

BACKGROUND MEDIA INFORMATION

Non-alcoholic fatty liver disease and non-alcoholic steatohepatitis: A major public health problem

Non-alcoholic fatty liver disease (NAFLD) is a condition in which fat builds up in the liver. In some cases this accumulation of fat can cause inflammation of the liver and, eventually, lead to permanent scarring (cirrhosis), which can seriously impair the liver's ability to function.

Unlike alcoholic fatty liver disease (alcoholic steatohepatitis), NAFLD can occur in people who drink no alcohol or drink only in moderation. NAFLD is, however, closely associated with obesity and diabetes. The consequences of the condition can be grave and NAFLD represents a major global public health problem.¹

Diagnosing NAFLD

A healthy liver contains very little or no fat. NAFLD occurs in people who do not drink a significant amount of alcohol (20 grams per day for men and 10 grams per day for women) and who do not have a viral infection or other specific cause of liver disease.² NAFLD is diagnosed when accumulation of fat in the organ exceeds 5% of hepatocytes (the cells that make up the majority of the liver).

Because the early stages of NAFLD may have no symptoms, it is sometimes called a silent disease and may only be diagnosed after liver function tests reveal an abnormality.

The stages of NAFLD: From simple fatty liver to irreversible cirrhosis

NAFLD can progress from steatosis, to non-alcoholic steatohepatitis (NASH), to fibrosis and then to cirrhosis.³ In its early stages, NAFLD can be treated through diet and lifestyle changes, such as losing weight.

Cirrhosis, the most severe stage of NAFLD, usually only occurs after years of liver inflammation and can lead to a range of complications, including liver failure and hepatocellular carcinoma (HCC). Between 10% and 30% of patients with NAFLD have NASH that can progress to cirrhosis.⁴ HCC is one of the most serious outcomes of cirrhosis and is responsible for 70-90% of cases of primary liver cancer.⁵

Risk factors

NAFLD is usually – but not always – seen in people who are overweight or obese. Those with insulin resistance, type 2 diabetes, high blood pressure or high blood lipids (cholesterol and triglycerides) are also more likely to develop NAFLD.³ Two large European studies reported NAFLD prevalence rates of between 42.6% and 69.5% in adults with type 2 diabetes.²

Obesity and diabetes are on the rise around the world. The World Health Organization estimates that, in 2014, more than 1.9 billion adults (18 years and older) were overweight and, of these, over 600 million were obese.⁶ Furthermore, in 2013, 42 million children under the age of five were overweight or obese. Obesity has more than doubled since 1980 and is expected to continue to rise.⁶ Meanwhile, the total number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030.⁷ This has led to a concern that countries such as the USA could be facing an epidemic of NAFLD.⁸

Obesity triggers inflammatory pathways in the brain and adipose tissue that causes the regulation of responses that cause insulin levels to be disrupted.⁹ Over time, fats accumulate in liver (as well as muscles and blood vessels), which exacerbates systemic insulin resistance.⁹

Prevalence of NAFLD and NASH

Guidelines published in 2012 by the World Gastroenterology Organisation suggest the prevalence of NAFLD had doubled over the last 20 years, making NAFLD and NASH the number one cause of liver disease in Western countries.¹ NAFLD affects more than 20% of the population worldwide.¹⁰

- The prevalence of NAFLD in Europe is estimated to be between 26% and 33% of the general population.² Two large European studies reported NAFLD prevalence rates of between 42.6% and 69.5% in samples of adults with type 2 diabetes.⁵
- The estimated prevalence of NAFLD in the Middle East is between 20-30%.¹
- Up to 25% of Americans may have NAFLD.¹¹
- In Europe, prevalence of NASH is estimated at 5%.¹²
- Approximately 6 million people in the USA are estimated to have NASH.¹

The heavy toll of NAFLD

In its earliest stages, NAFLD can be addressed through lifestyle and health changes such as losing excess weight and ensuring that diabetes is adequately controlled. However, the presence of NAFLD carries an increased risk of overall mortality, and of mortality related to cardiovascular disease and liver disease.²

NAFLD may also place significant strain on healthcare services. A study carried out in Germany found that annual overall self-reported healthcare costs were significantly higher for individuals with evidence of NAFLD. For example, when controlling comorbid conditions, patients with NAFLD and liver damage (indicated by high levels of aminotransferase) had 26% higher overall healthcare costs at 5-year follow-up.²

References

- ¹ World Gastroenterology Organisation Global Guidelines. Non-alcoholic Fatty Liver Disease and Non-alcoholic Steatohepatitis. Available at: http://www.worldgastroenterology.org/assets/export/userfiles/2012_NASH%20and%20NAFLD_Final_long.pdf Last accessed: April 2015.
- ² European Association for the Study of the Liver. The Burden of Liver Disease in Europe. Available at: <http://www.easl.eu/easl/page/26#> Last accessed: April 2015.
- ³ NHS Choices. Non-alcoholic Fatty Liver Disease. Available at: <http://www.nhs.uk/conditions/fatty-liver-disease/Pages/Introduction.aspx> Last accessed: April 2015.
- ⁴ Dyson J et al. Non-alcoholic fatty liver disease: a practical approach to treatment. Available at: <http://fg.bmj.com/content/early/2014/01/22/fgastro-2013-100404.full> Last accessed: April 2015.
- ⁵ Blachier M et al. The burden of liver disease in Europe: a review of available epidemiological data. *J Hepatol* 2013 Mar;58(3):593-608.
- ⁶ World Health Organization. Obesity and Overweight (fact sheet N°311) Available at: <http://www.who.int/mediacentre/factsheets/fs311/en/> Last accessed: April 2015.
- ⁷ Global Prevalence of Diabetes. *Diabetes Care* 27:1047–1053, 2004. Available at: <http://www.who.int/diabetes/facts/en/diabcare0504.pdf> Last accessed: April 2015.
- ⁸ Younossi Z et al., The Changing Face of Chronic Liver Disease (CLD) in the United States: The Rising Epidemic of Non-Alcoholic Fatty Liver Disease (NAFLD). Presented at The International Liver Congress™ 2011.
- ⁹ Lumeng C & Saltiel A. Inflammatory links between obesity and metabolic disease. *The Journal of Clinical Investigation*. Vol 121, Issue 6, 2011. Available at: <http://www.jci.org/articles/view/57132> Last accessed: April 2015
- ¹⁰ Non-alcoholic fatty liver disease. Available at: <http://www.bmj.com/content/349/bmj.g4596> Last accessed: March 2015.
- ¹¹ American Liver Foundation. Liver awareness month. Available at: <http://www.liverfoundation.org/chapters/lam2010> Last accessed April 2015.
- ¹² Dyson J et al. Non-alcoholic fatty liver disease: a practical approach to treatment. Available at: <http://fg.bmj.com/content/early/2014/01/22/fgastro-2013-100404.full> Last accessed: April 2015.