

Increasing our understanding of reproduction in the mare

In recent years our understanding of the role of hormones in the control of the oestrous cycle of the mare has increased with the ability to measure a number of these substances eg gonadotrophin-releasing hormone (GnRH), follicle stimulating hormone (FSH), luteinising hormone (LH) and the ovarian hormones oestrogen and progesterone. GnRH is known to stimulate the release of both FSH and LH and changes in the levels of these in the blood have been related to changes in follicular activity in the ovary.

With the development of antagonists to GnRH it now seems possible to block or inhibit secretion of FSH and LH at specific times in the cycle and, by tracking changes in follicular development using readily available techniques such as ultrasonography (which allows the ovary to be visualized in a relatively non invasive way), define the role of these hormones in follicular activity more precisely.

Dr Margaret Evans and her research colleagues in Christchurch have been doing just this. Preliminary conclusions to their work indicate that administration of cetrorelix (a GnRH antagonist) to mares between days 5 and 12 after ovulation i.e. during the luteal phase of the cycle [a] significantly increased the interval to the next ovulation in the treated as opposed to the control mares thus demonstrating that cetrorelix inhibited the GnRH effects on the ovary normally mediated through FSH and LH, and [b] associated with this effect, changes observed in FSH concentrations in the blood suggest an important role for this hormone in the development of the next ovulatory follicle, a significant addition to our knowledge of this event.

Further analysis of the data collected is required to substantiate these preliminary conclusions - this is taking place at the present time. The project has been co-funded by the Ian Duncan Memorial Trust and the New Zealand Equine Research Foundation.