within the reference curve of the gender assigned at birth. A possible explanation might be sought in the phenomenon of programming, which conceptualizes that stimuli during critical windows of development can have major consequences throughout one's lifespan. Therefore, this study adds insights into sex-specific bone geometry development during puberty of transgender adolescents treated with GnRHa, as well as the general population.

Reproductive Endocrinology

TRANSGENDER CARE

Effect on Kidney Function During Gender Affirming Hormonal Treatment in Transgender Individuals

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Background: Accurate interpretation of laboratory values with sex-specific reference ranges presents a challenge in transgender individuals on gender affirming hormone therapy (GAHT). Creatinine (Cr), the most common marker used for kidney function, varies significantly with body mass and composition. Both Modification of Diet in Renal Disease (MDRD) and Chronic Kidney Disease Epidemiology Collaboration (CKD-Epi) equations account for sex in estimating glomerular filtration rate. GAHT can effect Cr values in 2 potential ways: 1) by causing changes in muscle mass and body fat redistribution as early as 3 months after GAHT initiation and 2) by direct effects of sex hormones on kidney function. Previous studies have shown Cr values approaching affirmed gender identity as early as 6 months when on GAHT without mention of sex steroid levels. In this study we sought to describe the changes in serum Cr after initiation of GAHT in an effort to better understand expected changes and interpretation of lab data in TG individuals.
Methods: A retrospective chart analysis on all adult TG patients initiated on GAHT at our institution from January 2011 to 2020 was completed. We reviewed demographics, baseline health information, body mass index, and lab values including Cr, sex hormone levels, A1C, and fasting blood glucose. Lab values were obtained prior to GAHT, at the start of GAHT, at 3, 6, and 12 months after GAHT. Matched pair testing was conducted with sex steroid levels and Cr values in transgender men (TM) on testosterone and transgender women (TW) on estradiol in order to compare the median pre GAHT Cr to median Cr levels at 3, 6, and 12 months.
Results: 84 TW with a median age of 30 and 24 TM with a median age of 23 were included for analysis. TW and TM had a low rate of existing kidney disease (4.9%, 0%), diabetes mellitus (4.8%, 0%), and hypertension (10.8%, 4.5%) respectively. TW on GAHT achieved a goal estradiol level (≥100 pg/ml) at a rate of 37.3%, 51.7%, and 71.1% and suppressed testosterone to a goal level (<60ng/ml) at a rate of 44.4%, 54.7%, and 76.5% at 3, 6, and 12 months respectively. There was no significant change in Cr values at 3 months, but significantly decreased on average by -0.07 (p<0.001) at 6 months, and by -0.09 (p<0.001) at 12 months. TM on GAHT achieved a goal testosterone level (≥240 ng/dl) at a rate of
64.3%, 80.0%, and 72.3% at 3, 6, and 12 months respectively. Cr values increased significantly on average by 0.14 (p=0.036) at 3 months, by 0.21 (p=0.004) at 6 months, and by 0.15 (p=0.003) at 12 months.
Conclusions: In TW on GAHT, clinicians can consider using affirmed gender Cr reference ranges as early as 6 months. Similarly in TM on GAHT, affirmed gender Cr reference ranges can be used as early at 3 months. It remains to be seen whether changes in Cr levels reflect changes in sex steroid levels or sex steroid direct effects. Additionally, research is needed to determine if change in Cr levels reflect true changes in GFR.

Reproductive Endocrinology

TRANSGENDER CARE

First Evidence of Cardiopulmonary Adaptation to Physical Effort in Transgender Women After Long-Term Hormone Therapy: A Cross-Sectional Study

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Introduction: Cisgender men (CM) and women (CM) present different acute cardiopulmonary (CP) adaptation to effort. The smallest arteriovenous difference in oxygen (O2) and cardiac output (CO) in CW determine a lower maximum VO2 (VO2max) than CM. CP capacity adaptation to effort of TW undergoing gender-affirming hormone therapy (GAHT) was not yet reported. **Objective:** To evaluate CP capacity of TW in long-term GAHT. **Methods:** A cross-sectional study was carried out with 8 TW (average age of 34.0 ±4.8 yo), 8 CM and 8 CW matched on age, body mass index and activity level. All TW were non-gonadectomized subjects and were in estrogen [transdermal estradiol (n=2), oral estradiol (n=3) and conjugated estrogen (n=3)], plus cyproterone acetate (n=8) therapy in an average time of 15.6 ±8.7 years. Body composition was assessed by InBody 720, and participants' level of physical activity by IPAQ (International Physical Activity Questionnaire) short form. Total testosterone (ng/dL) levels of TW, CW and CM were 83,5 (12,0;637,0), 20,5 (12,0;41,0) and 480,5 (264,0;843,0), respectively. Hemoglobin levels of TW, CW and CM were 14,2 (13,5;14,9), 14,35 (12,8;14,7) and 15,35 (14,0;18,2), respectively. Everyone performed a CP exercise testing on a treadmill with an incremental effort. **Results:** Mean VO2max (L/min) in the group of TW was 2648±575.5, of CW 2128±394.0 and of CM 3235±554.0 (TWvsCW p=0.1311; TWvsCM p=0.0806; CWvsCM p=0.009). Free fat mass (FFM) of TW was 55.56±6.88 kg, CW 38.98±4,09 kg, and CM 64,98±6,29 kg (TWvsCW p<0,0001; TWvsCM p=0,024; CWvsCM p<0,0001). Analysis of VO2max/FFM (L/min/kg), TW´s rate was 46.6±6.2, CW´s was 54.6±8.4 and CM´s was