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KEY WORD: INFRARED LASER / DENERVATED MUSCLE

WISANU SAARDSUD : EFFECTS OF INFRARED LASER ON DENERVATED MUSCLE IN
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The purpose of this study was to determine morphologically the effect of infrared laser on denervated rat tibialis anterior muscle. Twenty adult male rats (300-400 grams) were divided into 4 groups : control, denervated-nonstimulated, denervated with electrical stimulation and denervated with infrared laser treatment. Electrical stimulation and infrared laser treatment began 4 days after sciatic nerve cut (treat 1 day, rest 1 day). All animals were sacrificed 90 days after denervation ; the muscle was removed, cut with cryostat (-20°C), processed with ATPase (pH 9.5) technique and observed under light microscope. The muscle were differentiated into type I (light staining) and type II (dark staining). The diameter of type I and type II were $59.41 \pm 3.65 \text{ }\mu\text{m}$ and $34.35 \pm 8.03 \text{ }\mu\text{m}$ respectively. In the denervated-nonstimulated group, the type I muscle fiber was disappeared, the mean diameter of type II fiber was $9.40 \pm 2.16 \text{ }\mu\text{m}$. In the third group, denervated with electrical stimulation, type I diameter was $30.97 \pm 14.76 \text{ }\mu\text{m}$ and type II was $34.68 \text{ }\mu\text{m}$. The last group, denervated with laser treatment the mean diameter of type I was $15.91 \pm 1.88 \text{ }\mu\text{m}$ and type II was $11.10 \pm 0.85 \text{ }\mu\text{m}$. The results of this study indicate that electrical stimulation can retard denervation atrophy significantly at $p < 0.05$. Although some muscle fibers in denervated with laser treatment group were preserved, infrared laser can not delay muscular atrophy ($p > 0.05$).