Treating Hypogonadism with Intramuscular Testosterone Cypionate versus Subcutaneous Testosterone Enanthate (#137)

Edward J Choi[1], MSc; Perry Xu[1], MD; Charles Loeb[1], MD; Farouk M. El-Khatib[1], MD; Faysal A. Yafi[1], MD; Parviz K. Kavoussi[2], MD

1. Department of Urology, University of California, Irvine Health; Orange, CA
2. Department of Reproductive Urology, Austin Fertility & Reproductive Medicine; Austin, TX

UCI Department of Urology

Disclosures

No conflict of interests to disclose.

Introduction & Objectives

- Intramuscular testosterone cypionate (IM-TC) is associated with significant peaks in testosterone.

- Subcutaneous testosterone enanthate-autoinjectors (SCTE-AI) were designed with a lower testosterone peak-to-trough ratio of 1.8.

- **Study aims:** Compare Total Testosterone (TT), hematocrit (HCT), estradiol (E2), and prostate-specific antigen (PSA) response to treatment with IM-TC versus SCTE-AI.

UCI Department of Urology

Methods & Materials
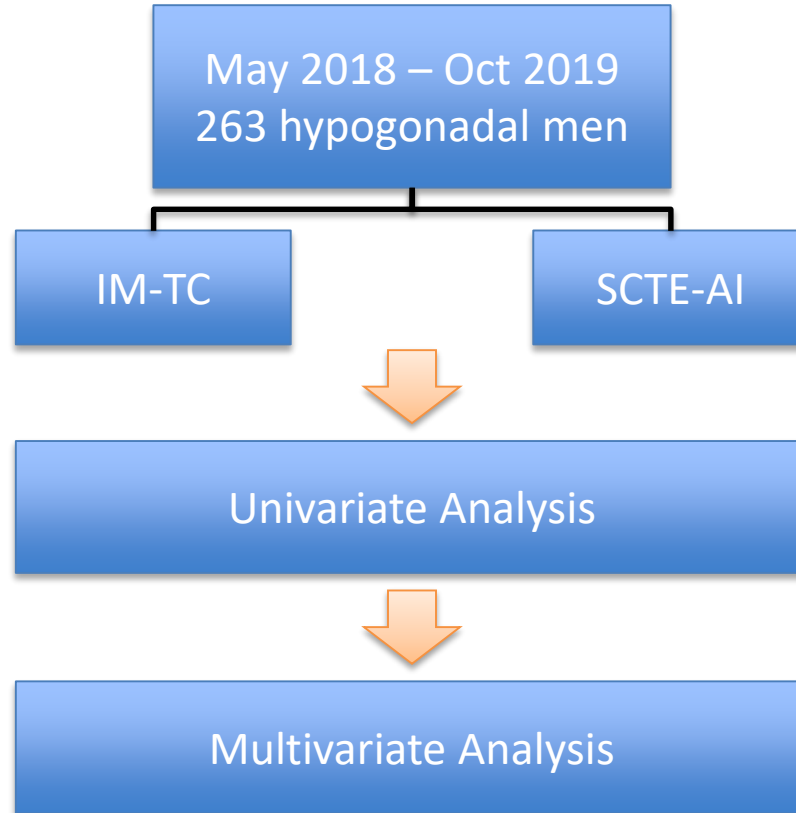
Results

- SCTE-AI cohort was younger, higher baseline TT, and lower baseline E2.
- Post-therapy, SCTE-AI cohort significantly lower HCT and E2, while TT and PSA levels not significantly different between treatment arms.

Table 1. Clinical Demographics and Outcomes between IM-TC and SCTE-AI.

	IM-TC n=188	SCTE-AI n=114	
	Mean (SD)	Mean (SD)	p-value
Age (years)	54.4 (13.4)	49.7 (10.5)	**0.001**
Pre-Therapy			
TT (ng/dL)	313.6 (263)	249.6 (113)	**0.006**
HCT (%)	45.2 (4.2)	44.8 (3.4)	0.453
E2 (pg/mL)	30.4 (15.5)	25.3 (9.2)	**0.004**
PSA (ng/mL)	1.4 (1.8)	1.1 (0.8)	0.072
Post-Therapy			
TT (ng/dL)	536.4 (295)	552.5 (207)	0.629
HCT (%)	48.4 (4.4)	46.3 (3.8)	**<0.001**
E2 (pg/mL)	46.6 (25.9)	33.0 (15.4)	**<0.001**
PSA (ng/mL)	1.3 (1.3)	1.2 (0.9)	0.565

Results

- Compared to IM-TC, SCTE-AI was associated with a 14% greater increase in trough TT levels (p=0.027) as well as 41% and 26.5% lower post-therapy HCT (p<0.001) and E2 (p<0.001).

Table 2a. Independent factors associated with Post-Therapy TT.

	B	S.E.	Beta	t	Sig.
Constant	39.924	74.57		0.535	0.593
TRT Modality [IM-TC (ref.) vs. SCTE-AI]	67.064	30.12	0.144	2.226	**0.027**
Age (cont.)	5.593	1.333	0.272	4.196	**<0.001**
Pre-Therapy TT	0.401	0.088	0.352	4.548	**<0.001**
Pre-Therapy E2	2.977	1.559	0.148	1.91	0.058

Table 2b. Independent factors associated with Post-Therapy HCT.

	B	S.E.	Beta	t	Sig.
Constant	51.86	1.371		37.816	<0.001
TRT Modality [IM-TC (ref.) vs. SCTE-AI]	-3.332	0.56	-0.41	-5.95	**<0.001**
Age (cont.)	-0.03	0.024	-0.084	-1.218	0.225
Pre-Therapy TT	0.001	0.002	0.053	0.655	0.513
Pre-Therapy E2	-0.042	0.028	-0.125	-1.522	0.13

Table 2c. Independent factors associated with Post-Therapy E2.

	B	S.E.	Beta	t	Sig.
Constant	24.392	6.672		3.656	<0.001
TRT Modality [IM-TC (ref.) vs. SCTE-AI]	-9.922	2.66	-0.265	-3.729	**<0.001**
Age (cont.)	0.155	0.119	0.093	1.302	0.195
Pre-Therapy TT	-0.008	0.008	-0.085	-1.007	0.315
Pre-Therapy E2	0.481	0.14	0.289	3.421	**0.001**

Table 2d. Independent factors associated with Post-Therapy PSA.

	B	S.E.	Beta	t	Sig.
Constant	0.45	0.321		1.402	0.163
TRT Modality [IM-TC (ref.) vs. SCTE-AI]	0.051	0.129	0.03	0.398	0.691
Age (cont.)	0.017	0.006	0.224	2.959	**0.004**
Pre-Therapy TT	1.3E-05	0	0.003	0.034	0.97
Pre-Therapy E2	-0.008	0.006	-0.106	-1.178	0.24

UCI Urology

Conclusions

- IM-TC and SCTE-AI both provide significant increases in total testosterone when treating hypogonadal men.
- After adjusting for significant covariates, SCTE-AI is shown to be significantly associated with lower levels of HCT and E2 compared to IM-TC after 12-weeks of therapy.
- SCTE-AI is an effective testosterone delivery system with a preferable safety profile over IM-TC.

UCI Department of Urology