



26. VITAMIN D METABOLISM IN HEPATORENAL SYNDROME

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Introduction. Hepatorenal syndrome (HRS) is a consequence of liver cirrhosis, which is the final stage of chronic liver disease with irreversible damage and the existence of regenerating nodules. Renal function is disturbed in HRS, as evidenced by decreased renal flow, decreased glomerular filtration rate (GFR), ascites, and a rise in The blood creatinine level. All of these are well-known characteristics of HRS, however vitamin D3 dysmetabolism is also present in HRS.

Aim of study. To elucidate the biochemical pathway of vitamin D metabolism in HRS patients, establish the biochemical changes in the metabolism of vit. D3 of the body in both physiological and pathological conditions, to improve the diagnosis and to develop the effective treatment methods.

Methods and materials. To achieve the proposed goal, it has been constructed through a synthesis of literature published from 2018 to 2023 using 10 bibliographic sources, including those of the Medical Scientific Library of USMF "*Nicolae Testemitanu*", data of the electronic libraries such as PubMed, Medline, Medscape, Hinari and Biomed Central.

Results. The primary organs involved in the metabolism of vitamin D3 are the liver and kidney. In HRS, both organs lose their ability to metabolize the vitamin D3. It is not only the cause of renal damage but also results from hepato synthetic insufficiency of vitamin D2 (25(OH)D) and vitamin D binding protein (VDBP). Reduced levels of liver 25-hydroxylase enzymes, namely cytochrome P27A CYP27A (found in mitochondria) and cytochrome P2D25 (CYP2D25) (found in microsomes), have been reported to lower the bioavailability of circulating 25(OH)D. Additionally, decreased levels of renal enzyme 1 α -hydroxylase (CYP27B1) in renal tubules have been connected to the production of calcitriol (1,25(OH)2D3) that is closely associated to VDBP and vit.D2. Since the body uses vitamin D3 to regulate calcium homeostasis, deficiency in both vitamin D3 and VDBP limits the amount of calcium absorbed in the intestines. In response, the parathyroid hormone (PTH) activates the osteoclast in the bone to release stored calcium, which can occas

Conclusion. It has been observed that a deficiency in vitamin D3 manifests itself in cases of HRS. The observed phenomenon causes disruptions across several physiological systems, including the musculoskeletal, immune, endocrine, calcium, phosphorus regulatory, and nervous systems. In HRS may be used vitamin D supplementation but it doesn't help the patient very much, liver transplantation is the ultimate treatment option in HRS.