LNG) 62.5 or 31.25 µg orally daily. Testicular fluid was obtained by percutaneous aspiration at baseline and during month 6. Mean luteinizing hormone (LH) was suppressed 98% from 3.79 ± 0.80 IU/L at baseline to 0.08 ± 0.03 IU/L. Mean follicle stimulating hormone (FSH) was suppressed 97%, from 3.29 ± 0.67 IU/L to 0.10 ± 0.03 IU/L. Mean serum T levels were similar before (22.8 ± 1.9 nmol/L) and during treatment (28.7 ± 2.0 nmol/L) ($P = .12$). ITT (822 ± 136 nmol/L) was ~40x higher than serum T ($P < .001$) at baseline. ITT was suppressed 98% during treatment to 13.1 ± 4.5 nmol/L, a level similar to baseline serum T ($P = .08$) but significantly lower than on-treatment serum T ($P = .01$). At baseline, intratesticular fluid androgenic bioactivity (583 ± 145 nmol/L) was 70% of the ITT concentration measured by radioimmunoassay. Intratesticular androgenic bioactivity was suppressed 93% to 40 ± 22 nmol/L ($P < .01$) during treatment, but was 3x higher than ITT (13.1 ± 4.5 nmol/L). Sperm counts declined from 65 ± 15 million/mL to 1.3 ± 1.3 million/mL. In summary, TE plus LNG dramatically suppressed ITT (98%) and intratesticular androgenic bioactivity (93%) to levels approximating those in serum. ITT levels comparable with serum T were insufficient to support normal spermatogenesis. Intratesticular androgenic bioactivity was higher than ITT during treatment, suggesting that other androgens may be prevalent in the low-ITT environment.

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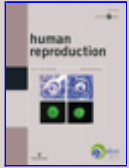
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