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JOURNAL ARTICLE

Prolonged suppression of plasma LH levels in male rats after a single injection of an LH-RH agonist in poly(DL-lactide-co-glycolide) microcapsules

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The authors have examined the effects of a subcutaneous injection of the LH-RH agonist D-Trp6-LH-RH formulated in biodegradable poly(DL-lactide-co-glycolide) microcapsules on plasma levels of D-Trp6-LH-RH, LH, and PRL in adult, gonadectomized male rats. Immunoreactive D-Trp6-LH-RH was detectable in the plasma of these animals at 1, 2, 3, and 4 weeks after injection. LH concentrations were greatly reduced 1 week after administering the D-Trp6-LH-RH microcapsule, continued to decrease during the following week, and remained suppressed until the end of the study, 6 weeks after the injection. Plasma PRL levels appeared elevated 1 to 2 weeks after the injection and suppressed thereafter, but these effects were significant only in animals rendered hyperprolactinemic by transplantation of an isologous pituitary under the renal capsule. These results demonstrate that an LH-RH agonist formulated in biodegradable microcapsules and administered as a subcutaneous injection can exert marked biologic effects in rats for at least 6 weeks. These findings also suggest that prolonged exposure to an LH-RH agonist may first produce stimulation, followed by an inhibition of PRL release from both in situ and ectopic pituitaries.

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