Age-Related Non-Alcoholic Patients with Fatty Liver Disease: Disease Progression-Related Markers

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DESCRIPTION

The prevalence of Non-Alcoholic Fatty Liver Disease (NAFLD), a chronic liver condition that can cause cirrhosis and Hepatocellular Cancer, is rising (HCC). Non-Alcoholic Steatohepatitis (NASH) is the name for the advanced stage of NAFLD, whereas non-alcoholic fatty liver is the name for plain fatty liver. Studies on the pathophysiology of NAFLD have emerged in recent years, showing that it is influenced by a number of concurrent components, including lipids, inflammatory cytokines, oxidative stress, ER stress, and insulin resistance. Because NAFLD patients are a diverse group, it can be challenging to pinpoint the primary disease-related pathway in each patient. Due to the fact that NAFLD is a progressive condition, risk stratification is essential. The diagnosis of NAFL or NASH, as well as the identification of the activity grade and fibrosis stage, both serve to define the status of NAFLD. The pathological analysis of a liver biopsy specimen is necessary for the diagnosis of NASH or the activity grade and fibrosis stage. The liver biopsy procedure takes time, there is a chance of death, and there is a chance of sampling errors. Advanced liver fibrosis has been linked to a lower likelihood of survival and should be carefully and quickly assessed. To forecast the advanced stages of NAFLD, non-invasive clinical biological markers or radiological tests have recently been used. Formulas containing common components associated with liver fibrosis are frequently employed as clinical biological indicators. The FIB-4 index, NAFLD Fibrosis Score, and APRI are indicators that may be easily derived from common laboratory data and that exhibit respectable relationships with histological liver fibrosis and prognosis.

The EASL-EASD-EASO Clinical Practice Guidelines advise using the FIB-4 index and NFS to rule out advanced fibrosis. The evaluation must be careful because both of these scores take age into account in their formulae. Additionally, the NFS takes BMI into account. The distribution of BMI varies by region; for example, whereas obesity (BMI>30) is very common in Western nations, it is uncommon in East Asian nations like Japan. Other markers that are independent of variables that represent the clinical status (e.g., age or BMI) are desired to overcome these limitations. It is well recognized that metabolic disorders, such as NASH, are influenced by inflammatory processes and immune responses. Cytokines produced by the liver and adipose tissue are known to hasten the development of metabolic illness. The expression of the macrophage attractant chemokine CCL2 and macrophage infiltration are both markedly elevated, even in basic fatty liver. Neutrophils are acknowledged to play a role in the development of NAFLD. Advanced NAFLD can be diagnosed using the Neutrophil-to-Lymphocyte Ratio (NLR), which is a crucial marker. Dendritic cells have also been demonstrated to have a role in the development of NAFLD, despite the complexity of their impact due to the coexistence of pro- and anti-inflammatory data. The development of NAFLD also involves T cells. CD4 (+) and CD8 (+) T cell infiltration rises in advanced NAFLD, as do levels of inflammatory cytokines like IL-6 or IL-8. Although serum cytokine levels do not directly reflect the extent of liver inflammation, they can show how these immune responses have been balanced out in the end. It is known that a number of serum cytokines serve as significant markers for differentiating the phases of NAFLD.

The hepatic stellate cells' activation is greatly aided by PDGF. It has been observed that the expression of PDGF-B mRNA rises in the early stages of HSC activation and thereafter sharply declines. When myofibroblast-like cells were present in the liver samples of chronic hepatitis patients, immune histochemical labelling of the PDGF-BB protein and the analysis of the mRNA expression showed that these cells were expressed in portal areas and perisinusoidal cells. The advancement of liver fibrosis ought to be connected with serum PDGF-BB in light of the hepatic expression of PDGF in chronic hepatitis with fibrous expansion. In conclusion, RANTES is the non-invasive test we most strongly suggest using because it has a correlation with advanced fibrosis stages in both young and old patients and can predict prognosis. It should be underlined that the easily determined fibrosis-related markers FIB-4 and APRI are also predictive variables. However, their strength is reduced in elderly patients.