Clinical Trial Summary

A Novel Testosterone 2% Gel for the Treatment of Hypogonadal Males

Dobs AS, et al. Journal of Andrology 2012; 33: 601-607

What is the clinical paper about?

- This was a single-arm study evaluating a novel testosterone 2% gel (Fortesta™ Gel, also known as Tostran, Tostrex, and Itnogen).
- The main focus of this study was to evaluate the pharmacokinetic profile of titrated doses of 2% Fortesta gel after daily application to the skin of hypogonadal men for ~90 days. Efficacy and safety were also assessed.
- The primary objective was to demonstrate that ≥75% of patients who received 2% Fortesta gel achieved testosterone levels within the normal physiologic range.

What is the methodology?

- This was a multi-centre, open-label, non-comparative trial of men with primary or secondary hypogonadism.
- Enrolled patients were aged between 18 and 75 years, with a single serum total testosterone concentration of <250 ng/dl or two consecutive serum total testosterone concentrations of <300 ng/dl.
- Topical 2% testosterone gel was administered once daily to the front and inner thighs at a starting dose of 40 mg/d.
- The metered-dose delivery system allowed dose adjustments in 10 mg increments between 10 and 70 mg/d.
- Patients were assessed at baseline and after 14, 35, 60 and 90 days, with 24-hour serum total testosterone pharmacokinetic profile assessed on days 35 and 90.
- Of 149 men enrolled, 138 patients (92.6%) completed the study.

What are the key results?

- **Pharmacokinetic:** On day 90, serum testosterone peaked 2-4 hours after application of testosterone 2% gel, and decreased to pre-application levels between 10 and 12 hours after application.
- **Efficacy:** On day 90, mean C_{avg} (0–24 hours) ± SD was 438.56 ± 162.51 ng/dl, with **77.5%** of patients achieving mean serum total testosterone concentrations within the predefined normal physiologic range (≥300 and ≤1140 ng/dl) (95% CI, 70.3% to 84.7%).
  - Mean C_{max} ± SD was 827.6 ± 356.5 ng/dl.
- **Safety:** Of the 69 (46.3%) patients reporting at least one AE, 34 (22.8%) were considered related to testosterone 2% gel, with the most common adverse events being mild or moderate skin reactions.
  - A slight increase in dermal response scores at the application site was observed over the course of the 90 days.

- Two patients withdrew from the study due to skin events.

What are the key conclusions?

- In this study, treatment with 2% testosterone gel restored levels of testosterone in >75% of patients, with a low risk of supra-physiologic testosterone levels.
- Patients may find this a suitable option for TRT because of its application site and low volume.
- **However**, this short-term study provided no information on the impact of 2% testosterone gel on signs and symptoms in the short-term or the long-term, and the longer-term occurrence of adverse reactions or compliance were not assessed.