Endocrine Abstracts

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Gonadal Function in Human Immunodeficiency Virus (HIV)-Infected Men: comparison between Isotopic Dilution-Liquid Chromatography-Tandem Mass Spectrometry (ID-LC-MS/MS) and Chemiluminescent Immunoassay (CI).

Sara De Vincentis1,2, Maria Chiara Decaroli1,2, Flaminia Fanelli3, Marco Mezzullo1, Chiara Dizaji2, Fabio Morina1, Davide Bertani1, Daniele Santi1,2, Enrica Baraldi1, Simonetta Tagliavini1, Laura Rolì4, Tommaso Trenti1, Uberto Pagotto1, Giovanni Guaraldi2 & Vincenzo Rochira4

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Background
HIV-infection is associated to premature decline of serum T. However, prevalence and biochemical characterization of hypogonadism in HIV-infected men are still to be well defined.

Aim
To evaluate the gonadal status in HIV-infected men by assessing circulating total T (TT) with either ID-LC-MS/MS or CI.

Methods
Prospective, cross-sectional, observational study on HIV-infected men with ongoing Highly Active Antiretroviral Therapy (HAART). Serum TT, gonadotropins and sex hormone-binding globulin (SHBG) were measured by CI (Architect, Abbott, USA). TT was also assessed by a validated in house ID-LC-MS/MS. Free T (FT) was calculated by Vermeulen equation. Hypogonadism was defined as serum TT levels below 320 ng/dl and/or free T levels below 4.3 pmol/l in women and 6.2 pmol/l in men > 50 years old (n=33); < 6.2 pmol/l in women < 50 years old (n=34) and < 4.3 pmol/l in women > 50 years old (n=23).

Results
315 consecutive HIV-infected men were enrolled (mean age 45.56 ± 6.16 years; average duration of HIV-infection 16.57 ± 10.45 years). Serum TT levels assessed by LC-MS/MS (mean 652.1 ± 229.1 ng/dl) were significantly lower compared to CI (mean 740.2 ± 274.7 ng/dl) (P < 0.0001). As a consequence, prevalence of T deficiency was significantly higher comparing LC-MS/MS to CI (5.4% vs 3.2%, P < 0.0001). FT assessed by LC-MS/MS was significantly lower compared to CI (Beta = 0.956, R² = 0.913, P < 0.0001), as well as FT (Beta = 0.934, R² = 0.873, P < 0.0001). TT combined with luteinizing hormone (LH) levels was used to classify hypogonadism. By including compensated form of hypogonadism, the prevalence raised to 15.6% for TT and to 17% for FT.

Conclusions
To the best of our knowledge, this is the first properly-designed prospective study aiming to investigate the gonadal status of HIV-infected men with both LC-MS/MS and CI, together with gonadotropins. Notwithstanding the strong correlation found between the two methodologies, the prevalence of hypogonadism results underestimated when CI is used compared to ID-LC-MS/MS in HIV-infected patients. In clinical practice, SHBG for calculated FT is essential for the detection of T deficiency, revealing the real prevalence of hypogonadism in this clinical setting.

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P321
Automated free testosterone assay: validation and usual values
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Introduction
Testosterone circulates under different forms in blood, mainly bound to proteins i.e. Sex Hormone Binding Globulin (SHBG) and albumin. Free testosterone (FT), the biologically active form, represents 2% of total testosterone (TT). FT measurement is mainly indicated when TT level is discordant with clinical picture but remains technically challenging. Indeed, as for all free hormones, gold standard method relies on equilibrium dialysis, unusable in routine. Direct immunoassays by competition have thus been designed, traditionally based on sensible radioactive detection signal (RIA). FT can also be calculated from TT, SHBG and albumin levels. Our work aimed to compare a new automated immunoassay to preexisting dosages and to propose adapted usual values.

Materials and methods
Analytical performances of this new FT assay were evaluated. FT was therefore determined in 164 patients (68 women, 96 men) using the new immunoassay (IS-5300, IDS-iSYS Free Testosterone), a RIA immunoassay (KIPv0000, DIAsource), and a calculation based on TT (RIA TESTO-CT2, Cisbio), SHBG, and albumin (Cobas ROCHE) concentrations. Usual values for the new dosage were established.

Results
Analytical performances of the new assay claimed by the manufacturer were confirmed and comparable with those of the RIA assay except for a higher detection limit. Correlation between immunoassays was satisfactory in men (R² = 0.77) but weaker in women (R² = 0.15 and 0.13). Calculated FT was much higher than measured FT, as the corresponding reference values proposed by the manufacturers. This discrepancy was confirmed by the analysis of external quality controls results whatever the direct immunoassays were used.

Discussion
This work aimed to compare a new automated immunoassay to preexisting dosages and to propose adapted usual values.

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P322
Assessment of biochemical hyperandrogenism in PCOs by liquid chromatography tandem mass spectrometry using a multistroid kit: focus on testosterone and androstenedione
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Objective
The identification of hyperandrogenism represents the cornerstone for the assessment of polycystic ovary syndrome (PCOs). However, its definition has always been troubling, mostly because of the poor accuracy shown by routine
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