Original article

UDC: 611.73:616-005.98
doi: 10.5633/amm.2023.0301

MORPHOMETRIC ANALYSIS OF BICEPS MUSCLE TISSUE OBTAINED FROM RATS ACUTELY EXPOSED TO CARBON-TETRACHLORIDE

Milorad Antić[1], Vladimir Antić[2], Ivana Graovac[1], Jovana Čukuranović Kokoris[1], Ivan Ilić[3], Miljana Pavlović[1], Vladimir Živković[1], Dušan Sokolović[4]

Skeletal muscles comprise around 40% of total body weight, and they are essential for locomotion and body posture. Under experimental conditions, mild damage occurring due to excessive reactive oxygen species production could be mimicked with acute exposure of rats to carbon-tetrachloride. The aim of the present study was to evaluate morphometric changes occurring in rat biceps muscle 24 h after the injection of carbon-tetrachloride (CCl4). Biceps muscle tissue samples, obtained from control and CCl4-damaged groups, stained with hematoxylin and eosin were used to measure muscle fiber area (MFA), muscle fiber perimeter (B), muscle fiber circularity (MFC) and muscle fiber roundness (MFR). The obtained data were compared using Students t-test for two independent samples. Morphometric analysis revealed that the parameters such as MFA, B and MFC were statistically significantly altered (increased) in the group exposed to CCl4. At the same time, the MFR remained almost identical to that of the control group. The obtained results are in agreement with gross microscopic analysis and follow the tissue edema pattern. These data could be useful in future studies that are following changes in the skeletal muscles after CCl4 application.

Acta Medica Medianae 2023;62(3):5-10.

***Key words**: biceps muscle, carbon-tetrachloride, edema, morphometry*