



## THE EQUINE HOSPITAL Colorado State University

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### **Treating your horse for Heaves**

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#### **What is “heaves”?**

Heaves is a chronic, non-infectious airway condition of horses that also is called recurrent airway obstruction, or RAO, and was formerly known as chronic obstructive pulmonary disease or COPD. The disease occurs in horses more than 6 years of age and is the result of an allergic reaction to inhaled particles. The allergens, such as molds, that cause heaves are primarily found in hay and straw.

Once inhaled, an allergic reaction causes the small airways in lung tissue to narrow and become obstructed. A combination of three factors cause the airway obstruction: inflammation and thickening of the tissue lining the airways (bronchiolitis), constriction of the smooth muscles that surround them (bronchospasm), and accumulation of mucous in the airways.

Typically, one of the first clinical signs noted by an owner is an occasional cough. As the disease progresses the clinical signs will become more apparent and include exercise intolerance, an increased respiratory rate, nasal discharge, wheezing and flaring of the nostrils.

Due to the obstruction of the small airways, a horse with heaves works harder to pull air into and expel air from the lungs than a healthy horse. This increased respiratory work forces the horse to use its abdominal muscles during the late phase of exhalation. Over time, the additional workload results in the visible enlargement of the abdominal muscles and the formation of a heave line. With progression of the disease it becomes increasingly difficult for the affected horse to expel the air from the lungs at the end of exhalation and the lungs may remain over-inflated, which is called emphysema. If left untreated, non-reversible damage to the lung tissue may occur resulting in the permanent loss of lung function.

#### **How can heaves be diagnosed?**

In horses with severe heaves, a veterinarian may be able to make a diagnosis based on the horse's history and clinical signs. However, additional testing is required in horses that either have mild to moderate disease or that fail to respond to appropriate therapy.

Veterinarians evaluate the severity of the disease based on the presence and types of inflammatory cells in the airway secretions. The examination of fluid samples obtained from the lungs by bronchoalveolar lavage, or BAL, is often the most useful testing procedure for making a diagnosis of heaves.

Fluid samples from the windpipe may also be used but these samples have to be interpreted with care. The secretions collected for this test represent a non-homogenous sample of cells and debris that accumulate in the lower windpipe. Because these secretions may have originated from anywhere in the lower airways, these samples are not representative of any one segment of the airway.

In contrast, a BAL samples cells and secretions directly from the small airways, the affected part of the respiratory tract. Because of the differences in sampling location between tracheal aspirates and BAL, their cytological interpretations are not interchangeable.

Blood work, such as a complete blood count and blood biochemistry analysis, and chest x-rays are often of little value in confirming the diagnosis of heaves. Yet, these tests may be beneficial in ruling out other causes of respiratory disease, such as pneumonia, pleuritis and neoplasms of the chest cavity.

### **Is there a treatment for heaves?**

While there is no cure for heaves, elimination of the allergens from the affected horse's environment often reduces or even resolves the clinical signs. The most important source for these inciting agents are hay -- particularly round bale hay -- and bedding, such as straw.

Horses with heaves ideally should be at pasture with fresh grass as the source of roughage, supplemented with pelleted feed. If horses must be stalled they should be maintained in a clean, controlled environment and fed a dust free diet (for instance, a complete pelleted feed) to minimize dust exposure. Although a common practice, soaking the hay in water prior to feeding is often not sufficient to control clinical signs in highly sensitive horses.

Decreasing dust exposure does not only encompass eliminating hay and straw from the horse's stall, but also requires the careful evaluation of the animal's environment, stable management practices, and stable design and ventilation. While horses with heaves are not allergic to outdoor dust, for example road dust, their airways are hyperreactive to nonspecific stimuli. Therefore, horses with airway inflammation should not be kept near a dry, dusty road or paddock.

When horses suffering from heaves have respiratory difficulties, medical treatment is required. However, it is pivotal to recognize that drug administration without minimizing environmental allergen exposure will not provide prolonged benefits.

The mainstay for medical treatment of heaves is the administration of anti-inflammatory medicines, such as corticosteroids, and bronchodilators. Traditionally, these drugs have been administered either by mouth or by injection. More recently however, aerosolized corticosteroids and bronchodilators administered through special

devices have also become available for the treatment of heaves in horses. Despite the fact that these aerosolized drug preparations are more expensive than the oral or injectable formulation, the inhaled drugs are highly effective and carry a lesser risk of adverse effects.

Long-term, the course of the disease depends largely on the effort that is put into improving the air quality of the environment in which the horse is kept. While there is no permanent cure of the disease, complete or near complete recovery from the clinical signs may be achieved with appropriate management.