What to screen and how to screen MASLD patients?

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Fatty liver is a very frequent disease in the modern world, due to the high prevalence of obesity, type 2 diabetes, and metabolic syndrome. Known for long time as NAFLD (nonalcoholic fatty liver disease), the nomenclature recently changed to MASLD (metabolic dysfunction-associated steatotic liver disease), and still the problem of the fatty liver remains the same: more than 30% of the world population is affected by this disease and a proportion of these patients can progress to significant fibrosis and liver cirrhosis.

The early diagnosis of fatty liver can prevent, with adequate management, the progression of this disease. Several imaging methods are good for screening in fatty liver disease, but ultrasound is a cheap and very common method in daily practice. Inside the modern ultrasound machines, now we have modules for liver fat quantification (quantitative ultrasound – QUS) with high fidelity and modules for liver stiffness assessment, as a tool for fibrosis detection. Thus, we have in our ultrasound machines all that is necessary for a correct screening for fatty liver.

However, the first discussion that arises is which are the persons that must be screened. Probably (and most of the published guidelines promote this) the category of patients at risk, and not the general population must be screened. The definition of patients at risk is quite simple: type 2 diabetes mellitus patients, with high prevalence of fatty liver (up to 2/3 of them), overweight and obese persons and subjects with metabolic syndrome. It is true that together these categories can reach maybe up to half of the population in the developed countries.

For the category of patients at risk, a standard ultrasound examination is the first step in a screening strategy, since is a simple examination, with high sensitivity and specificity for moderate and severe steatosis detection. But we like to have more information from ultrasound examination, and quantitative evaluation of steatosis with QUS (quantitative ultrasound), give us an objective measurement of fatty infiltration and the possibility to follow up this parameter, during time and after therapeutic intervention. All the systems on the market had an accuracy of 80-95% for this purpose, being very good for clinical practice, for first diagnosis of steatosis and for follow up.

The second step, in patients at risk, is to search for fibrosis (liver stiffness). Using Share Waves Elastography (SWE), in few minutes we can obtain a good evaluation, with an accuracy between 80 and 95% (increasing with the severity of fibrosis). The cut-off values of 8 kPa to rule out severe fibrosis and 12-15 kPa to rule in severe fibrosis, allow us to select the patients at risk and decide further evaluation and follow up strategies. The feasibility of SWE is higher than 90% and three methods can be used: Transient Elastography (TE), Point Share Wave Elastography (pSWE) and 2D Share Wave Elastography (2D-SWE). We are in favor of pSWE and 2D-SWE, that are implemented in ultrasound systems, and allow an ultrasound evaluation of the whole abdomen at the same time (and especially for the structure of the liver and the size of the spleen). In severe fibrosis patients (with compensated Advanced Chronic Liver disease - cACLD) an additional spleen stiffness evaluation can be performed, and together with liver elastography can increase the accuracy of portal hypertension detection.

Recently some ultrasound companies provided modules for the evaluation of viscoelastic property of liver tissue, as an expression of inflammation. The assessment of this technology is still in early stage, and further studies are necessary to evaluate this application for cases...
suspected to have steatohepatitis (MASH: metabolic associated steatohepatitis).

Which are the other methods for the evaluation/screening of MASLD patients? Biological tests are very simple and popular, but with a lower accuracy. Magnetic Resonance Imaging evaluation, as PDFF (Proton Density Fat Fraction) for steatosis and MR-Elastography for fibrosis assessment are very good, with good feasibility, but with higher price and reduced availability.

Then, the first question is what to use in practice? We should use what we have in our hand, and ultrasound is very common in some regions (like Romania), where the ultrasound examinations are performed mainly by clinicians. A second question is who to perform this screening? And the answer is that everyone that work with an ultrasound system, that can detect fatty liver and can perform himself/herself all the other evaluation (QUS and liver stiffness) or to refer the patient with steatosis for more advanced evaluation to an expert center.

There is more good news for practice. Medium class ultrasound systems now have inside modules for fat quantification (QUS) and for liver stiffness evaluation (pSWE or 2D-SWE). At the same time, small elastography machines, handheld (including wireless), are very close to appearing on the market.

In these conditions, we believe that we have all the tools to start a real screening for MASLD in patients at risk, with ultrasound-based methods, reliable for this purpose. The patients are very easy to be discovered (mainly diabetic and obese subjects) and then, to be screened. The patients without significant fibrosis can be followed up by their GP’s and the others can be addressed to expert centers. Via advanced ultrasounds systems, follow-up for severity of steatosis and fibrosis is quite simple and not expensive.

“We believe in ultrasound” and we hope to convince you to use this method also for the MASLD screening in population at risk and to start this evaluation as soon as possible. It is not a simple task to screen such a huge population, but we must start this activity sooner rather than later!