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Liver vitamin D receptor, CYP2R1 and CYP27A1 expression related to progression of metabolic and viral chronic liver damage

Simone Carotti[1], Ilaria Barchetta[2], Umberto Vespasiani-Gentilucci[3], Andrea Onetti-Muda[4], Antonio Picardi[2], M.G. Cavallo[2] and Sergio Morini[1]

[1] Laboratory of Microscopic and Ultrastructural Anatomy, University Campus Bio-Medico, Rome, Italy
[2] Department of Internal Medicine and Medical Specialties, Sapienza University of Rome, Italy
[3] Clinical Medicine and Hepatology Unit, University Campus Bio-Medico, Rome, Italy
[4] Department of Anatomical Pathology, University Campus Bio-Medico, Rome, Italy

Background and aim: Low serum 25(OH)vitamin D3 levels were associated with the presence and prognosis of liver diseases [1]. The biological effects of 1,25(OH)2 vitamin D3 are mediated by the vitamin D receptor (VDR) and VDR has been widely detected in liver, but its expression in the course of liver disease has never been investigated [2]. We aimed to evaluate the hepatic expression of VDR and vitamin D 25-hydroxylases in patients with chronic hepatitis C (CHC) or non-alcoholic steatohepatitis (NASH) and its relationship with liver histology and serum 25(OH) vitamin D3 levels.

Methods: Patients affected by CHC or NASH who had undergone liver biopsy and subjects without liver disease were included. Expression of VDR, CYP2R1 and CYP27A1 was evaluated by immunohistochemistry.

Results: In CHC subjects, fibrosis stage was associated with low hepatic CYP27A1 expression, whereas in patients with VDR-negative inflammatory cells and low VDR expression on hepatocytes, the portal inflammation was significantly higher ($p<0.009$ and $p<0.03$). In NASH patients, VDR expression on cholangiocytes was inversely correlated with steatosis severity ($p<0.02$), lobular inflammation ($p<0.01$) and NAS score ($p<0.03$).

Conclusions: The liver of patients with viral and metabolic chronic liver disease expresses VDR in a manner inversely proportional to the severity of histological lesions and a role of the vitamin D/VDR system in the progression of chronic liver damage is suggested.

References

[1] Barchetta I et al. (2011) Strong association between non alcoholic fatty liver disease (NAFLD) and low 25(OH) vitamin D levels in an adult population with normal serum liver enzymes. BMC Med. 12;9(1):85.
[2] Gascon-Barre M et al. (2003). The normal liver harbours the vitamin D nuclear receptor in non-parenchymal and biliary epithelial cells. Hepatology 37:1034-1042.

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