Effects of Pituitary Pars Intermedia Dysfunction and Prascend® Treatment on Endocrine and Immune Function

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The purpose of this study was to investigate the effects of PPID and Prascend® (pergolide tablets) treatment on endocrine and immune measures.

PPID status was confirmed via thyrotropin-releasing hormone (TRH) stimulation test before the study and basal ACTH levels at Day 0. Non-PPID horses (n=10), PPID untreated horses (n=9), and PPID horses on PRASCEND (n=9) were then sampled over 14 months. PRASCEND treatment began after Day 0 collections. Basal ACTH, ACTH at 10 minutes post-TRH administration (TRH-T10), total cortisol, and RT-PCR of cytokine/receptor expression (IFNy, IL-12a, IL-13, IL-17a, IL-1b, IL-6, IL-8, TGFb, TNFa, TLR2, and TLR4) in whole blood were analyzed. Results were analyzed using PROC MIXED, SAS 9.4, with significance set at $p < 0.05$. All ACTH values are natural log transformed.

Both PPID groups had significantly higher ACTH than non-PPID horses at Day 0. PRASCEND-treated horses had significantly lower ACTH than their starting values at all subsequent timepoints. Both PPID groups had significantly higher TRH-T10 ACTH values than non-PPID horses at all timepoints. No differences resulting from PPID status or treatment with PRASCEND were seen in total cortisol or in the whole blood cytokine/receptor expression.

Treatment with PRASCEND significantly reduced basal ACTH but not TRH-T10 ACTH values. Therefore, basal ACTH appears to be the better indicator for determining successful responses to PRASCEND. Total cortisol does not appear to contribute to any potential changes in immune function caused by PPID. Further research is needed to determine if and where any effects of PPID on immune function may occur.