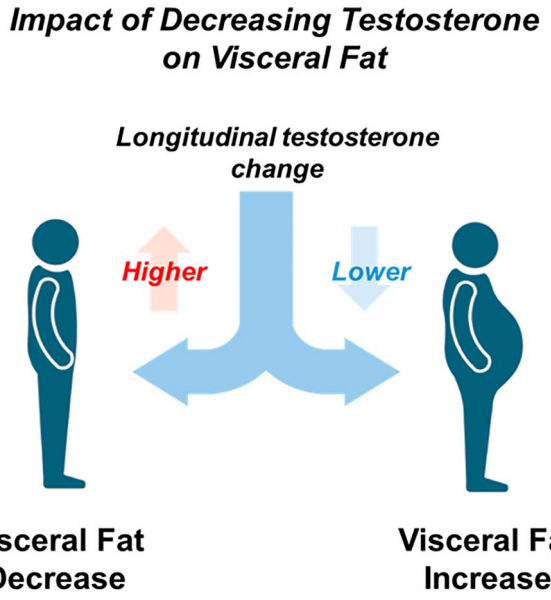

Source of Funding: None

IP10-39

DOSE-DEPENDENT INCREASE OF 17-HYDROXYPROGESTERONE LEVELS BY VARYING DOSES OF HUMAN CHORIONIC GONADOTROPIN TREATMENT IN MEN RECEIVING TESTOSTERONE THERAPY

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INTRODUCTION AND OBJECTIVE: 17-Hydroxyprogesterone (17-OHP) is a reliable surrogate of intra-testicular testosterone levels. Exogenous testosterone therapy (TTh) causes negative feedback in the hypothalamic-pituitary-gonadal axis, reducing secretion of gonadotropins, and resulting in impaired intra-testicular testosterone as exogenous TTh does not cross the blood-testis barrier. Human chorionic gonadotropin (hCG) therapy can be co-administered with TTh to maintain spermatogenesis, testicular size, or libido, but no study has assessed associated 17-OHP levels in these men on concurrent TTh and hCG therapy. The objective of this study is to determine whether there is a dose-dependent association between hCG dose and 17-OHP levels in men on TTh.

METHODS: We identified men who were on concurrent TTh and varying hCG therapies. In our practice, hCG 1500 IU subcutaneous injection is prescribed once weekly to maintain spermatogenesis while on TTh, 1500 IU twice weekly to restore testicular size or improve libido while on TTh, or 3000 IU three times weekly plus FSH and TTh when attempting to reboot spermatogenesis after TTh therapy allowing men to remain on TTh. 17-OHP levels were obtained through a commercial laboratory; detection limit for 17-OHP was 10 ng/dL. Men were excluded if an hCG injection was greater than 1 week prior to lab testing. We included for comparison the following: men on TTh monotherapy without concurrent hCG, men with hypogonadal symptoms not on TTh with a recent history of fathering a child, and infertile men on enclomiphene.

RESULTS: A total of 101 men were included in the study (Table 1). Undetectable levels of 17-OHP were present in 62% of men on TTh monotherapy (n = 26/42) compared with 31% (n = 10/32) of men on hCG 1500 weekly (p = 0.01). A linear relationship was evident for 17-OHP levels among men on increasing doses of hCG (p = 0.02). On multivariate linear regression, age and increasing TTh doses were negatively correlated with 17-OHP levels (p = 0.04 and p = 0.02), while hCG dose was positively associated with 17-OHP levels ($p < 0.0001$).

CONCLUSIONS: There is a dose-dependent relationship between serum 17-OHP and increasing hCG doses when co-administered with TTh. Further work is needed to determine whether there are thresholds for 17-OHP levels associated with spermatogenesis or impaired libido. 17-OHP may become an important biomarker to non-invasively trend for men on TTh as a proxy for intra-testicular testosterone and its sequelae.

	Stratified by hCG dose				Hypogonadal men with recent fertility	Enclomiphene
	None (TTh monotherapy) n=42	1500 once weekly n=32	1500 twice weekly (3000 total) n=10	3000 thrice weekly (9000 total) n=8	n=4	n=5
Testosterone Dose (mg/week)	300 (200-300)	200 (200-300)	200 (140-300)	200 (100-200)	---	---
Age (years)	46.5 (40.25-53)	48 (40.5-54)	37.5 (33.25-47.75)	37 (33.5-45)	45 (39-47)	36.5 (30.75-42.75)
17-OHP (ng/dL)	<10 (<10-13)	13.5 (<10-26)	36 (20-62.5)	77 (51.8-114)	83 (66.8-105.8)	101 (76-183)
Serum testosterone (ng/dL)	1049 (893-1446)	1230 (822-1596)	1004 (376-1438)	1111 (479-1282)	293 (212-329)	443 (276-462)
LH (IU/L)	0.10 (0.03-0.3)	0.13 (0.06-0.3)	0.11 (0.07-0.47)	0.13 (0.11-5.5)	4.1 (3.6-6.4)	10.2 (5.2-11)

Source of Funding: None

IP10-40

CARDIOVASCULAR EVENT OUTCOMES IN PROSTATE CANCER PATIENTS RECEIVING TESTOSTERONE REPLACEMENT THERAPY: A PROPENSITY-SCORE MATCHED COMPARATIVE ANALYSIS WITH LONG TERM FOLLOW-UP

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INTRODUCTION AND OBJECTIVE: Despite recent supporting evidence on its safety, testosterone replacement therapy (TRT) in prostate cancer (PCa) patients remains controversial, especially due to concerns about cardiovascular (CVS) risks. We aimed to evaluate the incidence of CVS events in PCa patients on TRT compared to those not receiving TRT.

METHODS: A retrospective review of prospectively collected 456 PCa patients' data between December 2009 and June 2018 undergoing robotic radical prostatectomy (RP) was conducted. We propensity-score matched (PSM) 152 patients who had TRT post-RP, with calculated free testosterone (cFT) below 25%, to 304 post-RP patients not on TRT. PSM was calculated using a multivariable logistic model with age, BMI, Gleason group, PSA, Sexual Health Inventory for Men (SHIM) score, prostate size, pathological stage, total testosterone (TT), sex hormone-binding globulin (SHBG), and cFT. CVS events were recorded from patient health records, confirmed through Redcap survey responses by the patients and/or phone call confirmations (Table 2) if they did not respond. Biochemical recurrence (BCR) rates, defined as two consecutive prostate specific antigen (PSA) blood tests>0.2 ng/mL, were also assessed.

RESULTS: After PSM, the baseline clinical characteristics were similar between the groups, with no significant differences in PSA (p = 0.949), age (p = 0.793), BMI (p = 0.462), Gleason scores (p = 0.994), or SHBG levels (p = 0.146). TT and cFT levels were significantly lower in the TRT group (TT: 264 ng/dL vs. 320 ng/dL, $p < 0.001$; cFT: 4.92 ng/dL vs. 5.69 ng/dL, $p < 0.001$). 78.5% (358/456) of our cohort confirmed or negated CVS events, while 21.5% (98/456) were non-responders. Of the responders, CVS events occurred in 21.7% (33/152) of the TRT group and 21.1% (64/304) of the non-TRT group, (p = 0.52). BCR rates were also similar between groups (13.2% in TRT vs. 14.8% in no TRT, p = 0.740).

CONCLUSIONS: Our findings suggest that TRT does not increase CVS risks and may be a safe therapeutic option for managing patients with testosterone deficiency in selected PCa patients. This study contributes to the growing evidence supporting the CVS safety of TRT.