



Follow-up of recovery of equine tendon and ligament injuries 18–24 months after treatment with enriched autologous adipose-derived mesenchymal stem cells – a clinical study

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ABSTRACT

Objective: Tendon and ligament injuries are very common problems with performance horses often leading to premature end of a horse's sports career due to the high risk on re-injury. The purpose of this study was to evaluate long-term (18–24 months) efficacy of enriched adipose derived stem cells in treatment of equine tendon and ligament injuries. The study design was an open, nonrandomized, single treatment, multicenter, clinical study that was performed in several Finnish equine clinics during 2007–2008.

Material and Methods: 58 privately owned horses that had superficial digital flexor tendon (SDFT, n=18) or suspensory ligament (SL, n=40) injury were included in the study. Majority (n=44) were trotters and rest were riding horses. Naturally occurred SDFT or SL injury was treated with autologous adipose derived enriched stem cell suspension. Follow-up in 18 and 24 months was performed with phone interviews of the owners and from the update competition data of the Finnish National Trotting and Riding organizations. Information about a horse's return to full work and competitions, re-injuries or new injuries as well as owner satisfaction was collected.

Results and conclusions: Follow-up information was received from 53 horses. Altogether 32 horses (60.4 %) have been competing and average number of starts after the treatment is currently 12 varying from 1 to 49. Re-injuries were reported in 14 horses (26.4 %). Seven of these horses had previous injury of the same tendon already before the stem cell treatment. Thus only seven (13.2 %) of the injuries that were primarily treated with stem cells had re-injured. Three of these horses had raced on average 4 times before re-injury. Additionally eight horses had had other injuries in other legs. Majority of owners (84.6 %) reported excellent or very good satisfaction for the stem cell treatment and its results.

ADSCs provide a promising alternative in treatment of tendon and ligament injuries in horse. With excellent cell yield after enrichment and faster cell culture process the use of ADSCs would provide a significant advantage in clinical work by restoring the tendon tissue and by enabling the horses to recover to their initial athletic use. Especially primary treatment of fresh tendon or ligament injuries with ADSCs provide significantly lower re-injury rate (13.2 %) than in previous reports with other methods. However, ADCSs can also improve healing results when used in old re-injured tendons and ligaments.