



Fatty liver Disease

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Introduction

Fatty liver disease has traditionally been classified as alcoholic and nonalcoholic. While the gross and histologic appearance of the liver are similar in these conditions, the pathophysiologic processes and clinical features of the two conditions are not identical. The histologic spectrum of nonalcoholic fatty liver disease (NAFLD) includes both hepatic steatosis and steatohepatitis. {Marceau, P. et al, 1999}, {Knobler, H., et al, 1999} In 1849 the Austrian pathologist, Carl von Rokitansky hypothesized that cirrhosis can result from fat accumulation, however since then, only sporadic descriptions of the relationship between fatty liver and both caloric intake and diabetes mellitus were described in the literature over a century later. Hepatitis of the fatty liver was first described by Heribert Thaler in 1962, before Jurgen Ludwig and his colleagues at Mayo Clinic added the phrase "non-alcoholic steatohepatitis (NASH)" to the literature. At that point in time, it was generally felt that non-alcoholic fatty liver was a benign condition, with their landmark case series in 1980, and that patients with obesity-related co-morbidities had more pressing medical issues to address. It was not until the 1990s that it became increasingly recognized that NASH was a serious medical condition in its own right with associated morbidity and mortality.

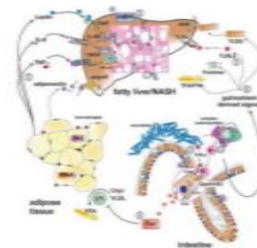
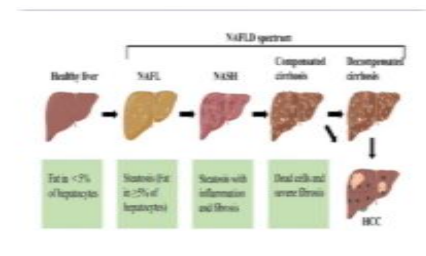
Hepatic steatosis is the buildup of lipids within hepatocytes. It is the simplest stage in nonalcoholic fatty liver disease (NAFLD). It occurs in approximately 30% of the general population and as much as 90% of the obese population in the United States. It may progress to nonalcoholic steatohepatitis, which is a state of hepatocellular inflammation and damage in response to the accumulated fat. Liver biopsy remains the gold standard tool to diagnose and stage NAFLD. The difficulties that exist to assess the non-alcoholic fatty liver disease (NAFLD) prevalence and diagnosis are due to the absence of signs and symptoms in the early stages.

Discussion

Drivers of disease progression The incidence of non-alcoholic fatty liver disease (NAFLD) is rapidly increasing worldwide parallel to the global obesity epidemic. NAFLD encompasses a range of liver pathologies and most often originates from metabolically driven accumulation of fat in the liver, or non-alcoholic fatty liver (NAFL). In a subset of NAFL patients, the disease can progress to non-alcoholic steatohepatitis (NASH), which is a more severe form of liver disease characterized by hepatocyte injury, inflammation, and fibrosis. Significant progress has been made over the past decade in our understanding of NASH pathogenesis, but gaps remain in our mechanistic knowledge of the precise metabolic triggers for disease worsening. {Kendra.k, Morris.j, 2021}

Adipose Tissue-Derived Signals: The Adipose Tissue Attacks the Liver Adipose tissue has appeared in the last decade as a highly active endocrine and immune organ with the capacity of producing various mediators including adipocytokines and cytokines both in health and disease. balance/imbalance of an adipose tissue

The "mediator cocktail" may profoundly affect not only the situation in the adipose tissue but especially in important target organs such as the liver (Fig.2). {Herbert .T ,Alexander .R, 2010} Hepatic Lipid Metabolism As the master regulator of systemic lipid and glucose homeostasis the liver is the organ most affected by ectopic lipid accumulation. Accordingly, nonalcoholic fatty liver disease (NAFLD), and Nonalcoholic steatohepatitis (NASH) are now considered the most common forms of liver disease in the U.S. NAFLD and NASH are common in obesity, with up to 90% prevalence of NAFLD in the obese population {Bellentani et al., 2011}. NAFLD and NASH can be associated with insulin resistance, though not in all cases, and a subgroup of individuals among this group has a higher risk of progressing to cirrhosis and, eventually, hepatocellular carcinoma (Cohen et al., 2011; Starley et al., 2010).



The NAFLD epidemic continues unabated in parallel with the ongoing rise in obesity. The impact of the rise in NAFLD and an increasing proportion with advanced stage disease will be reflected in higher rates of HCC, the need for liver transplantation and liver-related death, which will heavily burden the healthcare system. Between 75 million and 100 million individuals in the United States have NAFLD and its potential morbidity extends beyond the liver. It is important that endocrinologists, and other specialists be aware of the scope and long-term effect of the disease. Early identification of patients with nonalcoholic steatohepatitis may improve patient outcomes through treatment intervention, including transplantation for primary care for those with decompensated cirrhosis physicians,

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