Table 1. Clinical and demographic characteristics, and a comparison of those clinical characteristics among men with different erectile function.

	Overall n = 2549 (100%)	Always n = 1085 (42.6%)	Usually n = 521 (20.4%)	Sometimes n = 690 (27.1%)	Never n = 253 (9.9%)	p-value
Age (in years)	54 [41 – 64]	43 [33 – 53]	55 [42.5 – 63]	62 [55 – 67]	66 [61 – 69]	**< 0.001**
BMI (kg/m^2)	28.8 [25.5 - 32.6]	27.9 [24.6 - 31.7]	29.5 [25.9 - 32.6]	29.5 [25.9 - 33.2]	29.3 [26.6 - 33.4]	**< 0.001**
Race/ethnicity						
White (%)	1472 (57.7%)	657 (44.6%)	277 (18.8%)	382 (26%)	156 (10.6%)	
Black (%)	472 (18.5%)	187 (39.6%)	126 (26.7%)	120 (25.4%)	39 (8.3%)	
Mexican or other hispanic (%)	516 (20.2%)	187 (36.2%)	97 (18.8%)	175 (33.9%)	57 (11%)	
Other or multiracial (%)	89 (3.5%)	54 (60.7%)	21 (23.6%)	13 (14.6%)	1 (1.1%)	**< 0.001**
HTN						
No (%)	1149 (45.1%)	701 (61%)	254 (22.1%)	157 (13.7%)	37 (3.2%)	
HTN (%)	1400 (54.9%)	384 (27.4%)	267 (19.1%)	533 (38.1%)	216 (15.4%)	**< 0.001**
DM						
No (%)	1965 (77.1%)	1011 (51.5%)	384 (19.5%)	420 (21.4%)	150 (7.6%)	
DM or pre-DM (%)	584 (22.9%)	74 (12.7%)	137 (23.5%)	270 (46.2%)	103 (17.6%)	**< 0.001**
History of stroke						
No (%)	2381 (93.4%)	1064 (44.7%)	499 (21%)	607 (25.5%)	211 (8.9%)	
Stroke history (%)	168 (6.6%)	21 (12.5%)	22 (13.1%)	83 (49.4%)	42 (25%)	**< 0.001**
Cancer history						
No (%)	2357 (92.5%)	1037 (44%)	497 (21.1%)	594 (25.2%)	229 (9.7%)	
Cancer history (%)	192 (7.5%)	48 (25%)	24 (12.5%)	96 (50%)	24 (12.5%)	**< 0.001**
Smoking history						
Never (%)	879 (34.5%)	485 (55.2%)	142 (16.2%)	199 (22.6%)	53 (6%)	
Former smoker (%)	924 (36.2%)	291 (31.5%)	207 (22.4%)	291 (31.5%)	135 (14.6%)	
Current smoker (%)	746 (29.3%)	309 (41.4%)	172 (23.1%)	200 (26.8%)	65 (8.7%)	**< 0.001**
hPDI	50 [45 – 56]	50 [45 – 56]	50 [45 – 55]	51 [45 – 57]	51 [44 – 54]	**0.026**

BMI: Body mass index; DM: Diabetes mellitus; HTN: Hypertension; hPDI: Healthful plant-based diet index. Median and interquartile range [IQR 25th – 75th].

Table 2. Multivariable adjusted logistical regression analysis showing the association between clinical variables and some degree of erectile dysfunction.

	OR	95% CI	p-value
Age (per year)	1.08	1.07 - 1.09	**< 0.001**
BMI (per kg/m^2)	1.02	1.00 - 1.04	**0.038**
Race/ethnicity			
White	1		
Black	1.55	1.18 - 2.02	**0.001**
Mexican or other hispanic	1.40	1.07 - 1.83	**0.015**
Other or multiracial	0.82	0.48 - 1.41	0.475
HTN			
No	1		
HTN	1.30	1.04 - 1.61	**0.020**
DM			
No	1		
DM or pre-DM	3.47	2.58 - 4.66	**< 0.001**
History of stroke			
No	1		
Stroke history	1.88	1.11 - 3.19	**0.020**
Cancer history			
No	1		
Cancer history	1.38	0.94 - 2.03	0.103
Smoking history			
Never	1		
Former smoker	1.59	1.25 - 2.01	**< 0.001**
Current smoker	2.01	1.56 - 2.59	**< 0.001**
hPDI (per unit)	0.98	0.96 - 0.99	**0.001**

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PD20-06

DEVELOPMENT OF SECONDARY POLYCYTHEMIA WHILE ON TESTOSTERONE THERAPY INCREASES RISK OF MAJOR ADVERSE CARDIOVASCULAR EVENTS AND VENOUS THROMBOEMBOLISM IN MEN

Jesse Ory, Sirpi Nackeeran, Daniel C Gonzalez, Maxwell Towe, Joshua Bitran, Justin Achua, Ranjith Ramasamy, Miami, FL*

INTRODUCTION AND OBJECTIVE: Modifying testosterone therapy (TT) or prescribing phlebotomy is recommended in men who develop secondary polycythemia while on TT. This is due to concern over development of a prothrombotic state and subsequent major adverse cardiovascular events (MACE) or venous thromboembolism (VTE). Despite this premise, the association between TT and MACE/VTE remains controversial. We investigated the association between secondary polycythemia in men receiving TT and MACE/VTE using a large, multinational database.

METHODS: We queried the TriNetX network database: a global health research network consisting of 65 million patients in 44 large healthcare organizations. Hypogonadal men prescribed testosterone for >3 months were evaluated based on whether or not they experienced any instance of an elevated hematocrit (Hct) (>52%) in the 1 year since starting TT. We excluded men with a history of malignancy, prior diagnosis of polycythemia, or of MACE/VTE prior to starting TT. MACE were defined as myocardial infarction (MI), stroke, and death from any cause. VTE was defined as pulmonary embolus or deep vein thrombosis. Our primary outcome was incidence of MACE or VTE in the first year since starting TT.

RESULTS: We identified 8907 men with a high Hct (>52%) and 81,961 men without a high Hct among those that received TT. Men who had a high Hct were older (mean age 54 ±12.5 versus 52 ±14.8, p<0.01) and had a higher prevalence of obstructive sleep apnea, dyslipidemia, smoking, obesity and hypertension. After propensity score matching, 8496 men were available for analysis in each group. In the year since starting TT, significantly more men who had a high Hct experienced MACE (OR 1.8; 95% CI 1.5-2.3) and VTE (OR 1.6; 95% CI 1.3-2.1) compared to those who maintained a normal Hct. Within MACE, 68 men with a high Hct (0.8%) and 32 men without (0.38%) experienced a myocardial infarction (OR 2.13; 95% CI 1.4-3.3). 92 men with a high Hct (1.1%) and 30 men without (0.4%) died from any cause (OR 3.1; 95% CI 2.0-4.7). There was no difference in rates of stroke (OR 1.31; 95% CI 0.78-2.2).

CONCLUSIONS: In the first year after starting testosterone therapy, development of secondary polycythemia significantly increases the risk for MACE and VTE in a matched cohort of men. To our knowledge, this is the first study that demonstrates secondary polycythemia as a possible underlying etiology associating TT and major adverse cardiovascular events. Physicians should counsel men on the small but real risk of MACE and monitor hematocrit among men receiving T therapy.

Source of Funding: na

PD20-07

SAFETY ANALYSIS OF AN ORAL TESTOSTERONE UNDECANOATE (TU) FORMULATION FOLLOWING 2 YEARS OF ADMINISTRATION IN HYPOGONADAL MEN

Ronald Swerdloff, Torrance, CA; Parviz Kavoussi, Austin, TX; Marc Gittelman, Aventura, FL; Christina Wang, Torrance, CA; B. Woun Seo, Northbrook, IL; Nestor Rohowsky, LaGrange, IL; Robert Dudley, Northbrook, IL*

INTRODUCTION AND OBJECTIVE: An oral testosterone (T) replacement therapy (TRT) would be the preferred administration route for many hypogonadal men. Until recently, the only oral TRT approved in the US was methyl-T which has been associated with hepatotoxicity. The safety of a novel oral T undecanoate (TU) formulation was evaluated in hypogonadal men for up to 2 years.

METHODS: Two open-label, multicenter, dose-titration trials were conducted in hypogonadal men (serum T ≤300 ng/dL) age 18-75 years. Trial I was a randomized, active-controlled, 2-arm, 12-month study. Trial 2 was a long-term extension of those who completed Trial 1. Statistical analyses were only conducted with the subjects who completed Trial 1 and continued treatment in Trial 2, thus providing up to 2 full years of data. Safety was assessed by physical exam, AE reporting, and routine clinical laboratory measurements.

RESULTS: Overall, 86 subjects participated in both studies. T concentration increased from 193.75±9.44 ng/dL (Mean±SEM) at baseline (BL) to 475.5±49.7 ng/dL after 24 Mo of therapy with oral TU, and 84% of men achieved T in eugonadal range (300-1000 ng/dL) after 90 days of therapy. Mean T concentrations remained in the eugonadal range throughout Trial 2. There were no clinically significant changes in

liver function tests—ALP (64.05±1.95 to 53.74 U/L±1.86 U/L), ALT (27.8±1.40 to 26.7±1.6 U/L), AST (21.6±0.76 to 22.0±1.0 U/L), and bilirubin (0.58±0.03 to 0.52±0.03 mg/dL) throughout the two studies. At d270, one subject had an ALT level of 227 U/L, which was > 4x the ULN (ULN for ALT=45 U/L). Despite continued use of oral TU, ALT was measured again on d290, and the level dropped to 87 U/L, <2x ULN. This was the only instance of an LFT elevation. There was a modest initial increase in prostate-related growth endpoints (i.e. PSA and prostate volume) that stabilized over time. There were not any significant changes in IPSS total score (-0.06±3.9 vs BL). There were significant, yet modest, increases in mean HCT (44.3±0.3 to 46.6±0.5%, p<0.001) and cuff systolic BP (127.1±1.2 to 131.8±1.67 mmHg, p = 0.006). The change in prostate-related growth variables and CV endpoints changed initially and stabilized throughout the 2 trials. For example, systolic BP varied 3–6 mm Hg from BL throughout the study.

CONCLUSIONS: This oral TU formulation is an option for hypogonadal men and has a safety profile consistent with other approved T products. Notably, no evidence of liver toxicity was observed. The long-term efficacy and safety profile of oral TU may provide a treatment option that avoids issues associated with other TRTs, such as injection site pain or transference to partners and children.

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PD20-08

INVESTIGATION OF SEXUAL DYSFUNCTION LINKED TO FINASTERIDE USE: A PHARMACOVIGILANCE ANALYSIS

David-Dan Nguyen, Peter Herzog, Eugene B Cone, Logan Briggs, Khalid Alkhatib, Shehzad Basaria, Boston, MA; Dean S Elterman, Toronto, Canada; Quoc-Dien Trinh, Boston, MA; Naeem Bhojani, Montreal, Canada*

INTRODUCTION AND OBJECTIVE: Finasteride, a 5α-reductase inhibitor, is used in the management of alopecia and benign prostatic hyperplasia (BPH). Previous reports suggest that some men taking finasteride experience a constellation of adverse events, including sexual dysfunction. We investigated the association of sexual dysfunction with finasteride use

METHODS: We conducted a pharmacovigilance study using VigiBase, the World Health Organization's global database of individual case safety reports. We used the reporting odds ratio (ROR), a surrogate measure of association used in disproportionality analysis, with 95% confidence intervals (CI). Extensive sensitivity analyses included stratifying by indication (BPH and alopecia) and age (<45 and ≥45); comparing finasteride signals to those of drugs with different mechanisms but similar indications (minoxidil for alopecia and tamsulosin for BPH); comparing finasteride to a drug with a similar mechanism of action (dutasteride); and comparing reports of sexual dysfunction before and after 2012.

RESULTS: We identified 7700 reports of sexual dysfunction in finasteride users. There was a significant disproportionality signal for sexual dysfunction (ROR 50.30, 95% CI 49.03-51.60) linked to finasteride use. All sensitivity analyses met the threshold of signal significance (Table 1). Patients under the age of 45 (ROR 65.73, 95% CI 61.83-69.88) and alopecia patients (ROR 33.62, 95% CI 25.22-44.82) had larger signals than older patients (ROR 30.43, 95% CI 27.12-34.15) and those with BPH (ROR 1.74, 95% CI 1.47-2.07). A signal was detected for minoxidil (ROR 1.92, 95% CI 1.54-2.38).

CONCLUSIONS: We detected disproportional signals of sexual dysfunction linked with finasteride use. Despite sexual dysfunction being more prevalent in older BPH patients, we detected larger signals of sexual dysfunction in young alopecia patients. Sensitivity analyses suggest that reports of sexual dysfunction linked with finasteride use may be confounded by indication (young alopecia patients may be more likely to experience sexual dysfunction) and by stimulated reporting. However, confounding alone does not account for the totality of the signal observed in young patients with alopecia considering the large difference in signal size between finasteride and minoxidil.

Adverse event	Count	Expected Count	Empirical Bayes Estimator (5th percentile)	Reporting Odds Ratio (95% CI)
By Indication (BPH vs. alopecia with finasteride)				
BPH	165	104.79	1.37	1.74 (1.47-2.07)
Alopecia	2425	1611.42	1.45	33.62 (25.22-44.82)
By Age (<45 y and ≥45 y with finasteride)				
<45 y	1329	26.38	48.03	65.73 (61.83-69.88)
≥45 y	329	12.30	24.18	30.43 (27.12-34.15)
Of Other Drugs				
Tamsulosin	711	57.72	11.53	13.03 (12.08-14.05)
Minoxidil	83	43.49	1.57	1.92 (1.54-2.38)
Dutasteride	430	17.61	22.28	26.77 (24.24-29.56)
By Period				
Before 2012	1396	73.93	18.02	22.02 (20.80-23.31)
After 2012	6304	115.50	53.37	79.63 (77.32-82.01)

Source of Funding: none

PD20-09

PREVALENCE AND SEVERITY OF OBSTRUCTIVE SLEEP APNEA (OSA) IN MEN WITH TESTOSTERONE DEFICIENCY (TD)

Carolyn Salter, Jose Flores, Elizabeth Schofield, Miranda Tan, John Mulhall, New York, NY*

INTRODUCTION AND OBJECTIVE: OSA is a common condition in the general population. Since untreated OSA can contribute to elevated hematocrit (HCT) levels and other negative health consequences, there may be value to screening men prior to initiation of testosterone therapy (TTH). The purpose of this study was to describe OSA rates in men with TD prior to initiation of TTH.

METHODS: This ongoing study included men seen in a sexual medicine clinic with TD. They were asked to complete two screening questionnaires for daytime sleepiness and OSA, respectively: the Epworth Sleepiness Scale (ESS) and the STOP-BANG (SB). ESS ranges from 0-24 and SB 0-8. Men whose scores indicated intermediate to high risk of OSA were advised to undergo a diagnostic sleep study which evaluated apnea hypoxia index (AHI, normal <5 events/h), total duration SpO2 saturation <88% and SpO_2 nadir. Descriptive statistics are presented.

RESULTS: 152 men have completed the questionnaires with a mean age of 62±10 years. Baseline total T level was 296±103 ng/dL, baseline HCT was 43±4%. Median SB score was 4 (IQR 3-6). Median ESS score was 5 (IQR 3-8). 58% screened positive for OSA and were referred for sleep study; 88% of sleep studies resulted in a diagnosis of OSA. Mean AHI of the group was 19±14 events/hour (range 0.7-54.3 events/hour) with 52% having moderate or severe OSA (AHI >15/hour). SpO_2 nadir was 80±7% (range 63-90%) with 67% having a nadir in the 80s, 24% in the 70s and 10% in the 60s. Mean total duration SpO2 ≤88% was 25±32 minutes (range 0.1-151.6 minutes) with 47% of men <10 minutes and 6% >80 minutes.

CONCLUSIONS: These data demonstrate that about half of men with TD screen positive for OSA using the SB questionnaire and the vast majority of them were formally diagnosed with OSA. Given the health risks associated with untreated OSA, especially developing polycythemia on TTH, we advocate screening such men for OSA prior to commencement of TTH.

Source of Funding: none

PD20-10

FACTORS INFLUENCING LONG-TERM ERECTILE FUNCTION FOLLOWING PROSTATE BRACHYTHERAPY

Nelson Stone, Ren-Dih Sheu, Barry Rosenstein, Richard Stock, New York, NY*

INTRODUCTION AND OBJECTIVE: Men often elect prostate brachytherapy because it is thought to be superior to surgery in preserving erectile function (EF). However, there are no long-term prospective studies that utilize validate instruments to know which treatment related factors influence erectile dysfunction (ED).