hyperprolactinemia or PrL who were treated at Allegheny Health Network (Pittsburgh, PA) between January 1, 2016 and December 31, 2019. Serum prolactin and testosterone (T) levels, and pituitary tumor size (microadenoma <10mm, macroadenoma 10-39mm, or giant adenoma ≥ 40 mm) on MRI scan at diagnosis and up to 2 years follow up were analyzed. HGo was defined as serum T below reference range at diagnosis. HGo recovery was defined as total T in the reference range within 2 years from PrL treatment onset in the absence of T replacement.

Results: We screened 215 male patients who met initial search criteria. Of the 37 subjects who met eligibility criteria, 26 had HGo while 11 had normal serum T (Fig 1). Mean age of men with HGo was 44.6 ± 13.7 years (range 21 – 64). Median serum prolactin at diagnosis was 283.5 ng/mL (range 31-14,830), and mean serum T was 167.07 ± 61.12 ng/dL. Median tumor (max) diameter was 17.5 mm (range 4-81mm). Of the included 26 patients 20 (77%) achieved normal prolactin with therapy after a median of 5 months. Only 10 of the 26 men with HGo (38.5%) attained recovery of HGo following treatment of PrL, and the mean time to recovery was 8.8 ± 6.9 months. HGo recovery was predictably more common in persons with microadenoma (n=6) while none of patients with giant Prl achieved HGo recovery. Baseline serum prolactin and T levels and baseline tumor size predicted subsequent HGo recovery, while age did not. Baseline serum prolactin was lower in men whose HGo recovered (median = 105 ng/mL, IQR = 202) than in men who did not (median = 931 ng/mL, IQR = 3714); p = 0.014. Baseline serum T was higher in men who attained HGo recovery (173.2 ± 59.6) than in men who failed to do so (103.1 ± 85.9); p = 0.03. Mean tumor size was significantly smaller in men who attained HGo recovery (max diam: 9.8 ± 5.5 mm) than in men who did not (31.8 ± 20.3 mm); p = .003. There were no statistically significant differences between men categorized by remission status with respect to age (p = .367) nor weight at the time of diagnosis (p = .591).

Conclusion: In this retrospective study of 26 males with PrL and low T at presentation, 38.5% achieved HGo recovery. Lower baseline serum prolactin, smaller tumor size and higher baseline T predicted recovery of HGo, while presenting age and weight did not. This study was limited by its retrospective nature and small sample size.

Neuroendocrinology and Pituitary

NEUROENDOCRINOLOGY AND PITUITARY CLINICAL ADVANCES

Relationship Between 24-Hour Serum LH and Testosterone Concentrations and Their Interrelationships With Other Pituitary Hormones in Healthy Older Men

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Background: With ageing, LH levels rise while T levels decline in men, although this decline in T levels could also be caused by a change in health status, including body composition, inflammation, and comorbidities. Not only levels of LH and T change with age, but levels of other pituitary hormones also change concomitantly with age. It could be hypothesized that these hormonal changes are synchronized with each other.

Objective: In this study, we aimed to determine the relationship between 24-h serum LH and T concentrations in healthy older men. Besides, we aimed to determine which health factors, including body composition, metabolic and inflammatory markers, and LH-T related markers are associated with the strength of this LH-T relationship. Furthermore, we explored the interrelationships between LH and T with 24-h serum concentrations of GH, TSH, cortisol, and ACTH.

Design: Hormones were measured in serum samples collected every 10 min during 24 h from 20 healthy men, comprising 10 offspring of long-lived families and 10 control subjects, with a mean (SD) age of 65.6 (5.3) years. We performed cross-correlation analyses to assess the relative strength between two 24-h hormone concentration series for all possible time shifts.

Results: A mean (95% confidence interval) maximal correlation coefficient of 0.21 (0.10 – 0.31) at lag time 60 min was found between LH and total T concentrations. Results were comparable for calculated free, bioavailable, or secretion rates of T. Men with strong LH-T cross-correlations had, compared to men with no LH-T relationship, lower fat mass (18.5 (14.9 – 19.7) vs. 22.3 (18.4 – 29.4) kg), waist circumference (93.6 (5.7) vs. 103.1 (12.0) cm), hsCRP levels (0.7 (0.4 – 1.3) vs. 1.8 (0.8 – 12.3) mg/L), IL-6 levels (0.8 (0.6 – 1.0) vs. 1.2 (0.9 – 3.0) pg/mL), and 24-h mean LH levels (4.3 (2.0) vs. 6.1 (1.5) U/L), and stronger LH-T feedforward synchrony (1.5 (0.3) vs. 1.9 (0.2)). Furthermore, T was positively cross-correlated with TSH (0.32 (0.21 – 0.43)), cortisol (0.26 (0.19 – 0.33)), and ACTH concentrations (0.26 (0.19 – 0.32)).

Conclusions: LH concentrations were followed by T concentrations/secretion with a delay of 60 min in healthy older men, which is in line with literature. Men with a strong LH-T relationship had more favorable body composition, inflammatory markers, 24-h mean LH levels, and LH-T feedforward synchrony. In contrast, chronological age and 24-h mean T levels were not associated with the strength of the LH-T relationship. This observation could indicate that LH and health markers play a bigger role in determining the strength of LH-T cross-correlations than T and chronological age. Furthermore, we observed positive correlations between T and TSH, cortisol, and ACTH concentrations. These exploratory analyses could indicate that T and other hormones are driven by a common regulator or that there is crosstalk between these hormones.

Neuroendocrinology and Pituitary

NEUROENDOCRINOLOGY AND PITUITARY CLINICAL ADVANCES

Relationship Between Oxytocin Levels and Brain Volume in Anorexia Nervosa Compared to Healthy Controls

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