TESTOSTERONE AND MALE INFERTILITY
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Testosterone is one of the essential hormones to maintain spermatogenesis. In this symposium, we would like to discuss the role of testosterone focusing on the association with male infertility based on the findings achieved by our department as well as those reported in previous literatures.

- Male Hypogonadotropic Hypogonadism (MHH)
  MHH is a secondary hypogonadism, caused by hypersecretion of gonadotropins. MHH is a rare disorder; however, it is one of the few conditions in which fertility can be expected with medical procedures. HCG and recombinant human FSH are generally administered as therapeutic agents. Even though a patient shows azoospermia before treatment, ejaculate sperm can be expected to be achieved after adequate treatment.

- Non Obstructive Azospermia (NOA)
  Microscopic testicular sperm extraction (micro-TESE) is often performed for NOA patients. Various predictors for predicting sperm retrieval have been investigated, in order to avoid unsuccessful sperm retrieval; however, testosterone has not been regarded as a powerful predictor of sperm retrieval. Aromatase inhibitors are sometimes used for patients with abnormal testosterone/estradiol ratios in order to improve spermatogenesis.

- Varicocele
  Although the efficacy of varicocelectomy on spermatogenesis is still under discussion, numerous studies distinguish efficacy of varicocelectomy for men with palpable varicoceles. Our meta-analysis showed that serum testosterone increases after varicocelectomy, which could be due to improvement of the function of testicular Leydig cells.

- 5α-reductase inhibitors
  Low dose finasteride (5α-reductase inhibitor) is commonly used for androgenic alopecia (AGA). Because AGA patients are often younger and of reproductive age, its influence on male fertility becomes an important issue. Low dose finasteride does not always result in spermatogenic failure; however, it might have negative effect on spermatogenesis in some cases. When finasteride is administered in infertile patients with impaired semen parameters, cessation of the drug might be one of the treatment options.

Aims
To evaluate the effects of TU i.m., and if desired, the PDE-5 inhibitor vardenafil (PDE-5) in LOH patients with ED measured with the International Index of Erectile Function (IIEF-5).

Methods
A prospective study was performed following four administrations of TU in week 0, 6, 18, 30. If no improvement of ED assessed with IIEF-5 or the Global Assessment Questionnaire (GAQ) in week 12, the PDE5 inhibitor vardenafil was added. The final evaluation was in week 46.

Main outcome measures
Aging Male Symptom (AMS) score, IIEF-5 score, and International Prostate Symptom Score (IPSS) at each visit were summarized as mean with standard deviation; while GAQ was summarized using frequency and percentage. Scores at each visit were also categorized into different levels of symptom severity.

Results
AMS score decreased significantly at week 12, 30 and 46. IIEF-5 score increased but a significant change was found only at week 30 and 46. The GAQ assessment indicated erection and sexual intercourse already improved at the first assessment continuing thereafter. IPSS score decreased from baseline at week 46. Levels of total, free and bioavailable testosterone had increased significantly from baseline at all visits. Hematocrit, hemoglobin and prostate specific antigen increased significantly from baseline. Adverse events were rare with pain at injection site found in one patient. The two events were non-serious in type, mild in their intensity and recovered.

Conclusions
Therapy with TU and, and if desired, combined with the PDE5 inhibitor vardenafil improved sexual activity in LOH patients with ED.

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A PROSPECTIVE, MULTICENTER STUDY ON EFFICACY OF LONG-ACTING TESTOSTERONE UNDECAANOATE, IF DESIRED IN COMBINATION WITH VARDENAFIL, IN LATE ONSET HYPOGONADAL PATIENTS WITH ERECTILE DYSFUNCTION

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Introduction
There is substantial evidence suggesting the additive effect on erectile function (ED) of testosterone and phosphodiesterase (PDE)-5 inhibitors. But the combination of long-acting testosterone undecanoate (TU), in combination with the PDE-5 vardenafil men with late-onset hypogonadal patients (LOH) with (ED) has not yet been studied.

Aims
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