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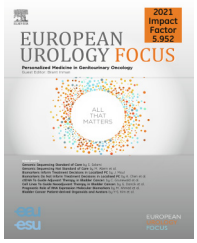

Clinical Studies Update

Patient Satisfaction After Switching to Jatenzo (Oral Testosterone Undecanoate): Update on an Open-label, Single-arm Clinical Trial

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1. Introduction

Testosterone deficiency (TD) is defined as inadequate testicular production and appears to affect at least 5% of men aged ≥30 yr [1–3]. TD results in clinical signs and/or symptoms of losses in lean muscle mass [4], bone mineral density [5], anemia [6], energy, and sexual function [7,8].

Patients with TD are candidates for testosterone therapy (TTh). Oral formulations are convenient and easy to use and avoid the side effects of other forms of TTh such as subcutaneous implantation, intramuscular injections, and skin-to-skin transference.

Jatenzo, a testosterone undecanoate (TU) capsule (Clarus Therapeutics, Northbrook, IL, USA), received US Food and Drug Administration (FDA) approval in 2020 and can safely restore patients with low testosterone to the reference range [9]. Historically, oral TTh formulations were linked to liver toxicity and lowering of high-density lipoprotein cholesterol. However, TU involves a unique self-emulsifying system that leads to greater lymphatic absorption and bypasses first-pass hepatic metabolism [10]. Patient satisfaction with this new form of TTh has yet to be investigated. We report data from a prospective, single-arm, open-label clinical trial evaluating satisfaction with Jatenzo among patients with TD previously treated with other forms of TTh.

2. Study details

2.1. Population

The study enrolled 40 adult males aged between 18 and 65 yr with TD adequately treated on TTh (biochemical testosterone levels between 300 and 1000 ng/dl). Before entering the trial, patients had to have completed an adequate washout period following prior TTh (4 wk for gels and injection-based therapies, or 16 wk for subcutaneous pellets). A formal diagnosis of TD was defined as two measurements of serum total testosterone <300 ng/dl in combination with clinical symptoms before initiation of Jatenzo [1]. Initial evaluation ensured the absence of laboratory abnormalities (such as hemoglobin >16 g/dl, hematocrit [HCT] <35% or >50%, and systolic blood pressure >150 mm Hg or diastolic blood pressure >90 mm Hg); cardiac abnormalities; and clinical conditions such as obstructive sleep apnea, breast cancer, prostate cancer, seizures, or a recent (within 6 mo) of stroke or myocardial infarction.

2.2. Intervention

Following the washout period, patients started Jatenzo 237 mg twice daily with food (morning and evening). Serum total testosterone was checked after completion of the washout period and at each subsequent follow-up visit. At the 1-mo follow-up visit, the Jatenzo dosage was titrated on the basis of total serum testosterone in accordance with FDA prescribing guidelines [11]. The 3-mo and 6-mo follow-up visits included a physical examination, laboratory stud-

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ies (Fig. 1), and assessment of treatment satisfaction and TD symptoms using validated questionnaires.

2.3. Primary outcomes

The primary outcomes were (1) changes in patient satisfaction measured using the Treatment Satisfaction Questionnaire for Medication (TSQM-9) relative to baseline and (2) changes in TD symptoms measured using the quantitative Androgen Deficiency in Aging Males (qADAM) questionnaire relative to baseline.

2.4. Statistical considerations

We hypothesized that patient satisfaction with Jatenzo is noninferior to that with other forms of TTh. Analyses were performed on the ongoing study population using SPSS software (SPSS Inc., Chicago, IL, USA). Statistical testing at a two-sided significance level of 0.05 was applied to assess the statistical significance of TSQM-9 and qADAM responses using a Mann-Whitney *U* test. The Shapiro-Wilk normality test was used to determine which test was appropriate.

3. Results

Of the 41 patients enrolled in the study, 46% were previously on subdermal pellets, 41% on intramuscular injections, and 13% on nasal gels. Testosterone levels increased from a baseline median of 192.0 ng/dl to 738.5 ng/dl (618.3–896.8) at 1 mo, 481.5 ng/dl (349.3–646.3) at 14 wk, and 575.0 ng/dl (336.0–680.5) at 6 mo. Some 24% of patients required uptitration, while none required downtitration. Patient satisfaction on oral TU in terms of TSQM-9

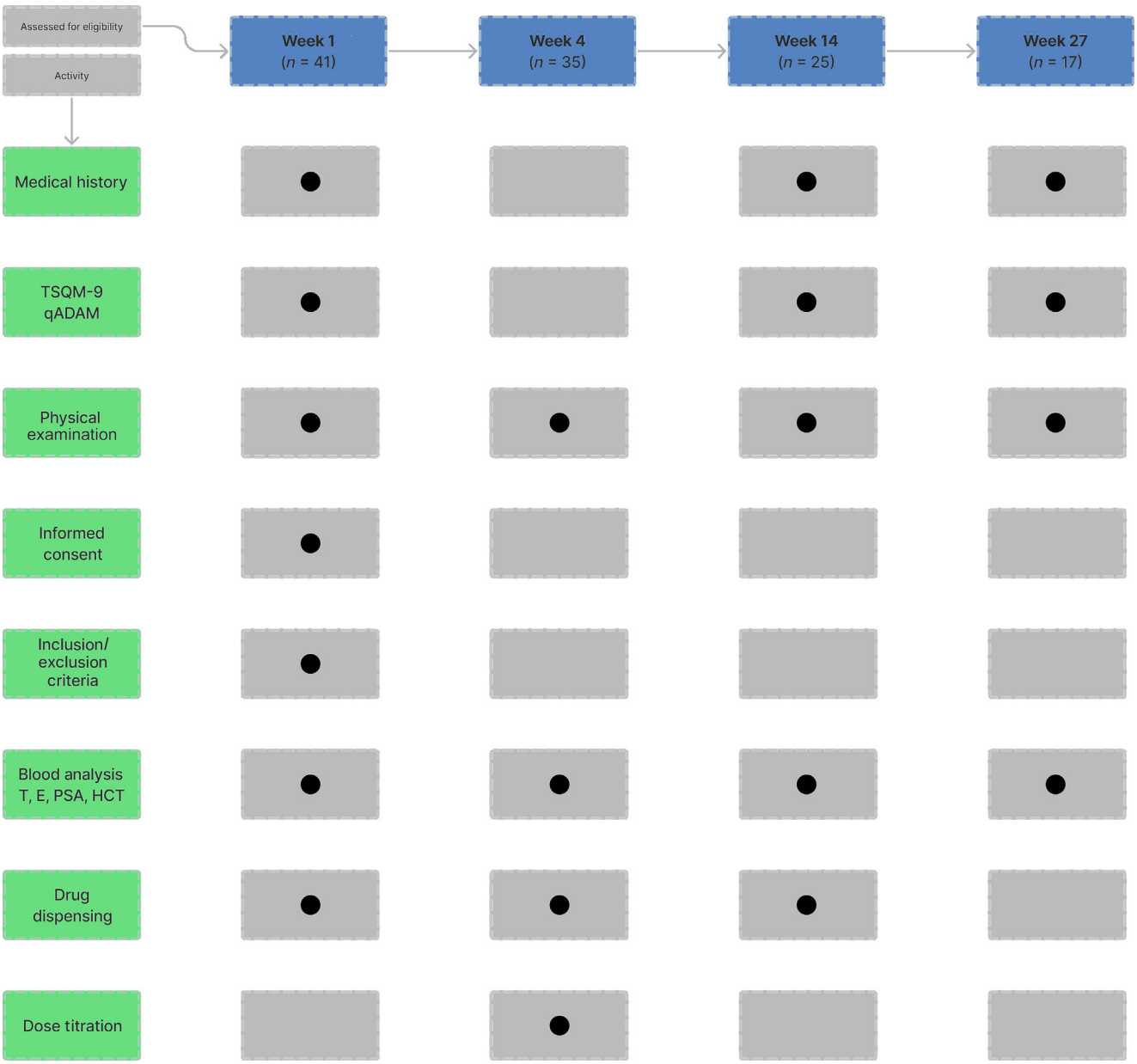

Fig. 1 – Clinical trial roadmap and protocol. T = testosterone; E = estradiol; PSA = prostate-specific antigen; HCT = hematocrit.

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scores increased from 42.0 (34.0–51.0) on the prior TTh to 49.0 (39.0–57.0) at 14 wk (p = 0.02) and 55.0 (52.0–59.0) at 6 mo (p = 0.0013).

Closer examination of the results revealed that individuals who were previously receiving testosterone pellets or nasal testosterone were more satisfied than patients in the intramuscular testosterone cypionate arm. Hypogonadal symptoms in terms of qADAM scores were regarded as similar at 34.4 at 14 wk (p = 0.16) and 35 at 6 mo (p = 0.83) in comparison to 32.5 on prior testosterone therapy. The reason most often cited for dropout was an unsatisfactory symptom response. We evaluated changes in HCT, prostate-specific antigen, and serum estradiol after testosterone therapy and found that the levels were similar before and after TTh. Of note, phlebotomy was recommended for 16% of the men during the trial.

4. Discussion

This is the first study investigating patient satisfaction among men receiving oral TU who were previously using other forms of TTh. Over the course of the trial, oral TU appeared to lead to greater patient satisfaction in comparison to previous TTh modalities and a similar improvement in hypogonadal symptoms. In addition, oral TU increased serum total testosterone to the normal range (300–1000 ng/dl) in >90% of the men without a difference in side-effect profile. While the study features of close bloodwork follow-up and mandatory titration allowed for medical optimization, twice-daily doses were far more frequent for the oral form in comparison to intramuscular and pellet therapies and posed a higher risk of missed doses and poorer compliance. Beyond the results from this trial, future studies should investigate patient satisfaction and side-effect profiles in a larger population to support practical adoption by patients and practitioners.

Conflicts of interest: The authors have nothing to disclose.

References

[1] Harman SM, Metter EJ, Tobin JD, et al. Longitudinal effects of aging on serum total and free testosterone levels in healthy men. Baltimore Longitudinal Study of Aging. J Clin Endocrinol Metab 2001;86:724.

[2] Mulligan T, Frick M, Zuraw Q, et al. Prevalence of hypogonadism in males aged at least 45 years: the HIM study. Int J Clin Pract 2006;60:762.

[3] Araujo AB, Esche GR, Kupelian V, et al. Prevalence of symptomatic androgen deficiency in men. J Clin Endocrinol Metab 2007;92:4241–7.

[4] Katznelson L, Finkelstein JS, Schoenfeld DA, Rosenthal DI, Anderson EJ, Klibanski A. Increase in bone density and lean body mass during testosterone administration in men with acquired hypogonadism. J Clin Endocrinol Metab 1996;81:4358–65.

[5] Finkelstein JS, Klibanski A, Neer RM, Greenspan SL, Rosenthal DI, Crowley Jr WF. Osteoporosis in men with idiopathic hypogonadotropic hypogonadism. Ann Intern Med 1987;106:354–61.

[6] Jockenhovel F, Vogel E, Reinhardt W, Reinwein D. Effects of various modes of androgen substitution therapy on erythropoiesis. Eur J Med Res 1997;2:293–8.

[7] Davidson JM, Camargo CA, Smith ER. Effects of androgen on sexual behavior in hypogonadal men. J Clin Endocrinol Metab 1979;48:955–8.

[8] Snyder PJ, Peachey H, Berlin JA, et al. Effects of testosterone replacement in hypogonadal men. J Clin Endocrinol Metab 2000;85:2670–7.

[9] Swerdloff RS, Wang C, White WB, et al. A new oral testosterone undecanoate formulation restores testosterone to normal concentrations in hypogonadal men. J Clin Endocrinol Metab 2020;105:2515–31.

[10] Patel M, Muthigi A, Ramasamy R. JATENZO®: challenges in the development of oral testosterone. Int J Impot Res. In press. https://doi.org/10.1038/s41443-021-00461-4.

[11] United States Food and Drug Administration. Jatenzo®: highlights of prescribing information. Silver Spring, MD: US FDA; 2019. https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/206089s000lbl.pdf.

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