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Abstract**Book**

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HOW MUSCULOSKELETAL MANIFESTATIONS IN HEMODIALYSIS PATIENTS INFLUENCE THEIR QUALITY OF LIFE

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Objective: Musculoskeletal pain is a major problem for hemodialysis patients. So, we have to control it, to ameliorate their life quality. The aim of this study was to evaluate the prevalence musculoskeletal symptoms and their relation with chronic hemodialysis.
Methods: This is a cross-sectional study conducted in rheumatology department of Taher Sfar university hospital in Mahdia, Tunisia. The study involved 61 patients with chronic hemodialysis. They were invited to participate and were included after signing informed consent until the calculated sample size was reached. Clinical and demographic characteristics were recorded, as well as years of hemodialysis duration. We asked the patients HAD score.
Results: 61 patients were included 26 females (42.6%) and 35 males (57.4%). The mean age of the study group was 53.9 [17-83]. The mean age of onset of nephropathy was 44.7 + 15.4 y, the medium duration of dialysis: 6.1 y. Musculoskeletal manifestation was noted in 49 (80.3%) patients, the bone pain was noted in 32 patients (52.5%) 20 patients (32.8%) had diffuse bone pain, 34 (55.7%) patients had myalgia, 24 patients (39.3%) had muscular weakness, 14.3% had neuropathic pain, 3 patients (4.9%) have jobs, 12 patients (19.7%) are retired, 46 patients (75.4%) are unemployed. The mean HAD score was 17.88 and 33 patients (54.1%) with HAD score over 19. The mean duration of dialysis in symptomatic patients and asymptomatic patients 7.01 y vs. 3.24 y ($p<0.005$). The mean HAD score of symptomatic patients and asymptomatic patients 18.81 vs. 14.04 ($p<0.005$).
Conclusion: Our study shows the important damage of chronic kidney disease on the musculoskeletal system that can affect patients' quality of life and professional life. That's why mineral and bone disorders in advanced CKD should be well managed.

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EVALUATION OF THE FUNCTIONAL STATE OF THE LOCOMOTOR APPARATUS OF RATS IN DIFFERENT SERIOUS SPINAL CORD INJURIES

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Objective: To analyze changes in the morphofunctional state of bone and muscle tissues under conditions of neurological disorders: on models of incomplete (contusion) and complete (transection) spinal cord injury (SCI).

Methods: All experiments were performed in compliance with bioethical standards. The study used 2 models of spinal cord injury: transection of the spinal cord (Th7-Th8) and contusion spinal cord injury by Allen model (Th8-Th9). The state of the neuromotor apparatus was assessed by electromyographic methods. Motor function was evaluate in the open field using the «BBB» screening system. The bones were scanned on an X-ray computer tomograph in three areas: epiphysis, metaphysis and diaphysis. Based on the original developed methods assessed the morphology of bone tissue.

Results: Motion analysis in the two injury models clearly demonstrated differences in limb loading. With complete transection of the spinal cord, there was no load on the hind limbs. On the contrary, spinal cord contusion caused early paralysis of the hind limbs, which resolved after 3 weeks, and we observed sustained walking in rats after SCI. Thus, unloading of the hind limbs is constant in the complete injury model, but is temporary after spinal cord contusion. Thus, both models - complete trauma and contusion reproduce the differential load on the limbs. For bone tissue, a decrease in the mechanical properties of the bones of the hind limbs in rats was noted, which may be associated with a decrease in their motor activity. The maximum fall was noted on the 20th day after the injury, so, in particular, the tensile strength of the femur decreased two times, with an increase in Young's modulus more than two times. We assume that this may be due to a change in the direction of the pores in the diaphyseal region. After 30 days, the recovery of the tensile strength to the initial level was observed, and Young's modulus is restored only with complete SCI; in the case of contusion, the bone stiffness increased by 26%.

Conclusion: Because muscles and bones co-adapt, clinicians and researchers must simultaneously evaluate muscles and bones when monitoring skeletal health or potential fracture risk, and when developing preventive or curative rehabilitation programs.

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