TILUDRONATE

Bibliography Synopsis May 2016

Source: PubMed ncbi.nlm.nih.gov/pubmed

Keywords : “tiludronate, horse”

1. "Quantitative assessment of two methods of tiludronate administration for the treatment of lameness caused by navicular syndrome in horses." Whitfield CT, Schoonover MJ, Holbrook TC, Payton, ME, Sippel KM. Am J Vet Res. 2016 Feb;77(2):167-73. doi: 10.2460/ ajvr.77.2.167.

OBJECTIVE: To determine effects of 2 tiludronate administration protocols on measures of lameness in horses with navicular syndrome (NS).

CONCLUSIONS / CLINICAL RELEVANCE: Tiludronate (1mg/kg, IV) as a single systemic treatment appeared to be beneficial for horses with NS.

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2. ***Tiludronate concentrations and cytologic findings in synovial fluid after intravenous regional limb perfusion with tiludronate in horses."*** Hunter BG, Duesterdieck-Zellmer KF, Larson MK., Peer J. 2015 Apr 28;3:e889. doi: 10.7717/peerj.889. eCollection 2015.

OBJECTIVE: Anecdotal accounts of tiludronate administration via intravenous regional limb perfusion (IVRLP) exist despite a lack of information regarding safety for synovial structures in the perfused area. The objective of this study was to determine whether tiludronate concentrations in synovial structures after IVRLP with low dose (0.5 mg, LDT) or high dose (50 mg, HDT) tiludronate remain below a value demonstrated *in vitro* to be safe for articular cartilage (<19,000 ng/ml), and to determine effects of tiludronate on synovial fluid cytology variables compared to saline perfused control limbs.

CONCLUSION: In some horses, IVRLP with HDT may result in synovial fluid concentrations of tiludronate that may have adverse effects on articular cartilage, based on *in vitro* data. IVRLP with LDT is unlikely to promote articular cartilage degradation. Further studies to determine a safe and effective dose for IVRLP with tiludronate are needed.

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3. "Effects of low and high dose intraarticular tiludronate on synovial fluid and clinical variables in healthy horses-a preliminary investigation." Duesterdieck-Zellmer KF, Moneta L, Ott JF, Larson, MK, Gorman EM, Hunter B, Löhr CV, Payton ME, Morré JT, Maier CS. PeerJ. 2014 Sep 4;2:e534. doi: 10.7717/ peerj.534. eCollection 2014.

OBJECTIVE: To determine effects of intra-articularly administered tiludronate on articular cartilage *in vivo*, eight healthy horses were injected once with tiludronate (low dose tiludronate [LDT] 0.017 mg, n = 4; high dose tiludronate [HDT] 50 mg, n = 4) into one middle carpal joint and with saline into the contralateral joint.

CONCLUSION: High dose tiludronate treatment caused a transient increase in synovial total solids & temporarily increased proteoglycan degradation in cartilage. Although clinical significance of these changes are questionable, as they did not result in articular cartilage damage, further investigation of the safety of intraarticular HDT in a larger number of horses is warranted.

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4. "Concentration-dependent effects of tiludronate on equine articular cartilage explants incubated with and without interleukin-1β." Duesterdieck-Zellmer KF, Driscoll N, Ott JF. Am J Vet Res. 2012 Oct;73(10):1530-9.

OBJECTIVE: To determine concentration-dependent effects of tiludronate on cartilage explants incubated with or without recombinant equine interleukin-1β (rEq IL-1).

CONCLUSIONS / CLINICAL RELEVANCE: Tiludronate had biphasic concentration-dependent effects on cartilage explants that were independent of PGE(2) secretion or MMP gene expression. Low tiludronate concentrations had some chondroprotective effects, whereas high tiludronate concentrations were detrimental to equine articular cartilage. Administration of tiludronate intra-articularly to horses may be detrimental, dependent on the dose used. *In vivo* studies are needed before intraarticular tiludronate administration to horses can be recommended.

5. "Tiludronate infusion in the treatment of bone spavin: a double blind placebo-controlled trial". Gough MR, Thibaud D, Smith RK., Equine Vet J. 2010 Jul;42(5):381-7

OBJECTIVE: To confirm the efficacy of tiludronate, administered as a single infusion at a dose of 1 mg/kg bwt, in the treatment of bone spavin in the horse.

CONCLUSION / CLINICAL RELEVANCE: Tiludronate treatment is proven to be effective in bone spavin in horses in association with a controlled exercise programme. Tiludronate in combination with controlled exercise offers an alternate medical treatment for bone spavin.

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5. "Comparative pharmacokinetics of two intravenous administration regimens of tiludronate in healthy adult horses and effects on the bone resorption marker CTX-1". Delguste C, Amory H, Guyonnet J, Thibaud D, Garnero P, Detilleux J, Lepage OM, Doucet M.
J Vet Pharmacol Ther. 2008 Apr;31(2):108-16

OBJECTIVE: Bioavailability & pharmacological effects of tiludronate were compared when administered as an intravenous (i.v.) bolus at a dosage of 0.1 mg/kg body weight (b.w.) once daily for 10 consecutive days and as a single constant rate infusion (CRI) at a total dose of 1 mg/kg b.w. in healthy adult horses.

CONCLUSION: Both dosage regimens of tiludronate produced similar plasma exposure & pharmacological effects in adult healthy horses.

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6. "Pharmacological effects of tiludronate in horses after long-term immobilization". Delguste C, Amory H, Doucet M, Piccot-Crézollet C, Thibaud D, Garnero P, Detilleux J, Lepage OM. Bone. 2007 Sep;41(3):414-21. Epub 2007 May 23.

OBJECTIVE: This study was designed to evaluate tiludronate's effects on biochemical biomarkers of bone metabolism & on bone density & structure in an experimental model of disuse osteoporosis induced by cast application in horses.

DISCUSSION / CONCLUSIONS: tiludronate was found to significantly reduce bone resorption during immobilization, as well as to prevent long-term osteopenia in the immobilized limb & treat orthopedic conditions in the horse. This study was Disuse osteopenia did not affect the lateral superficial cortex of MCIII.

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7. "Efficacy of tiludronate in the treatment of horses with signs of pain associated with osteoarthritic lesions of the thoracolumbar vertebral column". Coudry V, Thibaud D, Riccio B, Audigié F, Didierlaurent, D, Denoix JM. Am J Vet Res. 2007 Mar;68(3):329-37.

OBJECTIVE: To evaluate the efficacy of tiludronate for the treatment of horses with signs of pain associated with lesions of the thoracolumbar vertebral column.

CONCLUSIONS / CLINICAL RELEVANCE: Tiludronate had efficacy in the treatment of horses with signs of pain induced by osteoarticular lesions of the thoracolumbar vertebral column, causing a significant improvement in dorsal flexibility. Tiludronate may offer a treatment option for the management of horses with intervertebral lesions and the associated pain.

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8. "Tiludronate as a new therapeutic agent in the treatment of navicular disease: a double-blind placebo-controlled clinical trial." Denoix JM, Thibaud D, Riccio B., Equine Vet J. 2003 Jun;35(4):407-13.

OBJECTIVE: To determine if bone remodelling changes occurring in navicular disease may be corrected with therapies regulating bone metabolism.

CONCLUSIONS: Tiludronate efficacy is demonstrated in the treatment of navicular disease at the dose of 1 mg/kg bwt. Results support the clinical relevance of bone remodelling changes in the outcome of navicular disease.

Bimeda Inc.
One Tower Lane, Suite 2250
Oakbrook Terrace, IL 60181 USA
Toll Free Tel. 888-524-6332 • Toll Free Fax 877-888-7035
Email: Sales@BimedaUS.com

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