

PROLACTIN CONCENTRATIONS DURING THE
NORMAL MENSTRUAL CYCLE : RHYTHMS WITHIN RHYTHMS

Kamini H Tennekoon & Elizabeth A. Lenton*

Dept. of Physiology, Faculty of Medicine, Colombo 8.

*Dept. of Obstetrics & Gynaecology, University of Sheffield, U.K.

The episodic nature of prolactin release and the sleep dependent nocturnal rise in prolactin have been well documented in man (Sassin et al, 1972; Parker et al, 1973). Although the presence of a cyclical variation in prolactin related to the menstrual cycle remained somewhat controversial, recent studies using more frequent blood samples have demonstrated a mid cycle rise in prolactin synchronous with the LH surge (Djahanbakhch et al, 1983). Further Tennekoon and Lenton (1985) have recently demonstrated an early evening rise in prolactin unrelated to sleep during the follicular and the luteal phases of the normal menstrual cycle.

In the present study prolactin concentrations were measured in 5 min blood samples collected over a 2 h period during the follicular phase or during the luteal phase from a group of regularly cyclic women (n=22). The 2 h period was randomly distributed and prolactin concentrations were measured by radioimmunoassay. During the time period between 06.00-09.00 h prolactin concentrations showed a gradually declining base line and the amplitude of the prolactin pulses also appeared to decrease. Between 09.00-16.00 h prolactin concentrations were somewhat stable although small fluctuations were superimposed. Between 17.00-20.00 h prolactin concentrations showed large fluctuations and this coincided with the previously described early evening rise using integrated hourly prolactin concentrations (Tennekoon & Lenton, 1985). Between 23.00-06.00 h fluctuations in prolactin concentrations were again prominent and when the subjects were asleep the base line prolactin concentrations also increased. Thus a changing pattern of the 'primary pulse' of prolactin may be responsible for the time related changes in prolactin seen during the 24 h period.

References

- Djahanbakhch O, McNeilly, A.S., Warner, P.M., Swanson, I.A., & Baird, D.T. et al (1983) Changes in plasma levels of prolactin, FSH, oestradiol and progesterone around the pre-ovulatory surge of LH in women. Clinical Endocrinology 20 : 463-472
- Parker D.C., Rossman L.G. & Vander-Laan E.F. (1973) Sleep related, nyctohemeral and briefly episodic variation in human plasma prolactin concentrations. Journal of Clinical Endocrinology & Metabolism 36 : 1119-1124
- Sassin, J.F., Frantz A.G., Weitzman, E.D. & Kapen, S. (1972) Human prolactin : 24 h pattern with increased release during sleep. Science 177; 1205-1207
- Tennekoon, K.H. & Lenton, E.A. (1985) Early evening prolactin rise in women with regular cycles. Journal of Reproduction & Fertility 176: 523-527

09th Dec. 1987 (Wednesday) 10.30 a.m. - 10.45 a.m.