2nd Equine Lameness Research Workshop

Oklahoma City, Oklahoma
Tuesday, July 24, 2012

1:00 pm Introduction and Opening Remarks
Dr. C. Wayne McIlwraith (Meeting Chair & Moderator)

Topic		Speaker
1:20	Objective evaluation of lameness *(Kinetics, kinematics & inertial sensors)*	Kevin Haussler
1:40	Imaging biomarkers of orthopaedic disease	Chris Kawcak
2:00	The use of diagnostic ultrasonography in evaluating lamness	Mary Beth Whitcomb
2:20	The use and place of MRI in lameness diagnosis	Natasha Werpy
2:40	The current status of fluid biomarkers	Peter Clegg
3:00	*BREAK*	
3:20	Scientific validation of joint medications	David Frisbie
3:40	The use of Blood products in the treatment of joints	Alicia Bertone
4:00	Current Status of the use of mescnchymal stem cells	Wayne McIlwraith
4:20	Effects of exercise on musculoskeletal tissue & use of this knowledge in training protocols	P. René van Weeren
4:40	Current options for the treatment of tendonitis	Alan Nixon
5:00	Where we are with rehabilitation and its scientific validation	Steve Adair
5:20	The science of racetrack technology & its management	Christie Mahaffey

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CURRENT EVIDENCE ON TREATMENTS OF JOINT DISEASE

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Take Home Message
The main goals of treating OA are reducing pain and minimizing joint deterioration. While randomized clinical trials would be optimal for comparison of joint treatments they for the most part don't exist and experimental models provide the vast majority of the comparative information.

There are two main goals for medical treatment of osteoarthritis (OA) in the horse: reducing pain (lameness) and minimizing progression of joint deterioration. When formulating a treatment plan, the optimization of these goals will be influenced by an accurate and specific diagnosis, the stage of disease, severity, available treatment modalities, and rehabilitation time. Clinicians realize that treating joint disease is an art and does not follow any specific recipe. To make the correct decisions the clinician can be helped by scientific studies that have defined potential risks and benefits of certain medication. An extensive review of the research pertaining to joint medication is beyond the scope of this abstract however, highlights of some of the most common medications based on surveying equine practitioners will be discussed. Recent studies using an experimental model of equine OA have assessed the use of hyaluronic acid (HA), pentosan polysulfate, polysulfated glycosaminoglycan (PSGAG) and polyglycan.[1-3]

No significant improvements were noted in clinical signs of pain with either PSGAG or hyaluronan compared to placebo treated control horses.[1] Histologically, the degree of synovial membrane vascularity and subintimal fibrosis was significantly reduced with PSGAG treatment (trend for HA p=value <0.07), compared with controls. Histologically, significantly less fibrillation was seen with hyaluronan treatment, compared with controls. Articular cartilage fibrillation was substantially reduced by pentosan treatment and concentrations of chondroitin sulfate 846 epitope (aggrecan synthetic marker) were significantly increased in the synovial fluid of osteoarthritic and non-osteoarthritic joints of treated horses.[2] Intraarticular treatment of OA-affected joints with polyglycan resulted in significant improvement in clinical pain (lameness scores), bone proliferation radiographically and degree of full thickness articular cartilage erosion seen grossly when compared to placebo treated OA affected joints.[3] Administration of polyglycan intravenously resulted in improved cartilage erosion but more pathologic response to flexion as well as an increase radiographic pathology.[3]

More research has been done into commonly used IA medications allowing the clinician a greater degree of choices in the field based on scientific rigor.

References

1. Frisbie DD, Kawcak CE, Werpy NM, et al: Evaluation of polysulfated glycosaminoglycan or sodium hyaluronan administered intra-articularly for treatment of horses with experimentally induced osteoarthritis. Am J Vet Res 70:203-209, 2009.

2. McIlwraith CW, Frisbie DD, Kawcak CE: Evaluation of intramuscularly administered sodium pentosan polysulfate for treatment of experimentally induced osteoarthritis in horses. Am J Vet Res 73:628-633, 2012.
3. Frisbie DD, Kawcak CE, McIlwraith CW, et al: Assessment of intravenous or intraarticular hyaluronic acid, chondroitin sulfate, and N-acetyl-D-glucosamine (Polyglycan) in treatment of osteoarthritis using an equine experimental model. Proc 55th American Association of Equine Practitioners Annual Convention, Las Vegas, NV, pp 61, 2009.