Clinical Signs Associated with PPID in the Equine Athlete[1]

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Introduction

Pituitary Pars Intermedia Dysfunction (PPID) has been described as one of the most common diseases of horses and ponies. Recently, the clinical signs of PPID have been divided into early and advanced clinical signs.[2] Establishing a diagnosis of PPID in horses with early clinical signs is currently a difficult challenge facing equine veterinarians. Particularly difficult may be the diagnosis of horses with PPID in the equine athlete. Many of the same clinical signs identified in early or advanced PPID may be recognized in the sport horse along with tendon or suspensory ligament degeneration.[2] Suspensory ligament injuries have been considered a common cause of lameness in the equine athlete involved in competitive events. A recent histopathological study concluded that an association exists between PPID and suspensory ligament (SL) degeneration.[3]

Study Objective

The objective of this study was to identify the most common clinical signs associated with PPID in the sport horse.

Materials and Methods

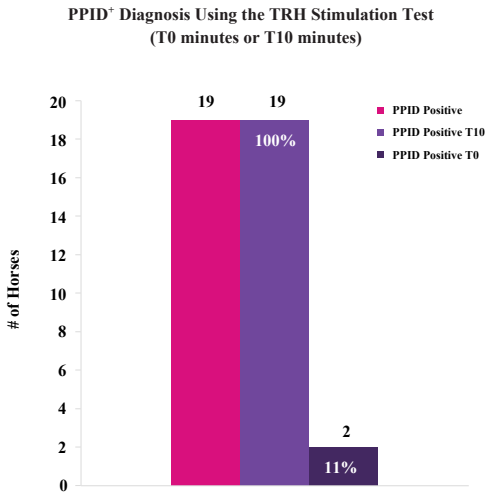
Sport horses >10 years of age, any breed and sex were eligible for study enrollment as long as they were documented to be exhibiting one or more of the early or advanced clinical signs of PPID including suspensory ligament desmitis. Normal horses were excluded from the study. Forty-nine horses were evaluated and included in the final data analysis with at least one clinical sign of early or advanced PPID. Demographic data, signalment, and a physical examination was conducted. Each horse was tested for PPID using the thyrotropin-releasing hormone (TRH) stimulation test measuring ACTH at 0 (T0ACTH) and 10 (T10ACTH) minutes post TRH administration. Insulin and glucose levels were also determined. Blood samples were shipped overnight to the Animal Health Diagnostic Center, Cornell University, Ithaca, NY for analysis.

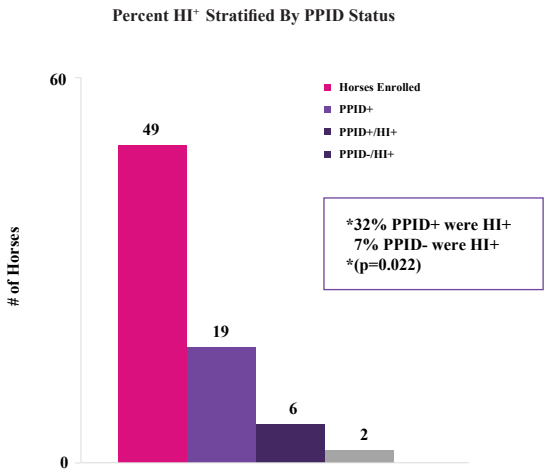
Statistical Analysis

The association between PPID status, based on ACTH and insulin results, and each of the demographic variables (age, sex and breed), clinical signs, the two test result variables insulin and glucose were statistically evaluated individually using the Pearson chi-square test. Odds ratios for significant predictors of PPID status were computed using corresponding 95% confidence intervals when applying multiple logistic regression analysis.

Results

Of the 49 horses, 19 (39%) were $PPID^+$ and 8 (16%) were IR^+. Of the 19 $PPID^+$ horses, only 2 (11%) were $PPID^+$ at the T0ACTH time point, whereas 19/19 (100%) were $PPID^+$ at T10ACTH time point. Six (32%) of 19 $PPID^+$ horses were hyperinsulinemic. Horses' ages ranged from 11 to 25 years of age (arithmetic mean 17 years) in the $PPID^+$ group. The most common clinical signs observed in the $PPID^+$ horses were delayed regional shedding, loss of epaxial muscle mass, regional adiposity, skeletal muscle atrophy and suspensory desmitis. $PPID^+$ was significantly ($p=0.023$) associated with lameness (suspensory desmitis, tendon laxity, superficial digital flexor tendonitis). Of the horses that were lame, 70% were $PPID^+$.





Predictors of PPID+

Category	% PPID+	Odds Ratio	95% Confidence Interval
Hyperinsulinemia	75%	5.1	(0.7585, 34.6936)
Lameness* Sensory desmitis	70% 71%	8.6 6.1	(1.9464, 37.9045) (0.8429, 43.7917)

*** Lameness includes suspensory desmitis, tendon laxity and SDF tendonitis**

Discussion

Based on the results of this study, the TRH stimulation procedure was required in 89% of enrolled horses for laboratory confirmation of PPID. In the sport horse, suspensory desmitis was significantly associated with PPID+ status.

Take Home Message

Veterinarians should include PPID in the list of differential diagnoses when examining sport horses with suspensory desmitis along with early and advanced clinical signs of PPID.

Acknowledgments

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References

1. Baus M, Kremburg J, Kirchherr K, Grubbs S, Neal D, Keefe T. Clinical signs associated with PPID in the equine athlete. *J Vet Intern Med* 2017; 31: 1351.

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3. Hofberger S, Felicia G, Licka T. Suspensory ligament degeneration associated with pituitary pars intermedia dysfunction in horses. *The Veterinary Journal* 2015; 203: 348–350.