Determination of Serum Anti-Müllerian Hormone Concentrations for the Diagnosis of Granulosa-Cell Tumors in Mares

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Serum concentrations of anti-Müllerian hormone are elevated in mares with confirmed granulosa-cell tumors and can be used for the endocrine diagnosis of granulosa-cell tumors in the mare. Authors' addresses: Gluck Equine Research Center, Department of Veterinary Science, University of Kentucky, Lexington, KY 40546 (Ball); Universidade de Fortaleza, CE, Brazil, 60811–905 (Almeida); Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, CA 95616 (Conley); e-mail b.a.ball@uky.edu. *Corresponding author. © 2011 AAEP.

1. Introduction
Granulosa-cell tumors (GCTs) are the most frequent ovarian tumor in the mare, and endocrine diagnosis often includes inhibin, testosterone, and progesterone assays. Recently, we demonstrated that equine GCTs express high levels of anti-Müllerian hormone (AMH), and we now report serum AMH concentrations in mares during the estrous cycle, during pregnancy, and in mares with confirmed GCTs.

2. Materials and Methods
Serum samples from mares during the estrous cycle (n = 6), during pregnancy (n = 6), after ovariectomy (n = 5), and in mares with GCTs confirmed at surgery by gross appearance or histopathology (n = 74) were assayed for AMH using an ELISA. a Sensitivity of AMH for diagnosis of GCTs was compared with that of serum inhibin and testosterone concentrations in mares with confirmed GCTs.

3. Results
Serum AMH concentrations did not differ across the estrous cycle or pregnancy and were significantly higher than those in ovariectomized mares. Likewise, serum AMH concentrations were significantly higher in mares with confirmed GCTs compared with mares during the estrous cycle or pregnancy. Sensitivity of serum AMH (70/74) was higher (p < 0.01) than that of either inhibin (63/74) or testosterone (40/74) for diagnosis of GCTs in mares.

4. Discussion
Serum AMH concentrations are a useful biomarker for detection of GCTs in mares and have a higher sensitivity than either inhibin or testosterone concentrations.

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Footnote
aActive AMH-ELISA, Diagnostic Systems Laboratory, Webster, TX 77598.