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Effect of different steroids on the skeletal muscles in adult male albino rat: A histological study

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Abstract

Introduction: Muscle atrophy leads to poor functional status and increased morbidity and mortality. Steroids are used effectively in treatment of several diseases. However, long term use of these drugs leads to muscle atrophy. Methylprednisolone causes muscle atrophy more than dexamethasone which is evident especially with high doses.

Aim of work: to elucidate the effect of dexamethasone and methylprednisolone on the skeletal muscles in adult male albino rat.

Material and methods: Fifty adult male albino rats weighing 180-220 g were used in this study. They were divided into five groups 10 rats each: Group I (Normal control): The rats of this group were injected subcutaneously with saline. Group II (Low dose dexamethasone): The rats of this group were injected subcutaneously in the dorsal region with dexamethasone at a dose of 1.25 mg/kg/day. Group III (High dose dexamethasone): The rats of this group were injected subcutaneously in the dorsal region with dexamethasone at a dose of 2.5 mg/kg/day. Group IV (Low dose methylprednisolone): The rats of this group were injected intramuscularly into the hamstring region at a dose of 6.7 mg/kg/day. Group V (High dose methylprednisolone): The rats of this group were injected intramuscularly into the hamstring region at a dose of 13.3 mg/kg/day.

Results: Examination of specimens of rats injected with different types and different doses of exogenous steroids revealed mononuclear cell infiltration, cytoplasmic degeneration and extensive fibrosis, mitochondrial degeneration, disrupted and degenerated myofibrils.

Key words: Skeletal muscle, rat, dexamethasone, methylprednisolone