J Gastrointest Dig Syst 2016, 6:8(Suppl)
http://dx.doi.org/10.4172/2161-069X.C1.047

NAFLD severity and insulin resistance

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NAFLD has become the most prevalent cause of liver disease worldwide, parallel with the dramatic rise in population levels of obesity and diabetes. Twenty-six percent of all patients with NAFLD have been reported to develop liver cirrhosis over a 10-year period, and about 12% of the patients with NAFLD die of liver-related causes. It is expected, by the end of this year, 2016, that the number of overweight subjects exceeds 2.8 billion. More than 30% of Western population, 70% of diabetic individuals, and 95% of morbidly obese patients, will present steatosis. Insulin resistance is a consistent finding in patients with IGT, and T2DM, and resistance is present years before the onset of diabetes. Elevated FFAs predict the progression from IGT to diabetes. Insulin sensitivity is influenced by a number of factors including age, weight, ethnicity, body fat (especially abdominal), physical activity and medications. Up to 85% of subjects with NAFLD compared to 30% in normal population are insulin resistant and have abnormal glucose metabolism (pre-diabetes or T2DM) of which they were unaware. In Egypt (2005-2006), we had studied 495 over weight and obese patients. NAFLD is diagnosed by ultrasound elevated liver enzymes. NAFLD prevalence in patients with metabolic syndrome was 65% in males and 55% females. In Egypt (2013-2014), we had worked on 100 overweight and obese patients (BMI 34.9±3.8), patients preliminary diagnosed as NAFLD by liver ultrasound, followed by liver biopsy to assess the presence of NASH. All the participants had NAFLD 100%. The most surprising was; 46% of the patients had NASH (44.1±7.1 year, ALT 37.2±21.2), 44% border line NASH (43.1±7.9 year, ALT 30.7±17.2), while only 10% had simple steatosis (45.1±4.6 year, ALT 21.2±7.4). NAFLD associated significantly with a high level of insulin resistance in obese non-diabetic Egyptian patients compared with participants with normal liver; HOMA-IR (4.54±0.99 vs. 3.303±0.90, P=0.000). HOMA-IR showed a significant positive correlation with the severity of fatty liver. Surprising outcomes: liver ultrasound not only predict the amount of steatosis but can be a very useful non-expensive screening tool of identification of NASH patients, and high levels of plasma insulin and an unsuspected very high HOMA- IR index in Egyptian NASH obese patients with normal FPG was observed. There are many questions that need to be answered: Is the ethnic variations can affect HOMA-IR to that extent?, Mean that every country populations should have their HOMA-IR cut-off values for diabetics and non-diabetics, and Can HOMA-IR level predict the severity of NASH as a simple low cost noninvasive screening method?

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