Altered Response to the Mechanical Stimulation of C-Fiber Sensory Receptors Recorded *in Vitro* from the Rat Exercised Muscle

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[Aim] Our previous report of the decreased mechanical withdrawal threshold in the eccentrically contracted muscle of rats, and the increased number of c-Fos positive neurons in the superficial dorsal horn of the spinal cord at L4 after compression to that muscle demonstrated the existence of tenderness in the exercised muscle of rats. The purpose of the present study is to examine whether the mechanical sensitivity of C-fiber sensory receptors of the muscle is changed after exercise. **[Methods]** Rats were given eccentric contraction (ECC) by electrical stimulation of the common peroneal nerve innervating the extensor digitorum longus muscle 2 days before the electrophysiological experiment. Activities of single nerve fibers were recorded using the muscle-nerve preparations *in vitro*. **[Results]** Net discharge rate of C-fiber receptors during a ramp mechanical stimulation (0–20 g in 10 sec) was significantly higher in the ECC preparation than the control (CTR) (ECC (n=33): 5.2±3.2 Hz (mean ± SD), vs CTR (n=10): 3.0±2.6 Hz, $p<0.05$, un-paired t test). The threshold of this response tended to be lower in the ECC, but the difference was not significant (ECC: 5.7±3.4 g, CTR: 8.7±4.8 g, $p=0.078$). **[Conclusion]** The mechanical sensitivity of C-fiber afferents may be altered in the eccentrically exercised muscle. This might be related to the generation of tenderness in delayed onset muscle soreness after exercise.

Long-Term Effects of Amiodarone and its Non-Iodinated Analogue, Dronedarone, on the Transcription of Cardiac T3-Responsive Genes in Rat Heart

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[Aim] Amiodarone is a potent antiarrhythmic drug, however its mechanisms are not well understood. In the present study , we investigated the long-term effects of amiodarone and its non-iodized benzofuran analogue, dronedarone, on transcription of T3-responsive genes in the left ventricle of rat hearts in comparison with those of systemic hyperthyroidism and hypothyroidism. **[Methods]** Wistar rats were assigned to 5 groups: 1) untreatment, 2) systemic hypothyroidism, 3) systemic hyperthyroidism, 4) amiodarone treatment (orally 60 mg/kg daily), and 5) dronedarone treatment (orally 60 mg/kg daily). ECG recordings and mRNA measurements (Northern blot analysis) were carried out 4 weeks after the drug treatment. **[Results]** Among ECG parameters, RR, QT and QTc were significantly shorter in hypothyroid group than those in untreated group. In amiodarone treated group, RR, QT and QTc showed parallel changes to hypothyroidism. In contrast, there was no significant change in dronedarone treated group. Northern blot analysis showed that there was a significant decrease of SERCA2 mRNA in hypothyroidism (by 50%, n=4) and a significant increase in hyperthyroidism (by 26%, n=3). Amiodarone treatment caused a reduction of SERCA2 mRNA (by 20%, n=3), whereas dronedarone treatment caused no appreciable changes. **[Conclusion]** Amiodarone, unlike dronedarone, causes hypothyroid-like changes of electrical properties and transcription of T_3-responsive genes in the heart.