Clinical Trial Summary

Efficacy and Safety of a New Topical Testosterone Replacement Gel Therapy for the Treatment of Male Hypogonadism

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What is the clinical paper about?

- The main focus of this study was to evaluate the efficacy and safety of testosterone gel 2% (Testavan®) in hypogonadal men with regard to serum testosterone normalization over 90 days.

What is the methodology?

- This was a phase 3, open-label, non-comparator study consisting of a 60-day screening period and a 90-day treatment period, followed by a 30-day follow-up period.
- Patients were hypogonadal men aged 18–75 years with two consecutive fasting serum testosterone values <300 ng/dl; >86% of patients also had symptoms consistent with testosterone deficiency (as measured by ADAM).
- Patients applied testosterone gel 2% 23 mg/day. The dose was uptitrated to 46 mg/day after 2 weeks if the 4-hour serum total testosterone level was <500 ng/dl and could be further up- or down-titrated to 23, 46, and 69 mg on Days 21, 42, and 63.
- The primary endpoint included the percentage of patients with average testosterone concentration ($C_{ave\ (0\text{-}24)}$) of 300–1,050 ng/dl (10.4–36.4 nmol/l) on Day 90. Success was defined as ≥75% of patients achieving this target.
- Safety endpoints were adverse events (AEs), laboratory parameters, and vital signs.
- Of the 159 patients who enrolled in the study, 139 (87.4%) completed the study.

What are the key results?

- **Efficacy:** A total of 76.1% patients (95% CI: 69.4, 82.8) had serum total testosterone C_{ave} within the target range at Day 90.
  - Fourteen (10.1%) patients had brief peak total testosterone C_{max} values between 1,500 and 1,800 ng/dl, 12 (8.6%) patients had values between 1,800 and 2,500 ng/dl, and 5 (3.6%) patients had values >2,500 ng/dl.
- Each individual International Index of Erectile Function (IIEF) domain score (i.e., erectile function, intercourse satisfaction, orgasmic function, sexual desire, and overall satisfaction) showed a significant improvement from Baseline to Days 35 and 90 (both P <.0001).
- Mean Global Fatigue Index score and the total physical component summary score obtained from the SF-12 also showed significant improvements from baseline to Days 35 and 90.
- **Safety:** Overall, 119 AEs were reported by 59 patients, most of which were mild to moderate in severity.

- There were seven discontinuations due to AEs, of which four were due to serious AEs (one event of myocardial infarction was possibly related to treatment). Two patients discontinued due to application site reactions and one due to erectile dysfunction (all assessed as possibly treatment-related).
- Mild-to-moderate application site reactions were observed in eight patients.

What are the key conclusions?

- In this study, treatment with testosterone gel 2% restored serum testosterone levels in men with low baseline testosterone levels and improved sexual function, fatigue, and quality of life.
- **97% of subjects required titration to the 46- or 69-mg/day dose.**
- A small proportion of patients had brief, supraphysiologic levels of testosterone, and few had application site reactions.
- **However**, the study was open-label and was not placebo-controlled, limiting the interpretation of the patient-reported outcomes and AEs. Furthermore, the study was only 3 months in duration and therefore unable to assess the long-term efficacy or safety profile of testosterone gel 2%.