

## **Cross-Link Between Insulin Resistance, NAFLD and Cardiac Steatosis**

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In the last few years several clinical and epidemiologic studies have convincingly associated hepatic steatosis with an increased risk of developing the metabolic syndrome and its related complications, type 2 diabetes and cardiovascular disease (CVD), beyond established predictors. Hepatic steatosis is currently named nonalcoholic fatty liver disease (NAFLD), which is one of traditional and established model of organ specific fat accumulation, and should be assessed as a valuable predictor that reflects vascular atherosclerosis as well as abdominal adiposity. Excess liver fat is very common; as many as 20% of adults in the United States and other Western countries have NAFLD, while NASH may be present in up to 3% of the general population and in up to two-thirds of individuals with morbid obesity or type 2 diabetes. An increased risk for CVD events in patients with NAFLD has been highlighted by several epidemiologic reports, although these were biased by the lack of sensitivity of liver enzyme levels, which are normal in the great majority of NAFLD subjects, and by ultrasonography being unable to detect NAFLD for fat infiltration of less than 30%.

Early autoptic studies have recognized the heart as an important site of fat accumulation. Fat accumulates preferentially around the heart, within or deep into the pericardium (ie, epicardial fat), but mainly on the external surface of the parietal pericardium within the mediastinum. Excess adipose tissue in the mediastinum is increased in rough proportion to body mass index, but the strongest association is with visceral adipose tissue mass. Recent studies suggest that liver and cardiac steatosis may coexist and interplay, and studies using magnetic resonance imaging have recognized that a consistent amount of triglyceride accumulates also insidemyocardial cells. It is now recognized that ectopic fat is increased with obesity and does not accumulate preferably in one organ, but it is simultaneously present in several organs and is associated with increased cardiometabolic risk. In this session, I will show the ***cross-Link between insulin Resistance, NAFLD and cardiac steatosis.***