

# Diabetes and Liver Disease: Are There Evidences for a Close Association and Is It Worth Investigating?

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The incidence of diabetes is increasing at an alarming proportion, especially in urban population in developed countries due to several factors such as lifestyle, food consumption etc. Several studies have shown that diabetes is linked to liver injury. It has been reported that approximately 70% of Type 2 diabetics have fatty liver along with other characteristics of liver injury [1]. Non Alcoholic Fatty Liver Disease (NAFLD) and Nonalcoholic Steatohepatitis (NASH) are common liver abnormalities observed in absence of alcohol intake and are of frequent occurrence in obese humans which link liver disease to hyperglycemia. Obesity is associated with hyperglycemia, insulin resistance being a key characteristic of obesity and prolonged circulating glucose aids the development of insulin resistance.

NAFLD is now recognized as the hepatic component of the metabolic syndrome [2]. Type 2 diabetes, hyperglycemia or glucose intolerance has been described in 20-75% of adult patients with NASH and may increase the risk of NASH more than two fold compared with non diabetics [2]. Increased levels of aminotransferase enzymes which serve as surrogate markers for NAFLD consistently predict future development of Type 2 diabetes [3]. Further, Type 2 diabetes is an acknowledged risk factor for NAFLD [4], the prevalence of NAFLD in Type 2 diabetes is 30-50% [5] and increasing glycemic levels predict both NAFLD and Type 2 diabetes [6].

Among diabetic patients with NAFLD, 50% have steatohepatitis and 19% cirrhosis [7]. Furthermore, Type 2 diabetes predicts the progression of NAFLD to NASH and fibrosis [8] indicating that Type 2 diabetes has an impact on hepatic histology [9]. In addition, diabetic patients have an increased mortality rate for chronic liver disease, cirrhosis and liver cancer [10].

Therefore, it is of importance to understand and unravel the underlying mechanisms for hyperglycemia mediated liver injury. It is also imperative that preventive measures are developed so as to

block some or all of the mechanisms so as to impede the progression of the disease. Open access in the field allows all readers to access the ongoing research and get acquainted with the new findings and Journal of Emergency Medicine strives to provide open access to its readers so that the new research findings are easily available.

## References

1. Cusi K (2009) Nonalcoholic fatty liver disease in type 2 diabetes mellitus. *Curr Opin Endocrinol Diabetes Obes* 16: 141-149.
2. Feldman M, Friedman LS, Brandt LJ (2010) Sleisenger & Fordtran's Gastrointestinal and Liver Disease: Pathophysiology, Diagnosis, Management. (9th edn), Elsevier Health Sciences, Philadelphia.
3. Hanley AJ, Williams K, Festa A, Wagenknecht LE, D'Agostino RB Jr, et al. (2004) Elevations in markers of liver injury and risk of type 2 diabetes: the insulin resistance atherosclerosis study. *Diabetes* 53: 2623-2632.
4. Lonardo A (1999) Fatty Liver and Nonalcoholic Steatohepatitis. Where Do We Stand and Where are we Going? *Dig Dis* 17: 80-89.
5. Gupte P, Amarapurkar D, Agal S, Baijal R, Kulshrestha P, et al. (2004) Non-alcoholic steatohepatitis in type 2 diabetes mellitus. *J Gastroenterol Hepatol* 19: 854-858.
6. Jimba S, Nakagami T, Takahashi M, Wakamatsu T, Hirota Y, et al. (2005) Prevalence of non-alcoholic fatty liver disease and its association with impaired glucose metabolism in Japanese adults. *Diabet Med* 22: 1141-1145.
7. Silverman JF, O'Brien KF, Long S, Leggett N, Khazanie PG, et al. (1990) Liver pathology in morbidly obese patients with and without diabetes. *Am J Gastroenterol* 85: 1349-1355.
8. Mofrad P, Contos MJ, Haque M, Sargeant C, Fisher RA, et al. (2003) Clinical and histologic spectrum of nonalcoholic fatty liver disease associated with normal ALT values. *Hepatology* 37: 1286-1292.
9. Bugianesi E, McCullough AJ, Marchesini G (2005) Insulin resistance: a metabolic pathway to chronic liver disease. *Hepatology* 42: 987-1000.
10. Trombetta M, Spiazzi G, Zoppini G, Muggeo M (2005) Review article: type 2 diabetes and chronic liver disease in the Verona diabetes study. *Aliment Pharmacol Ther* 22: 24-27.

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