Cardiac and Respiratory Disease in Aged Horses

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KEYWORDS

• Respiratory • Cardiac • Recurrent airway obstruction • Thoracic neoplasia
• Valvular disease • Echocardiography • Electrocardiography

KEY POINTS

- Respiratory and cardiac disease are common in older horses.
- Advancing age is a specific risk factor for cardiac disease.
- Recurrent airway obstruction can lead to irreversible structural change and bronchiectasis and, with chronic hypoxia, right heart dysfunction and failure can develop.
- Valvular heart disease often affects the aortic and/or the mitral valve; it does not necessarily shorten life span, but can progress to congestive heart failure.
- Management of comorbidity is an essential element of the therapeutic approach to cardiac and respiratory disease in older equids.

Video content accompanies this article at http://www.vetequine.theclinics.com.

AGE AS A RISK FACTOR FOR CARDIAC AND RESPIRATORY DISEASE IN HORSES

Respiratory disease is common in the geriatric horse: horse owners reported that 14% of 918 horses of aged 15 years or over coughed[1] and in a survey involving 67 horses of 30 years or over, owners reported 8% of their horses had respiratory problems, with this being the second most common reported problem after lameness.[2] In the same survey, 86% of the respiratory cases required at least 1 veterinary visit in the preceding year,[2] and in another survey of horse owners, 25% of 165 horses of 20 years or older were receiving medication of which around 1 in 5 was owing to lower airway disease.[3] Although there is slight agreement among owner and veterinary assessment of respiratory health status in older horses,[4] the assessments of prevalence of respiratory disease based on veterinary examination indicate higher prevalence than those based on owner questionnaires. Veterinarians frequently identified cough (7.5%), nasal discharge (17.5%), and abnormal respiratory sounds on rebreathing that were marked (14%) or moderate (18%) in a group of 200 horses of 15 years or older.[5]

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Horses with abnormal findings with rebreathing were older than those that did not, with median ages of 21 years and 18 years, respectively.[5] Respiratory diseases were also common in horses 20 years or older admitted to a veterinary teaching hospital and this was the third most common body system involved, after gastrointestinal and musculoskeletal problems.[6] Recurrent airway obstruction (RAO) was diagnosed in 6% of this patient group, 2% had laryngeal disease, and 2% pneumonia usually related to episodes of esophageal obstruction.[6]

Cardiac disease is also fairly common in the geriatric horse, but horse owners are less likely to recognize this in their geriatric horses. Only one of the owners of 200 horses that were 15 years or older reported that his or her horse had a cardiac murmur when in fact cardiac murmurs were detected in 20%.[4] In a study of the very old horse population, more than one-third had murmurs unrecognized by the owners.[2] The prevalence of murmurs of left-sided valvular regurgitation (LSVR) increases with age[7] and age and male sex are risk factors for aortic regurgitation (AR).[8] Compared with small ponies, there was a greater prevalence of LSVR in small, Thoroughbred-type horses.[7] Researchers have not consistently grouped age and use various forms of classification of cardiac murmurs when reporting findings, but in horses 15 or older to 23 years and 24 years or older, LSVR was found in 13.5% and 14.8%,[7] a study of horses of 15 years or older, documented cardiac murmurs in 20%[5] and another survey focusing on horses 30 years or older, reported murmurs consistent with AR in 19%, mitral regurgitation (MR) in 17% and tricuspid regurgitation was rare, with around 5% always occurring in horses with additional left-sided murmurs.[2] Irregularity of cardiac rhythm, consistent with atrial fibrillation (AF), was detected on auscultation in 2% of horses of 15 years or older[5] and greater than 4.4% of horses 30 years or older.[2] Age is not a specific risk factor for AF,[8] although MR is recognized as a predisposing condition for this arrhythmia in general[9] and MR increases the likelihood of recurrence of AF.[10] It is likely that the majority of elderly horses with AF have some degree of underlying structural heart disease and, therefore, treatment recommendations aiming to correct the arrhythmia that apply in athletes,[11] often with lone AF, do not translate to the geriatric patient group.

Although morbidity is high, cardiovascular and respiratory diseases are relatively rarely the cause of death in older horses, representing 4.6% and 4.2%; gastrointestinal disease (42%) and neoplasia (19%) were the most common causes of death in a recent survey of post mortem findings in 241 equids.[12] There was no difference in mortality of horses with and without murmurs of LSVR in a 4-year longitudinal study and owner-reported cause of death was related to the cardiovascular system in only 8%.[7]

SPECIFIC CONDITIONS

Recurrent Airway Obstruction

RAO is a multifactorial disorder, affecting horses from fairly early in life. The overall disease prevalence has been estimated to be around 14% in one UK study, although horses 15 years or older are much more likely to be affected, with an odds ratio of 18.3 (95% CI, 4.31–77.66) compared with horses younger than 5 years.[13] Residence in an urbanized environment, respiratory infection, and exposure to hay/straw early in life were additional risk factors.[13] RAO is characterized by hypersensitivity-mediated, neutrophilic airway inflammation and lower airway obstruction. It is recurrent in nature and clinical signs tend to be prompted by exposure to airborne organic dust.[14] Most veterinarians are only too familiar with the clinical signs, diagnosis, and management of RAO (**Fig. 2**A). Cough and nasal discharge are common, but the absence of