Kyzatrex® (testosterone undecanoate) – New drug approval

- On July 27, 2022, the FDA approved Marius Pharmaceuticals' Kyzatrex (testosterone undecanoate), for testosterone replacement therapy in adult males for conditions associated with a deficiency or absence of endogenous testosterone:
    - Primary hypogonadism (congenital or acquired): testicular failure due to conditions such as cryptorchidism, bilateral torsion, orchitis, vanishing testis syndrome, orchiectomy, Klinefelter syndrome, chemotherapy, or toxic damage from alcohol or heavy metals. These men usually have low serum testosterone concentrations and gonadotropins (follicle-stimulating hormone [FSH], luteinizing hormone [LH]) above the normal range.
    - Hypogonadotropic hypogonadism (congenital or acquired): gonadotropin or luteinizing hormone-releasing hormone (LHRH) deficiency, pituitary-hypothalamic injury from tumors, trauma, or radiation. These men have low serum testosterone concentrations but have gonadotropins in the normal or low range.
- Safety and efficacy of Kyzatrex in males less than 18 years old have not been established.
- Testosterone undecanoate is also approved in oral formulations under the brand name Tlando™ and Jatenzo®. Both products are approved for a similar indication as Kyzatrex.
- The efficacy of Kyzatrex was established in a single-arm, open-label study of approximately 6 months of duration in 155 hypogonadal males. The primary endpoint was the percentage of Kyzatrex-treated patients with mean plasma total testosterone concentration (C_{avg}) over 24-hours within the normal range of 222 to 800 ng/dL on the final pharmacokinetic visit of the study at Day 90.
    - Overall, 88% (95% CI: 82, 93) of patients met the primary endpoint.
- Kyzatrex carries a boxed warning for blood pressure increases.
- Kyzatrex is contraindicated in:
    - Patients with carcinoma of the breast or known or suspected carcinoma of the prostate
    - Women who are pregnant
    - Patients with known hypersensitivity to Kyzatrex or any of its ingredients
    - Men with hypogonadal conditions, such as "age-related hypogonadism," that are not associated with structural or genetic etiologies.
- Additional warnings and precautions for Kyzatrex include polycythemia; cardiovascular risk; worsening of benign prostatic hyperplasia and potential risk of prostate cancer; venous thromboembolism; abuse of testosterone and monitoring of testosterone concentrations; not for use in women; potential for adverse effects on spermatogenesis; hepatic adverse events; edema; sleep apnea; gynecomastia; lipid changes; hypercalcemia; decreased thyroxine-binding globulin.
- The most common adverse reaction (≥ 2%) with Kyzatrex use was hypertension.
- The recommended starting dose of Kyzatrex is 200 mg orally twice daily, once in the morning and once in the evening. Kyzatrex dosage should be individualized based on the patient's serum testosterone concentration response to the drug. Refer to the drug label for complete dosing information.

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    - Kyzatrex is not substitutable with other oral testosterone undecanoate products.

- Marius Pharmaceuticals' launch plans for Kyzatrex are pending. Kyzatrex will be available as 100 mg, 150 mg, and 200 mg capsules.