Concerns of the Geriatric Horse

Kara Lascola, DVM, MS, DACVIM
Associate Professor Equine Medicine
Auburn University

Why is geriatric medicine important

- Increase in number of aged horses receiving veterinary care
  - ~70% of geriatric horses have age-associated problem
- Increased duration of ownership
- Recognition that clinical signs and disease risk and severity can be influenced by age

Ginger, aged 43

Image courtesy of Dr. Mary Rose Paradis

The horse-owner relationship

A very strong emotional bond often exists and it is not uncommon for an older horse to be with the current owner for many years

Kizzy, 1960

Kizzy, 1993

What defines a geriatric horse?

Chronologic Age?

- > 15 to > 20 years
  - ≥ 30 years *very old*
- Average life expectancy 19 years

- ~ 28% horses ≥ 16 years of age
- ~ 7.5% of horses in US ≥ 20 years of age
- Owners: *average age considered "old" 22 years with characteristic signs of ageing at 19-23 years*

Brosnahan & Paradis JAVMA 2003; Ireland VCNA 2016; USDA/APHIS 2005; Mellor et al Vet Rec 2001

Chronologic age does not always correspond to physiologic age-related changes

- Variability in spectrum and rate of age-related changes
- Genetic, epigenetic, environmental, health, and management factors are all important
  - Must consider normal ageing, senescence, and chronic disease

Werda, Age 2 Days

Werda, Age 16 Years

Werda, Age 25 Years

Images courtesy of Dr. Mary Rose Paradis

Signs of ageing - benign

- Graying hair coat
- Drooping lower lip
- Deepening hollows around eyes
- Decreased muscle tone (swayback)

Changes suggesting senescence or disease

- Stiff joints/lameness
- Loss of body mass (sarcopenia)
- Altered hair coat
- Exercise intolerance
- Organ dysfunction
- Attrition of body systems (immunologic, dental, gastrointestinal, hepatic, neurologic, etc..)

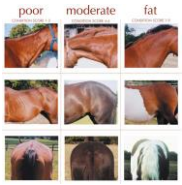
Survey of owner perceived problems requiring veterinary attention

- Muscle loss or weight loss/change in condition
- Changes in hair coat shedding
- Problems eating
- Lameness
- Hoof problems
- Reduced exercise tolerance

Owners often under-recognize or under-report disease in geriatric horses

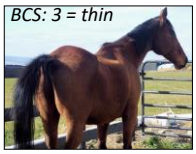
Body condition in older horses

- Owners recognize weight loss more than over-conditioning
- BCS should remain in ideal range
  - Standard BCS system may not be appropriate for all horses
- Age is associated with decreased body mass (more fat, less muscle)
  - Efficiency of thermoregulation
  - Energy requirements



Weight loss in older horses

- Exclude common causes
  - Dietary (amount, type)
  - Dental disease
  - Chronic pain
  - Intestinal parasitism
  - Social dynamics
- Evaluate for more significance disease or senescence



Over-conditioning and obesity

- Increased BCS or increased fat deposits
- Feed or nutrient intake exceeds requirements:
  - Owner expectations, feeding concentrate, lush pastures, diet exceeds energy requirements
- Consequences
  - Insulin dysregulation
  - Laminitis
  - Strain on musculoskeletal system
  - Metabolic activity of fat cells

Age-related dysfunction in the immune system

- Immunosenescence
  - Innate and acquired immunity
  - Altered lymphocyte cell populations and function
- "Inflamm-aging"
  - Exaggerated inflammatory cytokine production
- Contribution to age-related diseases
  - Equine asthma

What is impact of immune dysfunction?

- Risk of infectious disease
- Severity of infectious disease
- Endoparasitism
- Vaccine responsiveness
- Contribution to chronic inflammatory diseases

Medical conditions and diseases where age is considered a risk factor

- Musculoskeletal (OA, laminitis)
- Respiratory (asthma) & cardiac (murmurs)
- Endocrine disease (PPID)
- Dental
- Gastrointestinal (colic)
- Dermatologic disorders
- Ophthalmic disease
- Neoplasia

Speculation, age 25

Musculoskeletal problems

- A major reason for veterinary evaluation and for reduced athletic capacity or welfare concerns in geriatric horses
- Predisposing causes
  - Cumulative wear-and-tear
  - Athletic history
  - Cartilage degeneration
  - Concurrent disease (PPID)

Musculoskeletal problems

- Common conditions
  - Osteoarthritis
  - Laminitis
- Common clinical signs
  - Lameness
  - Stiffness
  - Reduced range of motion
  - Difficulty standing
  - Reluctance to lay down

Laminitis

Endocrinopathic laminitis is more prevalent in older horses

PPID is a significant risk factor for development of laminitis

Both chronic and acute

Major reason for euthanasia

Treatment goals may not be the same as in younger horses

- Routine preventative care is essential
- Often working with end-stage disease
  - **Pain management**
  - Medical therapy for PPID
  - Address “flare-ups”
  - Weight management
  - Controlled exercise
  - Physiotherapy
  - Shoeing and hoof care
  - Appropriate surfaces

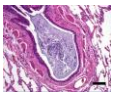
Pain management

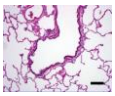
- Primary goal often is to maintain or improve quality of life
  - Return to performance is often secondary
- Chronic NSAID administration most common
  - Lowest dose, watch for side effects
- Other
  - Gabapentin (neuropathic pain)
  - Nutraceuticals
  - Ancillary therapies
    - Acupuncture, chiropractic

van Weeren PR, de Grauw JC. VCNA Eq Pract 2010

Respiratory disease

- Severe equine asthma (RAO, "Heaves") is most common respiratory problem of older horses
- Equine asthma is a chronic, allergen-mediated condition characterized by:
  - Neutrophilic airway inflammation
  - Airway hyper-responsiveness
  - Airway obstruction
  - Airway remodeling





Treatment for asthma

- Goals: reduce airway hyper-reactivity and inflammation, and improve quality of life
  - Long standing disease is often more severe, responding less favorably to treatment
- Environmental management to reduce allergen exposure is critical
- Medical treatment
  - Corticosteroids +/- bronchodilators
- Concerns
  - Co-morbidities (PPID)
  - Bronchiectasis
  - Pulmonary hypertension and right heart failure

Cardiac disease

- Murmur present in 15-20% horses > 20 years
- Aortic regurgitation is most common in older horses
  - Left, diastolic, musical murmur
  - Often benign and slowly progressive
  - Concern: hyperkinetic pulse, LHF, ventricular arrhythmia
- Mitral regurgitation is 2nd most common in older horses
  - Left, systolic (holo or pan) murmur
  - Concern:
    - Concurrent atrial fibrillation
    - Ventricular arrhythmias
    - Congestive heart failure

Cardiac disease

- Most murmurs are slowly progressive & well tolerated, allowing horses to continue in work
  - Evaluate if: new or worsening murmur, signs of cardiac disease, arrhythmia, exercise intolerance
- Congestive heart failure
  - Advanced disease
  - Short term treatment goals
    - Increase cardiac output
      - B-blocker, ACE-inhibitor
    - Decrease congestion
      - diuretics

Endocrine disease

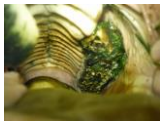
- Pituitary Pars Intermedia Dysfunction (PPID)
  - Most common endocrinopathy in the aged horse
  - Related and unrelated co-morbidities often present
- Equine Metabolic syndrome
  - Metabolic and endocrine dysregulation associated with increased susceptibility to laminitis
  - Age-related progression possible & may co-exist with PPID
- Other (rare) endocrinopathies
  - Thyroid or parathyroid tumors
  - Pheochromocytomas
  - insulinomas

Gastrointestinal problems

- Colic is 2nd most common reason for veterinary care and most common reason for euthanasia
  - Esophageal obstruction, large colon impaction, strangulating lipoma
- Owners often reluctant to send older horses to surgery
- Impact of age on outcome varies
  - Surgical lesion, co-morbidities
  - No special concerns with anesthesia

Dental disease in old Horses

- Associated problems:
  - Weight loss, improper digestion, esophageal obstruction, impaction colic, dysphagia
- Anatomic considerations
  - Hypsodont teeth, change in occlusal surface (loss of enamel) and occlusal contact with opposing teeth, change in tooth shape (incisors)
- Often under-recognized as overt signs may be absent
  - Difficulty masticating
  - Quidding, packing feed
  - Long fibers in feces
  - Weight loss



Common dental problems - Incisors

- Change in contact angle
- Excessive wear
- Malocclusion
- Calculus formation
- Senile diastemata & periodontal disease
- Equine odontoclastic tooth resorption and hypercementosis

Common dental problems – Cheek teeth

Tooth loss
Abnormal tooth length

Abnormal wear (points, hooks)

Common dental problems – Cheek teeth

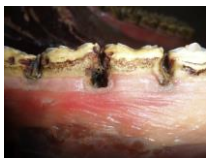
Wave Mouth: Uneven wear of entire arcade

Smooth Mouth:
Loss of enamel and occlusal surface

Stepped Mouth:
loss of opposing tooth

Common dental problems – Cheek teeth

- Senile diastemata
- Periodontal disease

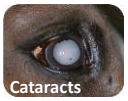


Dental care

- Routine dental care often infrequent in older horses
- Goals: improve or preserve mastication and reduce oral discomfort
- Considerations
  - Concurrent disease: cardiac, PPID, orthopedic
  - Tolerance of sedation or restraint
    - Neuroleptanalgesia, local anesthesia, reduced systemic doses
  - Vaccine status – tetanus!
  - Dietary modification
    - Fiber content, processed feed, ease of consumption, season

Ophthalmic disease in older horses

- Source of both chronic and acute discomfort
- Ocular disease often missed unless obvious signs
- Often chronic progression of longstanding disease
- Common disorders
  - Superficial non-healing corneal ulcers
  - Senile retinopathy
  - Vitreous degeneration
  - Recurrent uveitis – cataracts, glaucoma
  - Nuclear Sclerosis


Cataracts


Nuclear sclerosis

Neoplasia

- Clinical signs often related to organ system involved
- Odds of neoplasia increase with age
- One of most common diagnoses and reasons for euthanasia in older horses

Squamous cell carcinoma

Melanoma

Lymphoma

Management and preventative care

- Recognition/perception of problems
  - "old age" versus medical problem
- Routine preventative care
  - May change with age
- Preservation of performance
- Quality of life
  - Managing versus "curing" medical problems

Management of the geriatric horse

- Feeding and nutrition
- Housing
- Preventative care
  - Dental care
  - Foot/orthopedic care
  - Vaccination & deworming
- Quality of life
  - Physical activity & exercise
  - Environment and medical care
  - End of life decisions

Pierre, age 33

Feeding and nutrition

- Changes in workload & energy requirements
  - Address over-conditioning!
- Altered digestive efficiency (?)
- Dietary considerations
  - 1.25-2% BW hay/day depending on condition
    - May need to soak hay
  - 15-20 #/day complete feed
    - Protein: 12-14%
    - Essential minerals
  - Vegetable fat source if needed
  - Palatable, easy to chew
  - Pasture may be ideal

Other nutritional considerations

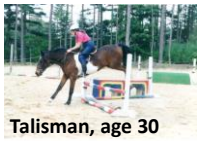
- Monitor water intake
- Good preventative care
  - Dental, orthopedic, deworming
- Pain management
- Social dynamics
- Thermoregulatory changes
- Monitor insulin/glucose dynamics
  - Insulin resistance, changes in body condition
- Monitor for PPID
  - ACTH levels

Environmental management

- Dust-free, good ventilation in stall
- Stable footing, appropriate bedding if stalled
- Recognize changing herd dynamics
  - May impact access to feed
- Easily accessible food and water sources
- Thermoregulatory considerations
  - Shelter
  - Blanketing

Physical activity and exercise

- Regular exercise or space for free movement essential
- Exercise capacity varies but older horses often continue to compete
  - Intensity often decreases
- Watch for dehydration & overheating
- Adjustments in tack and saddle fit may be necessary



Talisman, age 30

Preventative care

- Lifelong routine and strategic deworming is essential
  - GI scarring from chronic infection
  - Increased intensity of parasitic infections and increased fecal egg counts in older horses is debated
- Regular vaccination is essential
  - Misconception that susceptibility decreases with age
  - May demonstrate less robust response to vaccination but significance of this unknown

Quality of life (QOL) and euthanasia

- Owners often do not recognize the significance to QOL of certain diseases
  - Even when recognized, owners often do not change management
  - Challenge to veterinarians is increased reliance on the internet for health and welfare questions
- Key factors owners perceive to impact QOL
  - Health status, nutrition, "comfort", company of other horses, exercise capability

QOL and euthanasia

- Assessing QOL in older horse
  - No validated mechanism (unlike human geriatrics)
  - Must be veterinarian and owner directed
  - Must be tailored to individual horse
- Euthanasia
  - Owner reported reasons for euthanasia differ from those reported by veterinarians
    - "old age" often used by owners to justify euthanasia or to not pursue treatment
  - Owners may also delay decisions of euthanasia