

ABSTRACT

Hepatitis C Virus (HCV) remains a significant global health threat, contributing to chronic infections and hepatic complications, including hepatic steatosis and hepatocellular carcinoma (HCC). This study investigates the intricate relationship between HCV and fatty acid metabolism, focusing on lipid droplet accumulation and the impact of HCV on fatty acid synthesis genes. Utilizing an HCV-infected hepatocyte cell line, observations reveal a substantial increase in lipid droplets induced by HCV. Molecular analyses demonstrate significant upregulation of fatty acid synthesis genes, including FASN, ACC1, and ACC2. Inhibition of fatty acid uptake through BSA treatment leads to a remarkable reduction in HCV replication, emphasizing the critical role of lipids in the viral life cycle. The study sheds light on the complex dynamics of HCV-induced alterations in lipid metabolism and provides valuable insights for potential therapeutic strategies.

Keywords: Hepatitis C Virus, lipid droplet, fatty acid synthesis, viral replication