Detection of Serum Anti-Müllerian Hormone Concentrations as a Method for Diagnosis of Cryptorchidism in the Horse

Anthony N. Claes, DVM, Diplomate ACT*; Barry A. Ball, DVM, PhD, Diplomate ACT; Juliana Almeida, DVM, PhD; and Alan J. Conley, BVSc, PhD

Serum concentrations of anti-Müllerian hormone (AMH) are elevated in cryptorchids compared with geldings or stallions, and AMH is a useful marker for the presence of cryptorchid testes in the horse. Authors’ addresses: Veterinary Science, Gluck Equine Research Center, University of Kentucky, Lexington, KY (Claes, Ball); Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, CA 95616 (Conley); and Universidade de Fortaleza, CE, Brazil (Almeida); e-mail: a.claes@uky.edu. *Corresponding author. © 2011 AAEP.

1. Introduction
Cryptorchidism, particularly in previously castrated geldings, remains a diagnostic challenge for the equine practitioner. Measurement of testosterone (with or without human chorionic gonadotropin [hCG] stimulation) and/or estrone sulphate is the most convenient diagnostic method for the equine practitioner. We have shown previously that anti-Müllerian hormone (AMH) is expressed by the Sertoli cells in cryptorchid equine testes, and the objective of this study was to determine serum concentrations of AMH in geldings, cryptorchids, and stallions.

2. Materials and Methods
Serum samples from geldings (n = 48), cryptorchids (n = 44), and stallions (n = 15) from the clinical endocrinology laboratory and the Veterinary Medical Teaching Hospital at the University of California at Davis were used in this study. Horses were classified as gelding, cryptorchid, or intact stallion according to their history and serum testosterone concentrations. Serum AMH concentrations were measured with a heterologous enzyme immunoassay (active AMH–enzyme-linked immunosorbent assay*). Differences in serum AMH concentrations were compared using Student t tests.

3. Results and Discussion
Serum concentrations of AMH were higher (p < 0.01) in cryptorchids (32.4 ± 5.0 ng/ml) than in stallions (21.4 ± 2.4 ng/ml) or geldings (0.07 ± 0.01 ng/ml). Serum AMH concentrations were also higher (p < 0.02) in stallions than in geldings. Serum AMH concentrations are a useful biomarker for the presence of testicular tissue in the stallion, and concentrations of AMH are higher in cryptorchids than in either geldings or stallions.

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Footnote
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