Clinical Trial Summary

Treatment of Male Hypogonadism with Testosterone Undecanoate Injected at Extended Intervals of 12 Weeks: A Phase II Study

von Eckardstein S & Nieschlag E. Journal of Andrology 2002; 23: 419–425

What is the clinical paper about?

- The focus of this study was to investigate the efficacy and safety of Bayer's injectable preparation of testosterone undecanoate (TU) (Nebido®/Reandron®) given every 12 weeks over a period of 3.2 years.

What is the methodology?

- This was an open-label, non-randomized, clinical trial.
- Seven men with primary (n=5) or secondary (n=2) hypogonadism aged 20 to 57 years, who had already participated in a previous trial with 6-week injections of TU, continued treatment with extended injection intervals.
- After 4 injections had been given at 6-week intervals, the intervals were gradually extended between the 5th and 10th injections. From the 10th injection onward, TU was applied every 12 weeks.
- Well-being, sexual activity, clinical chemistry, prostate volume, and prostate-specific antigen (PSA) and serum hormone levels were monitored.
- After the 13th application, steady state kinetics were obtained by weekly determinations of testosterone serum concentrations.

What are the key results?

- **Efficacy:** Patients reported stable values for all parameters of well-being and sexual function (numbers of erections and ejaculations per week and satisfaction with sex life).
- Body weight, haemoglobin, serum lipids, PSA, and prostate volume did not change significantly during the 3.2 years of treatment.
- **Pharmacokinetics:** During the 6-week injection interval, testosterone levels increased initially from 5.2 ± 3.1 nmol/L to 23.8 ± 7.8 nmol/l after patients had received 4 injections in 6 weeks. With extended injection intervals, preapplication testosterone levels decreased and were just at the lower limit of normal, with 12.6 ± 3.7 nmol/l before the last injection.
- Dihydrotestosterone and oestradiol levels followed a similar pattern to testosterone.
- Maximal testosterone levels during steady state kinetics were measured after 1 week with a mean (±SD) maximum concentration of 32.0 ± 11.7 nmol/l.
- **Safety:** Injections were well tolerated by all men except one, who requested extremely slow injections to avoid discomfort.
- General adverse events related to the treatment were not observed.

What are the key conclusions?

- The current trial confirmed that the interval between TU injections can be extended from 6 weeks to up to 12 weeks once normal testosterone levels have been achieved.
- **However**, the number of patients included in this study was small and large phase III clinical trials are required to confirm the safety and efficacy of long-acting testosterone preparations.
  - Potential long-term effects on lipoproteins or the ability to rapidly discontinue and reduce testosterone levels were not clear.