

Benefits of systematic use of non-invasive fibrosis scores rather than fatty liver index in type 2 diabetes patients:

a prospective study

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Introduction

Metabolic dysfunction-associated fatty liver disease (MAFLD) relates to steatosis occurring in the setting of a metabolic risk condition such as type 2 diabetes mellitus (T2DM). T2DM is an important risk factor for MAFLD and vice-versa. Despite the high prevalence and serious clinical implications of MAFLD in patients with T2DM, it is often overlooked in clinical practice.

Aim

To assess the feasibility of outpatient systematic screening for MAFLD in T2DM patients. To do so, we determined the respective prevalence of steatosis and severe fibrosis using simple non-invasive tools, as per national guidelines (Francque S. Acta Gastroenterol Belg. 2018). We estimated patients' adherence to more accurate fibrosis screening by vibration-controlled transient elastography (VCTE) if indicated by clinical-biological testing.

Methods

We conducted a 12-months monocentric prospective study involving ambulatory T2DM patients who attended on a regular basis the diabetes clinic at Cliniques universitaires Saint-Luc between June 2021 and May 2022. Based on national and international guidelines, in case of positive screening for liver steatosis – using fatty liver index (FLI) – or advanced fibrosis – using a combination of non-alcoholic fatty liver disease fibrosis score (NFS) and fibrosis-4 (FIB-4) – patients were invited to undergo abdominal Doppler-ultrasound and/or VCTE. In case of elevated transaminase level, patients were further assessed to at least exclude viral hepatitis

B and C, alpha-1-antitrypsin deficiency and biological markers of autoimmune hepatitis (elevated immunoglobulin G).

Results

A total of 213 patients were included in the study. 67.1 % of patients were male, mean age was 62 years and mean body mass index 31.3 kg/m². Three patients reported an alcohol consumption of more than 30 (male) or 20 (female) g/day.

FLI classified most of the patients in the high (76.7 %) or indeterminate (18.8 %) risk category for steatosis, while only 4.5 % were classified as low risk. When contrasted with abdominal Doppler-ultrasound, the hepato-renal echogenicity gradient was increased in 80.5 % of patients with high or indeterminate risk based on FLI (>30). Twenty-two patients had dysmorphic liver and/or signs of portal hypertension. None of the patients presented with liver lesion compatible with hepatocellular carcinoma.

The prevalence of advanced fibrosis varied greatly according to the different scores, ranging from 3.8 % (FIB-4) to 19.0 % (NFS). Whereas NFS seemed to classify the majority of T2DM patients (59.0 %) in the intermediate group, FIB-4 with age adjusted cut-offs classified most of the patients (75.1 %) in the low-risk group. Applying the guidelines and using a sequential combination of FLI and NFS/FIB-4, 29 (13.6 %) patients were proposed to undergo VCTE, with an acceptance rate of 89.3 %. As a result, 8 patients were diagnosed with cirrhosis (ie F4 and dysmorphic liver or signs of portal hypertension) and 15 patients were classified as advanced fibrosis (F3 or F4 without other evidence for cirrhosis at ultrasound). Of the 23 patients with VCTE-confirmed advanced fibrosis (F3-F4), 12 (52.2 %) had not previously been evaluated by a hepatologist, and therefore had newly-diagnosed MAFLD of advanced stage. Sixty-one (28.6 %) patients had elevated transaminase levels. Besides 2 patients whose excessive alcohol consumption might underlie elevated liver tests, none of the patients had liver condition other than MAFLD.

Conclusions

Using simple clinicobiological non-invasive tools to routinely triage T2DM patients with potentially severe liver disease is feasible. There is a wide adherence of patients to non-invasive complementary exams such as abdominal Doppler-ultrasound and VCTE. The usefulness of FLI for steatosis detection in T2DM is questionable, as the vast majority of patients were classified as high or indeterminate risk for steatosis, meaning that nearly all T2DM presented

with MAFLD. A baseline abdominal Doppler-ultrasound seems therefore appropriate in all T2DM patients, to assess liver surface, parenchyma and vascularization. The combined use of NFS and FIB-4, although presenting multiple shortcomings, allowed for detecting previously-undiagnosed cirrhosis in 3.8 % and advanced fibrosis without cirrhosis in 7.0 %.