Activity

Diet

Weight loss

≥7% body weight

Reduces fatty infiltration and inflammation

Mediterranean diet
Limit carbohydrates
Limit fructose

Reduces fatty infiltration
Reduces fatty infiltration
Reduces risk of developing NAFLD and fatty infiltration

90-120 minutes’ aerobic exercise weekly
Strength training

Reduces fatty infiltration
Reduces fatty infiltration

**FIBROSIS ASSESSMENT**

GPs may have access to the enhanced liver fibrosis (ELF) blood test in patients diagnosed with NAFLD to detect advanced liver fibrosis. This biomarker-based algorithm is based on measurements of hyaluronic acid, procollagen III amino terminal propeptide and tissue inhibitor of metalloproteinase I (TIMP-1), combined. This has a high sensitivity and specificity for the detection or absence of advanced fibrosis but is less effective at detecting intermediate levels of fibrosis. Alternatively, patients may be referred to secondary or tertiary centres for assessment of hepatic stiffness using transient elastography, such as FibroScan. Using an ultrasound transducer, a vibration of low frequency and amplitude is passed through the liver, the velocity of which correlates with hepatic stiffness. Stiffness (measured in kPa) increases with worsening liver fibrosis (with a sensitivity and specificity of 80-95%, compared with liver biopsy). Although elastography can reliably exclude cirrhosis, it is less effective for determining lesser degrees of fibrosis. It cannot be used in the presence of ascites and morbid obesity, and is affected by inflammatory tissue and congestion. Meta-analysis has shown that validated non-invasive tests for liver fibrosis consistently detect otherwise unrecongised liver disease in the general population. Reliance on abnormal liver function tests will miss many patients with significant liver injury. Given the increasing burden, the future stratification of chronic liver disease is likely to progress towards the use of non-invasive markers of liver fibrosis in the general population setting.

**MONITORING AND FOLLOW-UP**

Most patients can be reassured that they have little fibrosis and are also at low risk of progression. It is currently recommended that adults with NAFLD re-attend for fibrosis assessment every three years and young people under 18 every two years. No interim tests are needed. However, patients should receive advice about lifestyle modifications and any cardiovascular risk factors must be managed aggressively.

Those with an ELF score of 10.51 or above, or a transient elastography score ≥ 9, are highly likely to have significant/advanced fibrosis and must be referred to a specialist in hepatology. These tests will also be used in tertiary care to follow up those with advanced fibrosis.

**OTHER CONSIDERATIONS**

NAFLD is a risk factor for type 2 diabetes, hypertension and chronic kidney disease, atrial fibrillation, myocardial infarction, ischaemic stroke and death from cardiovascular causes. Statins are considered safe in patients with NAFLD and normal monitoring is required i.e. only consider stopping if liver enzyme levels double within three months of commencement, including those with abnormal baseline liver blood results. Patients with NASH on simvastatin have shown no improvements in liver histology or enzyme levels whereas those on atorvastatin have shown improvement in both liver enzyme levels and radiological steatosis. There is very limited evidence that ACE inhibitors (ACEi) may improve fibrosis. Therefore ACEi for hypertension may have an added benefit. Omega-3 fatty acids may improve radiographic steatosis but are not recommended for treatment of NASH. However, they are safe to use in patients with NAFLD for the treatment of hypertriglyceridaemia.

**MANAGEMENT**

**Lifestyle**

All patients with NAFLD require lifestyle advice aimed at weight loss, increased physical activity, and attention to cardiovascular risk factors, see table 1, left. Weight management programmes should include behaviour change strategies to increase physical activity levels, improve eating behaviour, the quality of the diet, and reduce energy intake. Calorie restriction is recommended (600 kcal/day deficit), aimed at losing 0.5-1.0 kg per week until the target weight is achieved. Dietary changes should be tailored to food preferences and allow for a flexible and individual approach. Unduly restrictive and nutritionally unbalanced diets should be avoided as these are ineffective in the long term and can be harmful. An improvement in diet is to be encouraged even if people do not lose weight, as there can be other health benefits.

Very low calorie diets should only be considered as part of a multicomponent weight management strategy, for people who are obese and who have a clinically assessed need to lose weight rapidly e.g. for joint replacement surgery. A reduction of more than 7-9% in body weight has been associated with reduced steatosis, hepatocellular injury and hepatic inflammation. In view of the multiplicative rather than additive nature of liver damage, the importance of staying within the national recommended limits for alcohol consumption should be strongly emphasised.

Orlistat, an enteric lipase inhibitor causing malabsorption of dietary fat, is used with a low fat diet as an adjunct in subjects with a BMI > 30 kg/m². Only those achieving > 5% weight loss in three months should continue orlistat, and then only for a year, as fat-soluble vitamin deficiency may occur.

Patients should be encouraged to increase their level of physical activity even if they do not lose weight as a result, because of other potential health benefits e.g. reduced risk of type 2 diabetes, cardiovascular disease and reduced liver fat content. Adults should complete at least 30 minutes of moderate or greater intensity physical activity on five or more days a week.