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Conclusion and relevance

Men with early-onset AGA and at least one among the following parameters BMI > 25 kg/m², IR, SHBG < 25 nmol/l had a borderline-low left TV and a impaired gonadal steroidogenesis. Hence, they might have a greater risk to develop a gonadal dysfunction later in life. These criteria may be used to suspect the male PCOS-equivalent.

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EP1164

Improved conception of the normative values of testosterone in men with type 2 diabetes

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Background

Men with type 2 diabetes mellitus (T2DM) have significantly lower levels of testosterone (T) than nondiabetic controls. But androgen deficit symptoms may be detected in males with normal T levels.

Aim

To analyze parameters of lipid, carbohydrate metabolism and endothelial function in diabetic males with low normal and middle-to-high normative T levels.

Patients and methods

We examined 86 men with T2DM and serum T levels higher than 12.1 nmol/l. Parameters of total T, lipid metabolism, HbA1c, biochemical markers of endothelial function – NO, endothelial NO synthase type 3 (NOS3) were analyzed. The patients were divided into two groups: 1–23 men with T levels 12.1–14.9 nmol/l, 2–63 patients with T levels ≥ 15.0 nmol/l. Statistic analysis was performed using Mann-Whitney U-test and Spearman rank correlation method.

Results

The HbA1c value was 8.7% (6.7; 9.8) in 1st group and 7.7% (6.4; 9.2) in 2nd group ($P > 0.39$), but the proportion of patients with HbA1c level > 7% was higher in group 1 (71% vs 58.6%) as compared to group 2 ($P = 0.002$). In patients with T levels lower than 15.0 nmol/l, higher levels of serum cholesterol (38.1% vs 27.6%), triglycerides (40.0% vs 24.1%) and low density lipoproteins (26.3% vs 17.2%) as compared to the 2nd group were found ($P < 0.01$). There was a significant correlation in the T concentrations with NOS3 levels $|r| = 0.350$ in 1st and $|r| = 0.266$, ($P < 0.05$) in 2nd group. Vascular endothelial dysfunction as assessed by ultrasonographic measurement of the dilatation of the brachial artery was more frequent in patients of group 1 compared to group 2 (55.6% vs 23.8%, $P = 0.02$).

Conclusion

Males with T2DM and low-normal T level are at higher risks of dyslipidemia, endothelial dysfunction and progression of T2DM as compared to men with serum T higher than > 15 nmol/l.

Acknowledgments

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EP1165

Endothelial dysfunction, inflammation and insulin resistance in patients with Klinefelter Syndrome

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Introduction

The prevalence of cardiometabolic disorders such as type 2 diabetes mellitus, dyslipidemia and metabolic syndrome is increased in patients with Klinefelter syndrome (KS). The mechanism by which cardiometabolic risk increases in patients with KS remains to be completely elucidated. We investigated the presence of inflammation, insulin resistance and endothelial dysfunction in an unconfounded population of KS.

Methods

A total of 31 patients with KS (mean age 21.59 ± 1.66 years) and 33 healthy control subjects (mean age: 22.15 ± 1.03 years) were enrolled. The demographic parameters, Asymmetric dimethylarginine (ADMA), high sensitive C reactive protein (hs-CRP) and homeostatic model assessment of insulin resistance (HOMA-IR) levels were measured in patients and controls.

Results

The patients had higher insulin, HOMA-IR and ADMA levels ($P < 0.001$ for all) and lower HDL-C ($P = 0.002$) and total testosterone ($P < 0.001$) levels, compared to the healthy controls. There were significant negative correlations between the total testosterone levels and ADMA ($r = -0.479$, $P < 0.001$), hsCRP ($r = -0.291$, $P = 0.034$), and significant positive correlation with HDL-C ($r = 0.429$, $P = 0.001$) levels. The multivariate analysis has shown that total testosterone ($\beta = -0.412$, $P = 0.001$) and TG ($\beta = 0.332$, $P = 0.009$) levels were the significant independent determinants of the plasma ADMA levels.

Conclusion

The results of the present study show that endothelial dysfunction and insulin resistance are prevalent even in the very young subjects with KS, who have no metabolic or cardiac problems at present.

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EP1166

Testosterone is poorly related to erectile dysfunction in young/middle aged human immunodeficiency virus-infected men

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Background

human immunodeficiency virus (HIV)-infection is strongly associated to erectile dysfunction (ED) in men. Preliminary data suggests that ED is poorly associated with serum T in HIV+ men.

Aim

To investigate in HIV-infected men the relationship between sexual function as assessed by the validated International Index of Erectile Function (IIEF-15) and T deficiency using Liquid Chromatography-tandem Mass Spectrometry (LC-MS/MS).

Methodology

Prospective, cross-sectional, observational study on HIV-infected male patients with ongoing Highly Active Antiretroviral Therapy (HAART), attending the Clinic of Infectious Diseases. IIEF-15 and IIEF-5 questionnaires were used to define ED, while LC-MS/MS was used for hormonal assays.

Results

233 consecutive HIV-infected patients were enrolled (mean age 45.29 ± 5.33 years). Eight patients (3.4%) had total T < 300 ng/dl, while 142 patients (61.5%) had ED (score ≤ 25). Age, hormonal data and duration of HIV-infection and HAART did not differ among groups of patients according to the degree of ED. The direct comparison of each ED cluster showed that months of infection were significantly higher in men with severe ED compared to mild ED ($P = 0.037$). The erectile function domain at IIEF-15 was directly correlated with IIEF-5 score (0.778, $P < 0.001$), as expected. Moreover, the IIEF-15 score was inversely related to months of infection (-0.147 , $P = 0.026$), but not to months of HAART therapy (-0.121 , $P = 0.071$).

Conclusions

To the best of our knowledge, this is the first, properly-designed prospective study aiming to investigate the relationship between erectile function and serum T, assessed by LC-MS/MS in HIV-infected men. In our cohort, i) IIEF-5 is reliable as IIEF-15 for ED diagnosis, ii) ED is not associated with serum T, iii) erectile

function is not influenced by T and HAART, but only by HIV-infection duration. In conclusion, several specific factors, such as the duration of HIV infection, are involved in erectile function in HIV-infected men and should be carefully considered in this setting, while hormonal status seems to be less important.

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EP1167

Early arterial stiffness and chronic inflammation in male equivalents of polycystic ovary syndrome

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Introduction

There is some evidence that a rise in the androgen hormone levels increases the risk for the development of a cardiovascular disease, obtained from the studies conducted on women with polycystic ovary and on men with androgenic alopecia. Inflammatory substances tend to increase in polycystic ovary syndrome and in androgenic alopecia. On this basis, we conducted a study that aimed to evaluate the early cardiovascular and metabolic effects in male patients with androgenic alopecia.

Methods

A total of 81 people, of whom 41 were patients with androgenic alopecia and 40 were healthy controls, were included in the study. Aged from 25 to 45, none of them had any cardiovascular risk factors, malignancy, any active infections and any liver or kidney diseases. Ambulatory blood pressure was measured for 24 h and sensitive CRP and galectin-3 were studied so as to assess the cardiovascular and metabolic risk.

Results

There were no differences between the patient and control groups in terms of ambulatory blood pressure of 24 h, sensitive CRP and galectin-3. A positive correlation was found in the patient group between sensitive CRP and waist and neck circumferences. While there was a positive correlation in the patient group between galectin-3 and HOMA-IR, waist and neck circumferences, a negative correlation was seen with free testosterone. Alopecia level correlated positively with daytime pulse wave velocity and night time reflection magnitude.

Conclusion

We did not find any difference in our study in terms of arterial stiffness and chronic inflammation in the early period when the control and androgenic alopecia groups were compared; however, a positive correlation between alopecia level and daytime pulse wave velocity and night time reflection magnitude may be considered as an early signal for atherosclerosis.

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EP1168

Abstract withdrawn.

EP1169

Can salivary testosterone be used in the monitoring of men using transdermal testosterone replacement therapy?

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In community-dwelling men, salivary testosterone (Sal-T) concentrations are thought to represent tissue hormone levels and correlate strongly with serum free-T levels. Measurement of salivary glucocorticoid concentrations is a non-invasive and objective means of assessing cortisol exposure in users and non-users of hydrocortisone therapy. We assessed relationships of Sal-T with transdermal testosterone replacement therapy (TD-TRT) and with markers of testosterone exposure. In 40 men aged 50.7 (± 13.9) years who were attending a university hospital endocrinology clinic, we measured serum and salivary androgen concentrations by immunoassay and liquid chromatography tandem mass spectrophotometry (LC-MS/MS) respectively. In our unit, TD-TRT (Tostran 2% Gel at an initial dose of 30–60 mg of testosterone once daily) is offered to men with sexual symptoms and low fasting serum testosterone (Ser-T) concentrations on at least two consecutive occasions. Ser-T concentrations did not differ between users ($n=23$) and non-users ($n=17$) of TD-TRT (16.6 ± 10.2 vs 11.4 ± 4.4 nmol/l, $P=0.131$). Sal-T concentrations, however, differed greatly (17.14 ± 15.25 vs 0.23 ± 0.15 nmol/l, $P < 0.001$) as did salivary androstenedione (Sal-A4) concentrations (2.57 ± 4.50 vs 0.17 ± 0.04 nmol/l, $P < 0.001$) and Sal-T/Sal-A4 (16.26 ± 14.25 vs 1.45 ± 0.94 , $P < 0.001$). Haematocrit and serum prostate specific antigen concentrations (PSA) did not differ significantly between the two groups (0.44 ± 0.05 vs 0.43 ± 0.05 l/l, $P=0.563$ and 1.06 ± 0.66 vs 0.79 ± 0.53 ng/ml, $P=0.170$ respectively). With TD-TRT, there was a rise in blood testosterone (4.7 ± 4.2 to 7.9 ± 5.7 nmol/l, $P=0.162$), haematocrit (0.42 ± 0.05 to 0.44 ± 0.04 l/l, $P=0.049$) and PSA (0.68 ± 0.33 to 1.06 ± 0.76 ng/ml, $P=0.021$) levels. Two hours after a dose of TD-TRT, Ser-T rose modestly (10.5 ± 13.2 to 16.6 ± 11.0 nmol/l, $P=0.003$) and Sal-T rose tremendously (7.7 ± 8.1 to 17.0 ± 16.9 nmol/l, $P=0.004$). Despite normal Ser-T, haematocrit and PSA concentrations, Sal-T concentrations are 75-fold greater than normal in men using TD-TRT. This is unlikely due to contamination (Sal-A4 concentrations are also high) and may be due to a conduit between skin, the lymphatic system and salivary ducts. Measurement of Sal-T is unlikely to be useful in the monitoring of men using TD-TRT.

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EP1170

Changes of dihydrotestosterone within the life in men

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Abstract

Dihydrotestosterone (DHT) is the most powerful naturally occurring androgen with three to six times higher biopotency than testosterone. Time onset of benign prostatic hyperplasia and alopecia in middle life could be the result of an imbalance between androgens. The decline of testosterone during lifespan is well known, controversial data can be found concerning the age dependence of DHT levels. We analysed the levels of testosterone, dihydrotestosterone and SHBG from 3076 men and we observed changes of their relationship and the ratio of total and free fraction of T and DHT, depending on age in men. We found that the DHT/T and fDHT/fT ratios during the life of adult males are constant, and that there is no evidence of a reversal in ratios of these hormones after puberty. Given that the ratio DHT/T remains constant during the age, the role in the development of androgenic alopecia and benign prostatic hyperplasia is rather unlikely. The question remains, however, local status in androgen-dependent tissues, which would change the expression of enzyme, it could be caused just by local change in this ratio. This study was supported by the project MZCR for conceptual development of research organization 00023761 Institute of Endocrinology and grant 17-28692A.

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