NICE National Institute for Health and Care Excellence

NICE guideline

Cirrhosis in over 16s: assessment and management

NICE guideline
Published: 6 July 2016
nice.org.uk/guidance/ng50

Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or service users. The application of the recommendations in this guideline are not mandatory and the guideline does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Local commissioners and/or providers have a responsibility to enable the guideline to be applied when individual health professionals and their patients or service users wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline is the basis of QS152.

Overview

This guideline covers assessing and managing suspected or confirmed cirrhosis in people 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 and manage complications early, 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

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 (or certainty) of our recommendations, and has information about professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

At the time of publication (July 2016), neither ciprofloxacin nor norfloxacin had a UK marketing authorisation for the primary prevention of spontaneous bacterial peritonitis. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.

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), alcohol-use disorders: diagnosis and management of physical complications, alcohol-use disorders: prevention, alcohol-use disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence, type 2 diabetes in adults, 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 assessment for advanced liver fibrosis section in NICE's NAFLD guideline.

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

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

1.1.7 Do not offer tests to diagnose cirrhosis for people who are obese (BMI of 30 kg/m^2 or higher) or who have type 2 diabetes, unless they have NAFLD and advanced liver fibrosis (as diagnosed by a score of 10.51 or above using the ELF test). Also see the assessment for advanced liver fibrosis section in NICE's NAFLD guideline.

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 cirrhosis every 2 years for:

- people diagnosed with alcohol-related liver disease
- people with hepatitis C virus infection who have not shown a sustained virological response to antiviral therapy
- people with NAFLD and advanced liver fibrosis.

1.1.12 For recommendations on reassessing liver disease in hepatitis B virus infection, see the assessment of liver disease in secondary specialist care section in NICE's hepatitis B (chronic) guideline.

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) for people with cirrhosis who do not have hepatitis B virus infection.

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

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

Oesophageal varices

1.2.7 After a diagnosis of cirrhosis, offer upper gastrointestinal endoscopy 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 Review intravenous antibiotics prescriptions in line with the prescribing intravenous antimicrobials section in NICE's antimicrobial stewardship guideline.

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

1.3.5 Offer prophylactic oral ciprofloxacin or norfloxacin[1] for people with cirrhosis and ascites with an ascitic protein of 15 g/litre or less, until the ascites has resolved.

[1] At the time of publication (July 2016), neither ciprofloxacin nor norfloxacin had a UK marketing authorisation for this indication. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Good practice in prescribing medicines – guidance for doctors for further information.

Putting this guideline into practice

NICE has produced tools and resources to help you put this guideline into practice.

Putting recommendations into practice can take time. How long may vary from guideline to guideline, and depends on how much change in practice or services is needed. Implementing change is most effective when aligned with local priorities.

Changes recommended for clinical practice that can be done quickly – like changes in prescribing practice – should be shared quickly. This is because healthcare professionals should use guidelines to guide their work – as is required by professional regulating bodies such as the General Medical and Nursing and Midwifery Councils.

Changes should be implemented as soon as possible, unless there is a good reason for not doing so (for example, if it would be better value for money if a package of recommendations were all implemented at once).

Different organisations may need different approaches to implementation, depending on their size and function. Sometimes individual practitioners may be able to respond to recommendations to improve their practice more quickly than large organisations.

Here are some pointers to help organisations put NICE guidelines into practice:

1. **Raise awareness** through routine communication channels, such as email or newsletters, regular meetings, internal staff briefings and other communications with all relevant partner organisations. Identify things staff can include in their own practice straight away.

2. **Identify a lead** with an interest in the topic to champion the guideline and motivate others to support its use and make service changes, and to find out any significant issues locally.

3. **Carry out a baseline assessment** against the recommendations to find out whether there are gaps in current service provision.

4. **Think about what data you need to measure improvement** and plan how you will collect it. You may want to work with other health and social care organisations and specialist groups to compare current practice with the recommendations. This may also help identify local issues that will slow or prevent implementation.

5. **Develop an action plan**, with the steps needed to put the guideline into practice, and make sure it is ready as soon as possible. Big, complex changes may take longer to implement, but some may be quick and easy to do. An action plan will help in both cases.

6. **For very big changes** include milestones and a business case, which will set out additional costs, savings and possible areas for disinvestment. A small project group could develop the action plan. The group might include the guideline champion, a senior organisational sponsor, staff involved in the associated services, finance and information professionals.

7. **Implement the action plan** with oversight from the lead and the project group. Big projects may also need project management support.

8. **Review and monitor** how well the guideline is being implemented through the project group. Share progress with those involved in making improvements, as well as relevant boards and local partners.

NICE provides a comprehensive programme of support and resources to maximise uptake and use of evidence and guidance. See our into practice pages for more information.

Also see Leng G, Moore V, Abraham S, editors (2014) Achieving high quality care – practical experience from NICE. Chichester: Wiley.

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 3,783 in 2005/06 to 5,621 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 suspected or confirmed cirrhosis in people aged 16 years or older. The causes of cirrhosis in children and young people are generally different from those in adults (for example, biliary atresia), and the diagnosis and management of these conditions is different. However, the recommendations may be useful to clinicians who are caring for young people who transition into this care pathway when they reach 16. This guideline is for clinicians in primary and secondary NHS-commissioned care.

More information

You can also see this guideline in the NICE pathway on liver conditions.

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

See also the guideline committee's discussion and the evidence reviews (in the full guideline), and information about how the guideline was developed, including details of the committee.

Recommendations for research

The guideline committee has made the following recommendations for research. The guideline committee's full set of research recommendations is detailed in the full guideline.

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 and, in many cases, offering a cure. The prevention of progression to end-stage liver disease, avoiding complications, and 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 at 10–20%. Risk of variceal bleeding increases with variceal size. Whether non-selective beta-

blockers 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. However, they are 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 when used to prevent spontaneous bacterial peritonitis.

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 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.

ISBN: 978-1-4731-1930-7

Accreditation