



***АКТУАЛЬНІ ПИТАННЯ МІКРОБІОЛОГІЇ У  
МЕДИЧНІЙ ОСВІТІ І НАУЦІ***

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**АКТУАЛЬНІ ПИТАННЯ МІКРОБІОЛОГІЇ У МЕДИЧНІЙ ОСВІТІ І  
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# RABDOMYOLYSIS IS AS ATYPICAL FORM OF COVID INFECTION

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Introduction. Rhabdomyolysis is a syndrome caused by injury to skeletal muscle and involves leakage of large quantities of potentially toxic intracellular contents into plasma. Its final common pathway may be a disturbance in myocyte calcium homeostasis. Myoglobin is an important myocyte compound released into plasma. After muscle injury, massive plasma myoglobin levels exceed protein binding (of haptoglobin) and can precipitate in glomerular filtrate. Excess myoglobin may thus cause renal tubular obstruction, direct nephrotoxicity (ischemia and tubular injury), intrarenal vasoconstriction, and acute kidney injury (AKI). The classic triad of rhabdomyolysis includes the following features: myalgia, general weakness, darkened urine. Additional non-specific symptoms also include fever, nausea, and vomiting. Initial physical findings may be non-specific. These include muscle pain and weakness, soft tissue swelling, skin discoloration consistent with compression necrosis, and hyperthermia, hypothermia and or bone deformities. In most cases, rhabdomyolysis can be caused by: alcohol use, drug use, drug use, heat stroke, and as well as COVID infection.

Aim. The aim of the work was to analyze scientific literature about pathogenesis of rhabdomyolysis.

Result and conclusion. The pathogenesis of rhabdomyolysis. Myoglobinuria in trauma and infection has a similar mechanism. Massive destruction of muscle tissue leads to the release of myoglobin. In this case, the muscle loses 75% of the pigment and 65% of the potassium. It becomes similar to fish or white meat. Myoglobin has a lower molecular weight than hemoglobin (16-20 thousand versus 64.5 thousand), passes through the kidney filter 25 times faster than hemoglobin and is found in urine only during the first 30 hours after leaving the tissues. In an acidic environment, myoglobin precipitates as acidic hematin, resulting in blockage of the

ascending loop of Henle. A large amount of released myoglobin is toxic to the body. Myoglobin is concentrated in the distal nephron and causes the development of myoglobinuric nephrosis, up to acute necrosis. Kidney damage has also been attributed to other toxic metabolites. The concentration of potassium increases in the blood plasma when soft tissues are crushed, it can reach (7-11 mmol/l). Water reabsorption leads to an even greater increase in the concentration of myoglobin in the lumen of the tubules, as a result of which it begins to precipitate with the formation of cylinders that obstruct the tubules. Dehydration and renal vasoconstriction is one of the causes of smooth muscle spasm. A factor contributing to the precipitation of myoglobin and uric acid is the low pH of tubular urine due to acidosis. Creatine, involved in the delivery of energy to cells, is released in large quantities from non-viable muscle cells and is transformed into creatinine. This explains the fact that the level of creatinine in patients with acute renal failure due to rhabdomyolysis is significantly higher than in renal failure of another origin, which is especially pronounced in young patients with large muscle mass. Therefore, an additional quantitative study of creatinine is important to determine the genesis of rhabdomyolysis.

Clinicians should be aware of the atypical manifestations of coronavirus infection. The variability of coronavirus disease remains a hot topic until now. To establish the exact mechanisms of rhabdomyolysis in coronavirus infection, a number of additional laboratory tests, including creatinin, are required.