Pulsatile Administration of Gn-RH in Hypothalamic Failure

Second Ferring Symposium on Brain and Pituitary Peptides, Kiel, June 3-5, 1982

Brain and
Pituitary
Peptides II

Pulsatile Administration of
Gn-RH in
Hypothalamic Failure:
Basic and Clinical Aspects

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Gonadotropin-releasing hormone (GnRH) was the second of the neurohumoral agents postulated by Harris more than three decades ago to mediate hypothalamic control of anterior pituitary function that has been isolated, identified in its structure, and synthesized. Since this was achieved by the groups of Schally and Guillemin in 1971 and the synthetic hormone became available, GnRH has been used extensively as tool in neuroendocrine research. Early attempts to use this decapeptide clinically for the treatment of reproductive disorders supposed to be due to an inadequate secretion of endogenous GnRH, however, were of only limited success. Effective therapeutic use had to await further progress in the understanding of the physiologic mechanisms that control gonadotropin secretion and gonadal function. The demonstration that the pattern of hypophysiotropic stimulation is of critical importance in this respect and the elucidation of the physiologic significance of pulsatile gonadotropin secretion have provided the rational basis for the efficient use of synthetic GnRH in the treatment of GnRH deficiency. These findings have also furthered the understanding of the seemingly paradoxical antifertility effects of long-acting GnRH analogues initially designed to compensate for the short action of the parent decapeptide and thus to simplify treatment of infertility.

This book contains the proceedings of the 2nd Ferring Symposium on Brain and Pituitary Peptides, held in Kiel, FRG, in June 1982. At this symposium, basic and clinical aspects of pulsatile GnRH administration in hypothalamic failure were discussed. The first two contributions review the physiology of hypothalamic regulation of gonadotropin secretion and ovarian function. The following two chapters are concerned with pulsatile
gonadotropin secretion and follicular development during the human menstrual cycle and some of its disorders. Data on the use of GnRH and its analogues for the treatment of infertility and for contraception are presented next, followed by two chapters on the use of pulsatile GnRH administration in hypothalamic amenorrhea, luteal phase defects, and polycystic ovarian disease. The last five contributions address the regulation of gonadotropin secretion in the male primate and the use of pulsatile GnRH administration for the treatment of hypogonadotropic hypogonadism in the human male.

The rapid introduction of GnRH and its analogues into clinical medicine and their rational use in a variety of reproductive disorders can be considered as good examples for benefits that can be derived from the close cooperation of scientists from the physiological and biochemical laboratory with those engaged in clinical research. It was the purpose of this symposium to provide a forum for discussion for individuals from those different surroundings active in the field of reproductive physiology and medicine.