Musculoskeletal Disease in Aged Horses and Its Management

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KEYWORDS

• Osteoarthritis • Laminitis • Geriatric horse • Pain management
• Degenerative joint disease

KEY POINTS

- Musculoskeletal disease is the most prevalent health and welfare issue in aged horses with osteoarthritis (OA) and chronic laminitis being the most common single disorders.
- The prevalence of OA is greater than 50% in horses older than 15 years and up to 80% to 90% in horses over 30.
- Management of OA in the elderly horse is multifocal and focuses, apart from pain management, also on optimizing the exercise regimen and improving living conditions.
- Laminitis in the geriatric horse is related to pituitary pars intermedia dysfunction (PPID) in many cases.
- Laminitis in geriatric horses is managed as in the general horse population, with additional benefit from pergolide administration in PPID cases.

INTRODUCTION

It is a well-known fact that musculoskeletal disease is the principal cause of wastage in the equine industry. More than 30 years ago, this was demonstrated in epidemiologic research in Thoroughbred racing.[1,2] More recently, Bertuglia and co-workers,[3] in a cohort of 356 Standardbreds, reported an overall exercise-related musculoskeletal injury rate of 4.79 per 100 horse-months, a figure substantially higher than the injury rate of 1.8 per 100 horse-months found in a prospective study in Thoroughbreds in training, although these injuries concerned joint-related injuries only.[4] Musculoskeletal disease-related wastage is not only in the racing breeds. In a study on 126 elite show jumpers, 55% and 22% of days lost to training for medical reasons were owing to non-acute and acute orthopedic injuries respectively.[5] Combined, this figure is similar to

The authors have nothing to disclose.

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Vet Clin Equine 32 (2016) 229–247
http://dx.doi.org/10.1016/j.cveq.2016.04.003 **vetequine.theclinics.com**
0749-0739/16/$ – see front matter

the 72.1% of days lost in a study on racehorses in South Africa.[2] Even in young horses subjected to a standard riding horse quality test, moderate or severe orthopedic clinical findings were reported in 24% of cases, against only 6% moderate or severe clinical medical findings.[6] Of the musculoskeletal tissues (muscle, bone, joints, tendons/ligaments) the latter two are by far of greatest clinical relevance in most disciplines, mainly because of their poor healing capacity and the consequent tendency to develop chronic disorders.

In the aging human population, musculoskeletal disorders have a huge influence on quality of life and rank first as cause of years lived with disability.[7] Given the high prevalence of musculoskeletal disease in nongeriatric horses, as outlined, it is not surprising that this is the case for the elderly horse as well. In a study of 69 horses aged 30 years and older, a staggering 77% was found to be lame at clinical examination with virtually all (97%) having a reduced range of motion in at least 1 joint.[8] When reducing the age above which a horse was deemed to be geriatric to 15 years, these figures were still 51% and 84% in a population of 200 animals.[9] In this group, owners reported lameness only in 23% of cases (and reported hoof abnormalities in 27% against 80% diagnosed by the veterinarian).[10] Hence, owner perception of musculoskeletal problems in aging horses is significantly less than expert diagnosis, which is of great importance from both the veterinary and welfare perspectives. In line with these figures on the prevalence of musculoskeletal disease in the elderly horse, lameness was found to be the principal reason for euthanasia of geriatric horses (24%), just before colic (21%).[11]

The vast majority of lameness cases in geriatric horses are owing to chronic degenerative joint disease or osteoarthritis (OA), as evidenced by the high prevalence of reduced range of motion in 1 or more joints. This is similar to the human situation. Another frequent cause of disablement in the elderly horse that does not have a homologue in human medicine is (chronic) laminitis. Therefore, this review focuses on the clinical aspects and related care and management of chronic joint disorders (OA), and on how to deal with laminitis in the elderly horse. Because pain management is an important common aspect of both conditions, it is an area of focus in this review.

CHRONIC JOINT DISEASE OR OSTEOARTHRITIS IN THE GERIATRIC HORSE

Definition, Pathogenesis, and Clinical Signs

Equine OA has been defined as a group of disorders characterized by a common end stage, namely, progressive deterioration of the articular cartilage accompanied by changes in the bone and soft tissues of the joint.[12] The basic pathogenic mechanism of OA is a disturbance of the joint homeostasis leading to an imbalance of the anabolic and catabolic processes in the joint. Whereas damage to the articular cartilage is among the hallmarks of OA and is generally seen as emblematic for the disease, it is not the only tissue that is affected. In OA, the subchondral bone is also affected and changes in the subchondral bone have even been suggested to be primary events rather than secondary ones.[13] The synovial membrane is also involved and the composition of the synovial fluid will be altered to a certain extent, reflecting the current concept of seeing the joint as a complex multicomposite organ, rather than as a structure consisting of a variety of separately reacting tissue types.[14]

There are various etiologic factors involved in OA, including synovitis, single events producing major joint trauma, and repeated microtrauma as a result of repeated overloading. In the horse, the last 2 pathways are probably most important with use-related wear and tear being highly prevalent. In a post mortem study using