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Intrasound therapy augments the healing of acute tendon injury in rats exposed to ethanol

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Abstract

Functional abnormalities in wound structure has been identified as a potential complication if a patient consumes alcohol prior to injury and studies suggest that even a single incidence of acute ethanol exposure can perturb the response to trauma significantly. Ethanol ingestion has been shown to result in delayed and abnormal tendon healing 3 weeks after injury.

This study investigated the effects of low intensity intrasound therapy (LITR) given twice daily on the morphology and antioxidant parameters in the healing tendon following an acute injury in Rats exposed to Ethanol.

Fifteen male rats, randomized into three groups all underwent induced crush injury to the Achilles tendon. Groups 2 and 3 had prior administration of 30% ethanol for six days. The three groups were allocated to: serve as controls (Group 1), receive no treatment (Group 2), LITR twice daily (Group 3). LITR was commenced immediately post-injury and was given twice daily over the first 7 days.

The animals were sacrificed on day 20 post-injury and the tendons were excised, and processed for histology and anti-oxidant assay.

The tendons in group 2 showed disordered and haphazard collagen formation with neutrophilic infiltrates and high tenoblast population at 20 days while the LITR treated tendon had dense, well-ordered, parallel collagen deposits with fewer tenoblasts.

LITR significantly improved the antioxidant parameters and lowered the MDA compared with the alcohol-exposed untreated tendon ($p<0.05$). LIRT thus ameliorates the deleterious effect of ethanol on the healing tendon and resulted in a near-normal morphology of the healing tendon.