Cirrhosis in over 16s: assessment and management

NICE guideline: short version

Draft for consultation, December 2015

This guideline covers assessing and managing cirrhosis that is suspected or confirmed in adults who are 16 years or older. It aims to improve how cirrhosis is identified and diagnosed. It recommends tools to assess the severity of cirrhosis and gives advice on monitoring people with cirrhosis to detect complications early, managing the complications of cirrhosis, and referral criteria for tertiary care.

Who is it for?

- Healthcare professionals caring for people with cirrhosis.
- Commissioners and providers of healthcare services.
- People with cirrhosis, their families and carers.

This version of the guideline contains the recommendations, context and recommendations for research. The Guideline Committee's discussion and the evidence reviews are in the full guideline. [Link to the consultation page].

Other information about how the guideline was developed is on the project page [Link to the consultation documents page]. This includes the scope, and details of the Guideline Committee and any declarations of interest.

Contents

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in your care.

Making decisions using NICE guidelines explains how we use words to show the strength of our recommendations, and has information about safeguarding, consent and prescribing medicines (including 'off-label' use).

1.1 Diagnosis

1.1.1 Be aware that there is an increased risk of cirrhosis in people who:

- have hepatitis B virus infection
- have hepatitis C virus infection
- misuse alcohol
- are obese (BMI of 30 kg/m^2 or higher)
- have type 2 diabetes.

Also see the NICE guidelines on: non-alcoholic fatty liver disease (NAFLD)[hyperlink to be added at publication], alcohol use disorders: diagnosis and clinical management of alcohol-related physical complications, alcohol use disorders: preventing harmful drinking, alcohol use disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence, type 2 diabetes, obesity and hepatitis B (chronic).

1.1.2 Discuss with the person the accuracy, limitations and risks of the different tests for diagnosing cirrhosis.

1.1.3 Offer transient elastography to diagnose cirrhosis for:

- people with hepatitis C virus infection
- men who drink over 50 units of alcohol per week and women who drink over 35 units of alcohol per week and have done so for several months
- people diagnosed with alcohol-related liver disease

1.1.4 Offer either transient elastography or acoustic radiation force impulse imaging (whichever is available) to diagnose cirrhosis for people with NAFLD and advanced liver fibrosis (as diagnosed by a score of 10.51 or above using the enhanced liver fibrosis [ELF] test). Also see the diagnosing advanced liver fibrosis section in 'Non-alcoholic fatty liver disease (NAFLD)' (NICE guideline NGXX) [hyperlink to be added at publication].

1.1.5 Consider liver biopsy to diagnose cirrhosis in people for whom transient elastography is not suitable.

1.1.6 For diagnosis of cirrhosis in people with hepatitis B virus infection, see the assessment of liver disease in secondary specialist care section in 'Hepatitis B (chronic)' (NICE guideline CG165).

1.1.7 Do not offer tests to diagnose cirrhosis for people who are obese (BMI of 30 kg/m^2 or higher) or have type 2 diabetes, unless they have NAFLD and advanced liver fibrosis (as diagnosed by a score of 10.51 or above using the enhanced liver fibrosis [ELF] test). Also see the diagnosing advanced liver fibrosis section in 'Non-alcoholic fatty liver disease (NAFLD)' (NICE guideline NGXX) [hyperlink to be added at publication].

1.1.8 Ensure that healthcare professionals who perform or interpret non-invasive tests are trained to do so.

1.1.9 Do not use routine laboratory liver blood tests to rule out cirrhosis.

1.1.10 Refer people diagnosed with cirrhosis to a specialist in hepatology.

1.1.11 Offer retesting for diagnosis of cirrhosis every year for:

- men who drink over 50 units of alcohol per week and women who drink over 35 units of alcohol per week and have done so for several months
- people diagnosed with alcohol-related liver disease.

1.1.12 Offer retesting for diagnosis of cirrhosis every 2 years for:

- people with hepatitis C virus infection who have not shown a sustained virologic response to antiviral therapy
- people with NAFLD and advanced liver fibrosis (as diagnosed by a score of 10.51 or above using the enhanced liver fibrosis [ELF] test). Also see the diagnosing advanced liver fibrosis section in 'Non-alcoholic fatty liver disease (NAFLD)' (NICE guideline NGXX) [hyperlink to be added at publication].

1.1.13 For reassessment of liver disease in hepatitis B virus infection, see the assessment of liver disease in secondary specialist care section in 'Hepatitis B (chronic)' (NICE guideline CG165).

1.2 Monitoring

Risk of complications

1.2.1 Refer people who have, or are at high risk of, complications of cirrhosis to a specialist hepatology centre.

1.2.2 Calculate the Model for End-Stage Liver Disease (MELD) score every 6 months for people with compensated cirrhosis.

1.2.3 Consider using a MELD score of 12 or more as an indicator that the person is at high risk of complications of cirrhosis.

Hepatocellular carcinoma

1.2.4 Offer ultrasound with or without measurement of serum alpha-fetoprotein every 6 months as surveillance for hepatocellular carcinoma (HCC) in people with cirrhosis who do not have hepatitis B virus infection.

1.2.5 For people with hepatitis B virus infection and cirrhosis see the surveillance testing for hepatocellular carcinoma in adults with chronic hepatitis B section in 'Hepatitis B (chronic)' (NICE guideline CG165).

1.2.6 Do not offer surveillance for HCC for people who are receiving end of life care.

Oesophageal varices

1.2.7 Offer upper gastrointestinal endoscopy after diagnosis of cirrhosis to detect oesophageal varices.

1.2.8 For people in whom no oesophageal varices have been detected, offer surveillance using upper gastrointestinal endoscopy every 3 years.

1.3 Managing complications

1.3.1 Offer endoscopic variceal band ligation for the primary prevention of bleeding for people with cirrhosis who have medium to large oesophageal varices.

1.3.2 Offer prophylactic intravenous antibiotics for people with cirrhosis who have upper gastrointestinal bleeding.

1.3.3 Consider a transjugular intrahepatic portosystemic shunt for people with cirrhosis who have refractory ascites.

1.3.4 Offer prophylactic oral ciprofloxacin or norfloxacin for people with cirrhosis and ascites with an ascitic protein level of 15 g/litre or less, until the ascites has resolved.

To find out what NICE has said on topics related to this guideline, see our web page on liver conditions.

Context

Cirrhosis is a condition that occurs as a response to liver damage. It is characterised at a cellular level by distortion of the normal liver structure into nodules of liver tissue surrounded by fibrosis. It usually takes several years for

liver damage to develop into cirrhosis and approximately 10–20% of people with 1 of the 3 most common chronic liver diseases (non-alcoholic fatty liver disease, alcohol-related liver disease and chronic viral hepatitis) develop cirrhosis over a period of 10–20 years. Although people may have physical signs of cirrhosis or its complications, such as jaundice, abdominal swelling due to ascites, muscle wasting, and (in male patients) breast enlargement and testicular atrophy, the clinical identification of cirrhosis is imperfect, especially in people with compensated disease. In addition, 40% of people with cirrhosis have no symptoms of liver disease.

People admitted to hospital with liver disease in England in 2012 were more likely to die compared to all cause admissions (8.8% compared with 1.4%). Nearly half of liver disease admissions were for alcohol-related liver disease and 12.3% of these admissions resulted in death. Finished admission episodes with a primary diagnosis of cirrhosis in English NHS hospitals rose from 3783 in 2005/06 to 5621 in 2014/15 (a 48.6% increase). Consequently, the Chief Medical Officer has identified liver disease as one of the key issues for health in England because it is the only major cause of mortality and morbidity that is on the increase.

This guideline offers best practice advice on the diagnosis and management of people aged 16 years or older who are suspected or confirmed to have cirrhosis. The causes of cirrhosis in children and young people are generally different to those in adults (for example, biliary atresia), and the diagnosis and management of these conditions is different. It is acknowledged that the recommendations may be useful to clinicians who are caring for young people who transition into this care pathway when they reach 16 years. This guideline will be used by clinicians in primary and secondary NHS-commissioned care.

Recommendations for research

The Guideline Committee has made the following recommendations for research.

1 Assessing the risk of cirrhosis

Development of a risk tool to identify people at risk of cirrhosis.

Why this is important

For much of the time, until presentation with jaundice or decompensation, liver disease may remain asymptomatic and silent. The earlier liver disease and even cirrhosis is diagnosed, the better the opportunity to treat, limiting disease progression but in many cases offering a cure. The prevention of progression to end-stage liver disease, avoiding complications, reducing the need for investigation, hospitalisation and intervention would have the potential for very large savings for the NHS. The earlier the diagnosis, the greater the potential patient and financial benefit. This is why GPs need a guide or 'toolkit' to identify people who are at high risk of having, or developing, advanced liver fibrosis or cirrhosis.

One approach would be to identify a retrospective cohort of people with cirrhosis, and to look at their cirrhosis risk factors. The proposed study should use a multivariate analysis to find the risk factors associated with the outcome of cirrhosis. By weighting the risk factors according to their association with the outcome, a risk tool should be developed to predict a person's risk of developing cirrhosis.

2 Treating small oesophageal varices

Do non-selective beta-blockers improve survival and prevent first variceal bleeds in people with cirrhosis that is associated with small oesophageal varices?

Why this is important

Bleeding from oesophageal varices is a major complication of cirrhosis. Approximately half of patients with cirrhosis have oesophageal varices and one-third of all patients with varices will experience bleeding at some point. Despite improvements in the management of acute haemorrhage in recent decades, the 6-week mortality associated with variceal bleeding remains of

the order of 10–20%. Risk of variceal bleeding increases with variceal size. Whether NSBBs are of benefit as primary prophylaxis in people with cirrhosis and small oesophageal varices has not been adequately studied.

3 Antibiotic resistance in treating spontaneous bacterial peritonitis

How frequently does antibiotic resistance occur, and how significant are antibiotic treatment-related complications when antibiotics are used for the primary prevention of spontaneous bacterial peritonitis in people at high risk of having, or developing, cirrhosis?

Why this is important

Spontaneous bacterial peritonitis is the most common serious infection in people with cirrhosis, occurring in 25% of people who develop ascites. It is associated with significant morbidity and mortality rates of 20–40%. It occurs most commonly in people with advancing liver disease; approximately 70% of cases occur in people with Child-Pugh class C cirrhosis.

Several oral antibiotics that have been investigated for the prophylaxis of spontaneous bacterial peritonitis have shown benefits and a significant reduction in the incidence of spontaneous bacterial peritonitis in people at high risk of having, or developing, cirrhosis. They are, however, associated with antibiotic resistance, adverse reactions and drug interactions. There is a lack of good quality, recent evidence regarding the prevalence and consequences of antibacterial resistance that may occur during long-term oral antibiotic therapy.

4 Transjugular intrahepatic portosystemic shunt

What is the quality of life in people who have had a transjugular intrahepatic portosystemic shunt (TIPS)?

Why this is important

Prior to TIPS, people may have had several problems resulting from portal hypertension, including variceal bleeding from veins in the stomach,

oesophagus or intestines, ascites or hydrothorax – all of which will have had a detrimental effect on their quality of life. TIPS should alleviate these problems, but little is known about the consequential effect on quality of life and any effects that potential problems following TIPS (for example, hepatic encephalopathy, shunt blockages, infection and cardiac problems) have on each person. It is therefore important to assess what benefits TIPS has to the quality of life of people with advanced liver disease.

5 Volume replacement in hepatorenal syndrome

What is the most clinically and cost-effective volume replacer for patients with hepatorenal syndrome due to cirrhosis who are also receiving vasoactive drugs?

Why this is important

Hepatorenal syndrome (HRS) develops in people with cirrhosis with ascites and is characterised by impaired renal function. Terlipressin, a vasoconstrictor most active in the splanchnic circulation, is used to treat HRS but it is given with a plasma volume expander, which serves to maintain the blood volume and increase the blood oncotic pressure, reducing the movement of free fluid into the peritoneum. Human albumin solution is the recommended intravenous volume replacement during large volume paracentesis and in patients with spontaneous bacterial peritonitis, in combination with antibiotics, when the serum creatinine is greater than 1 mg/dL, blood urea nitrogen greater than 30 mg/dL, or total bilirubin greater than 4 mg/dL. However, in HRS there are no clinical studies examining the benefits and harms associated with albumin compared with other volume replacers.

People with HRS have a low intravascular volume state and there is general agreement that they require volume expansion in combination with vasopressors. Although these people have intravascular depletion, the pathophysiology of decompensated cirrhosis is such that they are also fluid overloaded, but the majority of fluid is outside the vascular compartment. People with decompensated cirrhosis are, therefore, more prone to complications of fluid overload, such as pulmonary oedema if given

intravenous fluids. The ideal volume expander to be used in HRS should be able to provide its effect with a minimum of infused fluid (that is, have a high oncotic pressure).

6 Acute hepatic encephalopathy

In people with cirrhosis and an acute episode of hepatic encephalopathy secondary to a clearly identified, potentially reversible precipitating factor, does management of the precipitating event alone improve the hepatic encephalopathy without specific treatment?

Why this is important

Hepatic encephalopathy is a major complication of cirrhosis. Approximately 50% of people with cirrhosis will develop clinically apparent hepatic encephalopathy at some stage after diagnosis – the risk being around 5–25% within 5 years. Hospital admissions are common and inpatient stays often prolonged. The presence of hepatic encephalopathy is associated with a significant increase in mortality; survival after the first episode is 42% at 1 year and 23% at 3 years.

At present, treatment of hepatic encephalopathy is directed primarily at reducing the production and absorption of gut-derived neurotoxins, particularly ammonia, mainly through bowel cleansing, and the use of non-absorbable disaccharides, such as lactulose, although several other agents such as non-absorbable antibiotics are also used. However, in approximately 50% of people admitted with episodic hepatic encephalopathy there is a clearly defined precipitating factor (for example, infections, gastrointestinal bleeding or overuse of diuretics). Treatment is often challenging and some people may need to be cared for in an intensive care setting, at least initially. The identification and correction of any precipitating events is important as there is evidence that this alone may improve hepatic encephalopathy without recourse to specific therapies. However, this has not been rigorously tested in a randomised clinical trial.

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