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Fatty Liver and Presence of Visceral Fat are Associated with the Presence of Coronary Plaques Evaluated by Cardiac CT.

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Background: Liver and visceral fat accumulation are increasingly associated with metabolic syndrome, a condition carrying a high risk of coronary artery disease. The independent role of liver and visceral fat accumulation in cardiovascular risk remains unclear. Aim: To evaluate the association between liver and visceral fat accumulation, insulin resistance, coronary artery disease (CAD), and early atherosclerosis. Methods: 70 patients (age 53±7) with excess of visceral fat, 30 patients with fatty liver (NAFLD, aged 50±9) and 30 sex, age matched healthy individuals were recruited. Coronary artery disease (CAD) was defined as a stenosis of >50% in at least one major coronary artery by cardiac CT. Fatty Liver was defined by liver minus spleen density >/= -10(CT), Early atherosclerosis by Intimal-Media thickness of carotid artery (IMT>7 men; >0.65 women) by Doppler ultrasound, Visceral fat area by CT. Biomarkers of insulin resistance (HOMA), inflammation (CRP) and oxidant- antioxidants (MDA-Paraoxonase) were measured. Results: Both patients with NAFLD and patients with high visceral fat area (>330±99 cm^2) showed higher prevalence of coronary soft plaques (50% vs. 25%, P<0.001), higher prevalence of coronary stenosis (30% vs. 11%, P<0.001), Higher IMT (0.98±0.3 Vs 0.83± 0.1, P< 0.01), higher HOMA (4.0±3.0 vs. 2.0±3.2, P<0.001) and higher triglyceride levels (220± 80 vs. 150±50, P<0.005) than healthy controls. Multiple logistic regression showed that fatty liver predicts coronary plaques (OR 2.7, 95%CI 2.3-5.9, P<0.001) and predicts early atherosclerosis (OR 1.8, 95%CI 1.1-2.9, P<0.01) independently by visceral fat accumulation (OR 1.4, 95%CI 1.2-2.8, P<0.003). Subcutaneous fat has no prediction power. Conclusion: Liver fat accumulation is an independent risk factor for coronary artery disease and early carotid atherosclerosis. This condition may help to optimize the cardiovascular risk stratification.