

HEPATITIS C-RELATED DIABETES MELLITUS: A HEALTH DILEMMA TOO NECESSARY TO CONSIDER

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EDITORIAL

The suggestion of a possible association between diabetes mellitus and chronic HCV infection has revolutionized our recent understanding of non-communicable diseases. The initial idea behind this association was higher prevalence of diabetes mellitus among patients with cirrhosis due to chronic HCV infection compared to those with non-HCV-related cirrhosis (Gane, 2012). However, this was not always true, as some studies did not find an excess prevalence of diabetes mellitus in HCV-infected patients (Marmo, 1998., Imazeki, 2008). This discrepancy is not unexpected, since the prevalence of diabetes in patients with chronic HCV infection may be influenced by several factors such as HCV genotypes, viral load, the severity and duration of liver disease as well as interferon (IFN) therapy (Fenakel, 2000., Ferraz, 2002., Alaei, 2009). In fact, progression to diabetes mellitus in patients with chronic HCV infection is a consequence of several mechanisms, including the destruction of insulin signaling pathways through activation of TNF- α or overproduction of the other pro-inflammatory cytokines, which results in induction of insulin resistance; and the destruction of pancreatic beta cells through direct or indirect immunological cytopathic effects of HCV, which results in reduction of insulin production (Chen, 2006., Ali, 2012., Farshadpour, 2015). Autoimmunity does not seem to be involved in these processes (Farshadpour, 2015). In addition, a decrease in insulin resistance during antiviral therapy and a considerable reduction in the incidence of diabetes mellitus following HCV clearance would strengthen the role of HCV in the development of diabetes mellitus (Alexander, 1999., Bounecer, 2010).

The above-mentioned insulin resistance occurs at the early stages of chronic HCV infection, even prior to the development of fibrosis or cirrhosis, contrary to the other non-HCV-related chronic liver diseases, which require an advanced stage of liver disease such as cirrhosis and liver fibrosis to develop glucose intolerance and diabetes (Alexander, 1999., Chen, 2006., Bounecer, 2010., Ali, 2012). It is worthy to note that this insulin resistance not only accelerates the progression of HCV infection, but also reduce the response to IFN-based therapy (Alaei, 2009). Generally, it seems to be a two-way association. HCV infection is considered as a risk factor for onset of diabetes, and diabetes further contributes to the development of liver abnormalities associated with HCV infection, including liver fibrosis and enhanced steatosis, which may finally progress to cirrhosis and hepatocellular carcinoma (Marmo, 1998., Fenakel, 2000., Ferraz, 2002., Chen, 2006., Imazeki, 2008., Alaei, 2009., Ali, 2012., Gane, 2012., Farshadpour, 2015). These two chronic diseases may remain undiagnosed for a long time, paving the way for the development of these devastating consequences. Therefore, every case of HCV-related diabetes mellitus represents a health dilemma, which merits further attention.

The prevalence of HCV infection and diabetes mellitus is on the rise due to the increasing prevalence of injecting drug use as the main risk factor for transmission of HCV, physical inactivity, obesity, urbanization, population growth, and aging (Ali, 2012). While the interacting epidemics of HCV and diabetes is a cause for concern. The root cause of this concern is lack of awareness among physicians regarding the possible role of HCV infection in the development of diabetes mellitus. The asymptomatic nature of chronic HCV infection has fueled this concern. Sometimes, even, the presence of HCV infection is not associated with the levels of liver enzymes (Akbar, 2002). In this condition of uncertainty, screening of chronic HCV-infected patients for diabetes and diabetic patients for hepatitis C seem to be the best option to promptly manage HCV-related diabetes mellitus in at-risk populations.

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