hilltop bio

Effect of Lyophilized Equine Birth Tissue Combined with Extracorporeal Shock Wave Therapy for the Treatment of Suspensory Desmitis

INTRODUCTION:
Suspensory desmitis is a common cause of lameness in performance horses which often results in prolonged recovery times and substantial financial loss. Even after recovery and rehabilitation, many horses experience a reduction in athletic performance.[1] The diagnosis of suspensory desmitis is made through a combination of history, lameness examination findings, and diagnostic imaging.

Current treatment options include rest, controlled exercise, anti-inflammatory administration, intralesional injections, surgery, and extracorporeal shock wave therapy (ESWT).[2,3] Recently, birth-derived products have been evaluated for enhancement of wound healing as well as enhanced healing of tendon and ligament injuries as amnion is a source of significant growth factors and cytokines.[4] To the author's knowledge, a lyophilized, birth tissue product has not been evaluated for the healing of ligament injury. The objective of this clinical trial was to evaluate the outcome following local injection of lyophilized birth tissue combined with ESWT for the treatment of suspensory desmitis lesions.

MATERIALS & METHODS:
The design of the study was a non-blinded clinical trial. Regenaflex-RT™, an aseptically manufactured, commercially available, lyophilized product derived from equine birth tissues was administered via intralesional or perilesional injection based on ultrasonographic appearance. Ten client-owned horses were included in the study based the diagnosis of suspensory desmitis and following client/owner consent and enrollment. The criteria for inclusion included a fore or hind limb lameness attributed to suspensory desmitis based on history, physical examination and lameness examination including diagnostic analgesia and ultrasonographic examination.

Each lesion was injected on Day 1. Injection site was evaluated every 24 hours for 5 days post-injection. ESWT was performed on Day 1 after injection and offered at days 14 and 28. At each evaluation, findings were recorded which included lameness grade based on the AAEP lameness scale, response to flexion, pain and heat on palpation of the injection site, and location of the lesion (proximal, mid-body or branch). Follow-up data was recorded at 90 days (10/10) and 12 months (8/10). A Mann-Whitney U test for non-parametric data was used to evaluate the differences between pre and post-treatment variables. A $p < 0.05$ was considered significant.

RESULTS:
Lameness examinations at 90 days post treatment indicated significant improvement in lameness scores ($p=0.0004$) and lameness resolved in 8/10 horses at 90 days. Ultrasound examinations were performed on Day 90 on 9/10 horses. All 9 horses demonstrated improvement in the ultrasonographic appearance of the site of injury. One horse did not have an ultrasound examination on Day 90 but did not show ultrasonographic improvement at Day 45. 6/10 (60%) of the horses experienced a

transient increase in heat at the injection site, 1/6 at 24 hours, 5/6 at 48 hours. No NSAIDs were administered at the time of injection and none of the increases in injection site heat demonstrated clinical signs warranting therapeutic intervention. Greater than 12 month follow up was available for eight horses, seven of which were sound in the affected limb according to owner survey.

DISCUSSION/CONCLUSION:
Treatment of SD lesions with lyophilized birth tissue and ESWT was well tolerated and resulted in improvement in lameness scores. Blinded placebo-controlled studies are indicated.

REFERENCES:

1. Dahlgren LA. Pathobiology of tendon and ligament injuries. Clin Tech Equine Pract. 2007;6:168–73.

2. Ortved KF. Regenerative medicine and rehabilitation for tendinous and ligamentous injuries in sport horses. Vet Clin North Am Equine Pract. 2018;34:359–73.

3. Waselau M, Sutter WW, Genovese RL, Bertone AL. Intralesional injection of platelet-rich plasma followed by controlled exercise for treatment of midbody suspensory ligament desmitis in Standardbred racehorses. J Am Vet Med Assoc. 2008;232:1515–20.

4. Woodall BM, Elena N, Gamboa JT, Shin EC, Pathare N, McGahan PJ, Chen JL. Anterior Cruciate Ligament Reconstruction With Amnion Biological Augmentation. Arthrosc Tech. 2018 Mar 19;7(4):e355-e360.

5. AAEP Lameness Exams: Evaluating the Lame Horse. Available at https://aaep.org/horsehealth/lameness-exams-evaluating-lame-horse

ACKNOWLEDGEMENT: Regenaflex-RT™ was supplied by Hilltop Bio, Mansfield, MA

Watch the webinar to hear Dr. Beau Whitaker present the study results.

Scan the QR code or visit:
https://youtu.be/gJefMo6PlpA