



Previous VET NOTES

- June 2011 - Eastern Equine Encephalitis—have you vaccinated?
- May 2011 - Under tack dynamic respiratory scope
- December 2010 - Equine Piroplasmiasis
- October 2010 - Sand colic
- September 2010 - Vaccines
- July 2010 - Rhodococcus in foals
- June 2010 - Wound Management
- March 2010 - Pharmacy Notes
- February 2010 - Cryptorchidism in the horse
- December 2009 - Selection of mares for embryo transfer
- October 2009 - Tying-up Syndrome
- September 2009 - Flexural deformities in the forelimbs of foals
- August 2009 - Equine Cushing's Disease
- July 2009 - Corneal ulcers
- June 2009 - Laparoscopic surgery: A new way to look at things
- May 2009 - Equine cardiology
- April 2009 - Single screw compression update

Furosemide and exercise-induced pulmonary hemorrhage (EIPH)

Furosemide, also known as Salix and formerly Lasix, has been used therapeutically for racehorses with exercise-induced pulmonary hemorrhage (EIPH), or bleeders, since the 1970s. It gained acceptance and popularity in the United States throughout the 1980s and New York was the final racing jurisdiction to allow its regulated race day use in 1995. Today, 95% of starters receive race day furosemide. No major racing jurisdictions outside the U.S. and Canada allow race day medication. Recent legislative attempts to align domestic medication policies with international medication policies have made furosemide and EIPH topics of controversy.

EIPH affects horses throughout the world, across many breeds, and in a variety of disciplines. There is a correlation between the degree of athletic exertion and its occurrence. The most widely used assessment for occurrence and severity is by endoscopic examination of the trachea following intense exercise, usually within 2 hours. Evidence of bleeding following a race using endoscopy has been seen in 44-75% of Thoroughbreds, increasing to 82-95% when individuals were examined multiple times. A more sensitive test, bronchoalveolar lavage, reveals that virtually all horses that have recently raced have evidence of EIPH.

Exercise Induced Pulmonary Hemorrhage



EIPH occurs when an exercise-induced increase in blood pressure within the lungs leads to a stress failure of capillary integrity and release of blood into the airways. Numerous risk factors for EIPH exist, but a primary underlying cause has proven elusive. Inflammation within the lungs—either infectious or allergic, acute or

(Continued on page 2)

Check out our website
WWW.PETERSONSMITH.COM
 with links to our FACEBOOK AND BLOG
 For more information on the EHV-1 outbreak

chronic--predisposes a horse to bleed during a race. Airway obstruction, such as laryngeal hemiplegia or dorsal displacement of the soft palate, may enhance the pressure gradient across lung tissues, increasing the likelihood of a bleed. Evidence of a heritable risk factor has been demonstrated in Thoroughbreds in South Africa. An EIPH episode alone causes acute inflammation within the lungs in response to the presence of blood and may perpetuate the likelihood of recurrence. As such, there tends to be a higher incidence of bleeding in older horses.

A study released in 2009 demonstrated furosemide's effectiveness to reduce the occurrence and severity of EIPH in a group of 167 Thoroughbred racehorses. Furosemide acts through a powerful diuretic effect that decreases the plasma and blood volume, thus decreasing pulmonary blood pressure and mitigating the pressure gradient across lung tissue during intense exercise. Peak diuresis occurs 15-30 minutes after intravenous administration and ceases within 2 hours. An association between furosemide administration and athletic performance has been repeatedly demonstrated. Arguably, this association has been described as an optimization or as an enhancement. The diuresis usually results in an approximate 3% loss in body weight within 4 hours if water is withheld. Decrease in water volume within the lungs may facilitate bronchodilation. In the absence of EIPH, both effects could be considered enhancements; however, severe bleeds undoubtedly carry a negative affect on athletic performance.

Few instances following furosemide administration have been described as a deleterious effect on the horse's performance. It is often speculated that the unintended effect was the result of an acute electrolyte imbalance, notably involving potassium or calcium, and both of which are lost in the diuresis.

Despite the vast research and resources devoted to unveiling the short and long term effects of furosemide, much remains unfounded and unknown. Likewise, the consequential effects of its immediate removal on the racing population in the U.S. and Canada are unknown. Further deliberation is required for the domestic and international racing communities to dissolve their disconnect on the administration of race day furosemide to control EIPH.

Chiropractic services

If you would like to set up an appointment with our equine chiropractor, Dr. Andrea Cogswell, please call the office at 352 237 6151. Dr. Cogswell will be available July 12–19, 2011.

MRI

MRI is now available to our clients. The mobile service MREquine™ will be based at the hospital for the next few weeks. If you would like to have more details or set up an appointment just call our office.

- March 2009 - Resistance to anti-parasitic drugs
- November 2008 - Periodontal Disease
- October 2008 - Interstitial pneumonia - a different kind of lung disease
- September 2008 - The yearling sales
- August 2008 - Eastern Equine Encephalitis—have you vaccinated
- July 2008 - Castration complications
- June 2008 - The use of acupuncture as a diagnostic aid in the equine lameness exam
- April 2008 - Current parasite control recommendations
- March 2008 - The use of Oxytocin in the post-partum mare

We're on the web:
www.petersonsmith.com



4747 SW 60th Avenue
Ocala, FL 34474

Phone: (352) 237-6151
Fax: (352) 237-0629
Email: PSEH@petersonsmith.com

*A Tradition of Leadership and
Excellence in Equine Medicine*