22. DIFFERENCES IN PLASMA CONCENTRATION OF INSULIN-LIKE GROWTH FACTOR-1 BETWEEN PREGNANT AND NON-PREGNANT DAIRY COWS

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Insulin-like growth factor-1 (IGF-1) is associated with the reproductive performance of the dairy cow. The association between IGF-1 concentrations in early lactation and interval to first oestrus and conception are widely reported (1). Changes in plasma IGF-1 in mid and late lactation, which may also be associated with advancing pregnancy, have not been reported in the dairy cow. Given the relationship between bovine somatotropin and IGF-1 (2), it would be expected that plasma IGF-1 concentrations would increase as the pregnancy proceeds. The aim of this study is to determine if pregnancy would alter the pattern of changes in plasma IGF-1 concentrations in mid and late lactation. The study was conducted at the Department of Primary Industries, Kyabram, Victoria. All cows were high-producing multiparous Holstein-Friesians, receiving a pasture-based diet. Plasma samples were collected frequently throughout lactation and analysed using the DSL non-extraction IGF-1 ELISA kit. Data were analysed using univariate analysis of variance, with body condition score as a covariate. Data for pregnant cows (n = 24) were analysed relative to actual conception dates for each cow. This was compared to that from non-pregnant cows (n = 10) relative to day 86 of lactation (average conception day of pregnant cows). Average plasma IGF-1 of both pregnant and non-pregnant cows peaked at 103 ng/mL at around week 12 of lactation. It decreased dramatically over the next 5 weeks to 67 ng/mL, and remained relatively constant over the next 10 weeks. Plasma IGF-1 of pregnant cows was numerically higher than that of non-pregnant cows throughout the data collection period. This difference increased after conception and became statistically significant 15 weeks post-conception ($P<0.05$). At that time, plasma IGF-1 concentrations were 75 ng/mL for pregnant cows and 53 ng/mL for non-pregnant cows. This difference is expected to increase as the pregnancy proceeds.

(1) Thatcher *et al.* (1996) *Reprod. Fertil. Dev.* **8**: 203–217. (2) Lucy (2000) *J. Dairy Science* **83**: 1635–1647.

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