NICE National Institute for Health and Care Excellence

NICE guideline

Cirrhosis in over 16s: assessment and management

NICE guideline
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www.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 and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services 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 complying 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, and gives advice on the monitoring, prevention and early management of complications.

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 making decisions about 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 prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

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 living with obesity (body mass index [BMI] of 30 kg/m^2 or higher)
- have type 2 diabetes.

  See NICE's 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 (high-risk drinking) and alcohol dependence, type 2 diabetes in adults, obesity and chronic hepatitis B. **[2016]**

1.1.2 Discuss with the person the accuracy, limitations and risks of the different tests for diagnosing cirrhosis. **[2016]**

1.1.3 Offer transient elastography to diagnose cirrhosis for:

- people with hepatitis C virus infection
- men and people registered male at birth who drink over 50 units of alcohol per week and have done so for several months
- women and people registered female at birth who drink over 35 units of alcohol per week and have done so for several months
- people diagnosed with alcohol-related liver disease. **[2016]**

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). See the section on assessment for advanced liver fibrosis in the NICE guideline on NAFLD. **[2016]**

1.1.5 Consider liver biopsy to diagnose cirrhosis in people for whom transient elastography is not suitable. **[2016]**

1.1.6 Do not offer tests to diagnose cirrhosis for people who are living with obesity (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). See the section on assessment for advanced liver fibrosis in the NICE guideline on NAFLD. **[2016]**

1.1.7 Ensure that healthcare professionals who perform or interpret non-invasive tests are trained to do so. **[2016]**

1.1.8 Do not use routine laboratory liver blood tests to rule out cirrhosis. **[2016]**

1.1.9 Refer people diagnosed with cirrhosis to a specialist in hepatology. **[2016]**

1.1.10 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. **[2016]**

  For recommendations on diagnosing cirrhosis and reassessing liver disease in people with hepatitis B virus infection, see the section on assessing liver disease in secondary specialist care in the NICE guideline on chronic hepatitis B.

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. **[2016]**

1.2.2 Calculate the Model for End-Stage Liver Disease (MELD) score every 6 months for people with compensated cirrhosis. **[2016]**

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. **[2016]**

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. **[2016]**

1.2.5 Do not offer surveillance for HCC for people who are receiving end of life care. **[2016]**

For people with cirrhosis and hepatitis B virus infection, see the section on surveillance testing for HCC in adults with chronic hepatitis B in the NICE guideline on chronic hepatitis B.

Oesophageal varices

1.2.6 After a diagnosis of cirrhosis, offer the person an upper gastrointestinal endoscopy to detect oesophageal varices unless they are planning to take carvedilol or propranolol to prevent decompensation (see the section on primary prevention of decompensation). **[2016, amended 2023]**

1.2.7 Offer surveillance using upper gastrointestinal endoscopy every 3 years to people who:

- have already had an endoscopy to detect oesophageal varices, and in whom none have been found **and**
- are not taking carvedilol or propranolol. **[2016, amended 2023]**

1.2.8 Consider simultaneous endoscopic variceal band ligation if medium or large varices are detected during upper gastrointestinal endoscopy (see the section on preventing bleeding from medium or large oesophageal varices). **[2023]**

For a short explanation of why the committee made the 2023 recommendation and how it might affect practice, see the rationale and impact section on oesophageal varices.

Full details of the evidence and the committee's discussion are in evidence review A: clinical and cost effectiveness of non-selective beta-blockers and endoscopic variceal band ligation for the primary prevention of bleeding in people with oesophageal varices due to cirrhosis.

1.3 Managing complications

Safe prescribing and use of carvedilol and propranolol in people with cirrhosis

1.3.1 Be aware that:

- carvedilol and propranolol should be used with caution in people with

cirrhosis because these medicines can have a greater effect on their heart rate and blood pressure

- carvedilol should be avoided in people with severe hepatic impairment (for example, in those with large-volume or refractory ascites). **[2023]**

1.3.2 When starting treatment with either carvedilol or propranolol in people with cirrhosis to prevent decompensation, or bleeding from medium or large varices:

- use a low dosage (for example, 6.25 mg a day for carvedilol or 40 mg twice a day for propranolol) **and**
- increase or decrease the dose depending on the results of heart and blood pressure monitoring. **[2023]**

In September 2023, the use of the following was off-label:

- carvedilol and propranolol for the primary prevention of decompensation
- carvedilol for preventing variceal bleeding.

See NICE's information on prescribing medicines.

For a short explanation of why the committee made the 2023 recommendations and how they might affect practice, see the rationale and impact section on safe prescribing and use of carvedilol and propranolol in people with cirrhosis.

Full details of the evidence and the committee's discussion are in:

- evidence review A: clinical and cost effectiveness of non-selective beta-blockers and endoscopic variceal band ligation for the primary prevention of bleeding in people with oesophageal varices due to cirrhosis
- evidence review C: clinical and cost effectiveness of non-selective beta-blockers for the primary prevention of decompensation in people with compensated cirrhosis.

Primary prevention of decompensation

1.3.3 For people who have cirrhosis and confirmed, or suspected, clinically significant portal hypertension (for example, as indicated by a hepatic venous pressure gradient of more than 10 mmHg or the presence of oesophageal varices), consider the following options for the primary prevention of decompensation:

- carvedilol as the first-choice treatment, because it has fewer side effects and a greater effect on portal vein pressure **or**
- propranolol as the second-choice treatment, if carvedilol is contraindicated.

  Follow the section on safe prescribing and use of carvedilol and propranolol in people with cirrhosis. **[2023]**

  In September 2023, the use of carvedilol and propranolol for the primary prevention of decompensation was off-label. See NICE's information on prescribing medicines.

For a short explanation of why the committee made the 2023 recommendation and how it might affect practice, see the rationale and impact section on primary prevention of decompensation.

Full details of the evidence and the committee's discussion are in evidence review C: clinical and cost effectiveness of non-selective beta-blockers for the primary prevention of decompensation in people with compensated cirrhosis.

Preventing bleeding from medium or large oesophageal varices

1.3.4 If the person with cirrhosis has medium or large oesophageal varices:

- discuss the benefits and harms of all treatment options in line with NICE's guidelines on shared decision making and patient experience in adult NHS services
- explain what treatment involves and ask about any potential barriers that could prevent them from accessing treatment (for example, they may find it

difficult to take tablets regularly because they are dependent on alcohol or are experiencing homelessness). **[2023]**

1.3.5 For people with medium or large oesophageal varices, offer:

- carvedilol or propranolol **or**
- endoscopic variceal band ligation, if either carvedilol or propranolol are not tolerated or contraindicated, or the person cannot take tablets regularly because of their circumstances.

  Follow the section on safe prescribing and use of carvedilol and propranolol in people with cirrhosis. **[2023]**

  In September 2023, the use of carvedilol for preventing variceal bleeding was off-label. See NICE's information on prescribing medicines.

For a short explanation of why the committee made the 2023 recommendations and how they might affect practice, see the rationale and impact section on preventing bleeding from medium or large oesophageal varices.

Full details of the evidence and the committee's discussion are in evidence review A: clinical and cost effectiveness of non-selective beta-blockers and endoscopic variceal band ligation for the primary prevention of bleeding in people with oesophageal varices due to cirrhosis.

Preventing spontaneous bacterial peritonitis

1.3.6 Do not routinely offer antibiotics to prevent spontaneous bacterial peritonitis (SBP) in people with cirrhosis and ascites. **[2023]**

1.3.7 Consider antibiotics to prevent SBP only if:

- the person is at high risk of developing SBP because they have severe liver disease (for example, they have an ascitic protein of 15 g per litre or less, a Child–Pugh score of more than 9, or a MELD score of more than 16) **or**

- the consequences of an infection could seriously impact the person's care, for example, if it could affect their wait for a transplant or a transjugular intrahepatic portosystemic stent insertion (TIPS). **[2023]**

1.3.8 When offering antibiotics to prevent SBP:

- follow local microbiological advice (in line with NICE's guideline on antimicrobial stewardship: systems and processes for effective antimicrobial medicine use)
- continue with treatment until the ascites is resolved. **[2023]**

For a short explanation of why the committee made the 2023 recommendations and how they might affect practice, see the rationale and impact section on preventing SBP.

Full details of the evidence and the committee's discussion are in evidence review B: use of antibiotics to prevent SBP.

Treatment for upper gastrointestinal bleeding

1.3.9 Offer prophylactic intravenous antibiotics for people with cirrhosis who have upper gastrointestinal bleeding. **[2016]**

1.3.10 Review the use of intravenous antibiotics prescribed for upper gastrointestinal bleeding in line with the section on prescribing intravenous antimicrobials in the NICE guideline on antimicrobial stewardship. **[2016]**

Treating refractory ascites

1.3.11 Consider a TIPS procedure for people with cirrhosis who have refractory ascites. **[2016]**

Recommendations for research

The guideline committee has made the following recommendations for research.

Key recommendations for research

1 Effectiveness of endoscopic variceal band ligation plus a non-selective beta-blocker for preventing variceal bleeding in people with medium or large oesophageal varices

What is the effectiveness and cost effectiveness of endoscopic variceal band ligation plus a non-selective beta-blocker compared with either of these interventions alone for preventing variceal bleeding in adults with cirrhosis and medium or large oesophageal varices? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale section on preventing bleeding from medium or large oesophageal varices.

Full details of the evidence and the committee's discussion are in evidence review A: clinical and cost effectiveness of non-selective beta-blockers and endoscopic variceal band ligation for the primary prevention of bleeding in people with oesophageal varices due to cirrhosis.

2 Antibiotic prophylaxis to prevent spontaneous bacterial peritonitis

What is the clinical and cost effectiveness of antibiotic prophylaxis to prevent spontaneous bacterial peritonitis (SBP) in people with cirrhosis and ascites? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale section on preventing SBP.

Full details of the evidence and the committee's discussion are in evidence review B: use of antibiotics to prevent SBP.

3 Primary prevention of decompensation using non-selective beta-blockers

What is the clinical and cost effectiveness of non-selective beta-blockers for the primary prevention of decompensation in people with compensated cirrhosis and signs of clinically significant portal hypertension from non-invasive tests (such as tests to measure liver stiffness, or biomarkers)? **[2023]**

For a short explanation of why the committee made this recommendation for research, see the rationale section on primary prevention of decompensation.

Full details of the evidence and the committee's discussion are in evidence review C: clinical and cost effectiveness of non-selective beta-blockers for the primary prevention of decompensation in people with compensated cirrhosis.

Other recommendations for research

4 Assessing the risk of cirrhosis

How can the development of a risk tool help identify people at risk of cirrhosis? **[2016]**

Why this is important

For much of the time, until presentation with jaundice or decompensation, liver disease may remain asymptomatic and silent. The earlier that 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.

5 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? **[2016]**

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% to 20%. The 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.

6 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 SBP in people at high risk of having, or developing, cirrhosis? **[2016]**

Why this is important

SBP is the most common serious infection in people with cirrhosis, occurring in 25% of those who develop ascites. It is associated with significant morbidity and mortality rates of 20% to 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 SBP have shown benefits and a significant reduction in the incidence of SBP 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 SBP.

7 Transjugular intrahepatic portosystemic stent

What is the quality of life in people who have had a transjugular intrahepatic portosystemic stent (TIPS)? **[2016]**

Why this is important

Before 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, stent 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.

8 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? **[2016]**

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% to 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.

Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice.

Oesophageal varices

Recommendation 1.2.8

Why the committee made the recommendation

People are usually offered an upper gastrointestinal endoscopy to detect oesophageal varices. If varices are found, they can be treated with either non-selective beta-blockers or endoscopic variceal band ligation. The 2023 update of this guideline recommends carvedilol or propranolol as potential options for preventing decompensation in people who have clinically significant portal hypertension (see the recommendations on primary prevention of decompensation). Therefore, the committee agreed that endoscopy is unnecessary for this group of people because these medicines prevent variceal bleeding. They amended the 2016 recommendations to clarify this.

Based on their knowledge and experience, the committee agreed that endoscopy presents an opportunity to carry out one-off endoscopic variceal band ligation on medium or large varices at the same time. This is because the equipment and preparation are the same for both procedures. They noted that it may not always be possible to offer the endoscopic variceal band ligation during endoscopy because some healthcare professionals will not be trained, or have experience, in carrying out the procedure.

How the recommendation might affect practice

The additional resource impact of carrying out endoscopic variceal band ligation at the same time as endoscopy, where possible, is expected to be small.

Return to recommendation

Safe prescribing and use of carvedilol and

propranolol in people with cirrhosis

Recommendations 1.3.1 and 1.3.2

Why the committee made the recommendations

Carvedilol and propranolol are commonly used in practice to prevent variceal bleeding. However, the committee noted that healthcare professionals often prefer to prescribe carvedilol because it has anti-alpha adrenergic vasodilatory effects in addition to beta-blockade and is also better tolerated. Both medicines need to be used with caution because they have a much greater effect on the heart rate and blood pressure of people with liver disease than in people who do not have liver disease. The committee further noted that the BNF states carvedilol should be used with caution in people with moderate hepatic impairment and avoided in those with severe hepatic impairment. Based their experience and expertise, the committee agreed that 'moderate' would apply to many people with cirrhosis. They were also aware of a growing body of research suggesting it should not be given to some people with large-volume or refractory ascites, so used this as an example of 'severe' hepatic impairment.

The committee noted that the BNF recommends a lower starting dose for propranolol for preventing variceal bleeding in people with cirrhosis, which the committee agreed to include in the recommendation. The same approach should also be taken with carvedilol; however, the committee were concerned that healthcare professionals may not be aware of this, because this is an off-label use of the medicine. Therefore, they recommended that, when used, carvedilol should also be started at a much lower dose than in people without liver disease and included an example of a suitable dosage in the recommendation to help guide healthcare professionals.

How the recommendations might affect practice

The committee noted that the use of non-selective beta-blockers to prevent decompensation is an emerging practice, but that they are already widely used for preventing variceal bleeding. Health economic analysis shows that the cost of prescribing these medicines is outweighed by savings in terms of preventing decompensation and reducing the number of endoscopic variceal band ligation sessions required.

Return to recommendations

Primary prevention of decompensation

Recommendation 1.3.3

Why the committee made the recommendation

The committee acknowledged that portal hypertension is not measured directly as a matter of routine in the UK, but agreed that clinically significant portal hypertension can be diagnosed on the basis of clinical features (for example, ascites or small varices) as well as through non-invasive methods, including tests to measure liver stiffness, or serum biomarkers.

Emerging evidence on the effectiveness of carvedilol and propranolol in preventing primary decompensation in people with clinically significant portal hypertension is unclear but looks promising. Therefore, the committee agreed that either medicine could be a potential treatment option. In the committee's view, carvedilol may be more effective in reducing pressure in the portal vein because it has anti-alpha adrenergic vasodilatory effects in addition to beta-blockade.

The committee made a recommendation for research on the effectiveness of non-selective beta-blockers in people with clinically significant portal hypertension that has been diagnosed through non-invasive investigations. They also noted that a large, National Institute for Health and Care Research-funded trial, underway in the UK, is looking at the use of carvedilol for this indication. They agreed this evidence could help inform future updates of this guideline.

How the recommendation might affect practice

The committee noted that prescribing non-selective beta-blockers for this indication is a new practice, and that they are not widely used in this way across the NHS. However, health economic analysis shows that the additional cost of prescribing these medicines is outweighed by the savings in terms of preventing decompensation.

Return to recommendation

Preventing bleeding from medium or large oesophageal varices

Recommendations 1.3.4 and 1.3.5

Why the committee made the recommendations

Non-selective beta-blockers or endoscopic variceal band ligation can be used to prevent oesophageal variceal bleeding. The committee agreed that most people would prefer to take medication instead of undergoing an invasive procedure, especially as this would prevent further hospital visits. However, some will need endoscopic variceal band ligation instead, if they have had adverse reactions to non-selective beta-blockers, find it difficult to take tablets every day, or if the medicines do not work as expected. Therefore, the committee agreed it was important to discuss all treatment options, and talk with the person about their preferences and personal circumstances, to identify the right treatment for them.

The evidence did not distinguish between the clinical effectiveness of non-selective beta-blockers and endoscopic variceal band ligation. However, non-selective beta-blockers were found to be more cost effective when people were able to take these medicines regularly.

The studies did not look at the use of endoscopic variceal band ligation in conjunction with a non-selective beta-blocker to prevent variceal bleeding, which the committee agreed could have an additional benefit. They therefore made a recommendation for research to look at the effectiveness of combining both treatments.

How the recommendations might affect practice

In the committee's experience, both non-selective beta-blockers and endoscopic variceal band ligation are in common use for preventing oesophageal variceal bleeding. These recommendations will increase the use of non-selective beta-blockers to prevent variceal bleeding and should reduce both the use of endoscopic variceal band ligation and the costs associated with that procedure.

Return to recommendations

Preventing spontaneous bacterial peritonitis

Recommendations 1.3.6 to 1.3.8

Why the committee made the recommendations

The committee looked at evidence that compared different types of antibiotics for preventing spontaneous bacterial peritonitis (SBP) in people with cirrhosis and ascites. They noted that 1 of the antibiotics in the evidence (norfloxacin) was not available in the UK, and that the fluoroquinolone class of antibiotics (which includes ciprofloxacin) was the subject of a 2019 MHRA drug safety update that includes restrictions and precautions for their use.

The evidence did not demonstrate any overall benefit of antibiotic prophylaxis when compared with no prophylactic treatment. Therefore, the committee agreed that antibiotics should not be routinely offered to prevent SBP in people with cirrhosis and ascites, unless they were at high risk of developing the infection, or its impact could be severe. Most of the evidence focused on people who had low ascitic protein count, so this was included as an example of a measure that could be used to identify risk factors. The committee also included other measures for assessing the severity of liver disease.

The committee agreed that, because the evidence showed no overall benefit of using 1 antibiotic over another, prescribers should follow local microbiological advice. This would mean local pathogen distribution would be taken into account and would lead to better antimicrobial stewardship. The committee also noted the importance of good antimicrobial stewardship to reduce the potential emergence of drug-resistant bacteria.

The committee agreed that the evidence was not methodologically robust, the sample sizes were small, and none of the studies looked at quality-of-life data. Therefore, they made a recommendation for research on antibiotic prophylaxis to prevent SBP to encourage studies that are more rigorous and look at clinically important outcomes such as mortality, health-related quality of life, and serious adverse events.

How the recommendations might affect practice

In the committee's experience, there is wide variation in practice in the prescribing of antibiotics for preventing SBP. The 2023 recommendations suggest using antibiotics for people at high risk, but do not specify which antibiotics. This means that antibiotic choice

can be based on local microbiological advice and funding agreements, which may reduce the costs of prescribing antibiotics where necessary. It also makes clear that antibiotics are not necessary for everyone with cirrhosis and ascites.

Return to recommendations

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. Approximately 10% to 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 to 20 years. Although people may have physical signs of cirrhosis or its complications, such as jaundice, abdominal swelling due to ascites, muscle wasting, enlargement of male breast tissue 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 with 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 to 2006 to 5,621 in 2014 to 2015 (a 48.6% increase). Consequently, the Chief Medical Officer has identified liver disease as 1 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.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE topic page on liver conditions.

For full details of the evidence and the guideline committee's discussions, see the full guideline and evidence reviews. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting our guidelines into practice, see resources to help you put NICE guidance into practice.

Update information

September 2023: We have reviewed the evidence and updated or made new recommendations on detecting and preventing bleeding from medium or large oesophageal varices, and on preventing spontaneous bacterial peritonitis (SBP). We also added new recommendations on the safe prescribing and use of carvedilol and propranolol in people with cirrhosis, and the use of these non-selective beta-blockers for the primary prevention of decompensation. These recommendations are marked **[2023]**.

We have also changed recommendations 1.2.7 and 1.2.8 without an evidence review. These changes have been made to clarify that people with cirrhosis who are planning to take carvedilol or propranolol to prevent decompensation do not need an upper gastrointestinal endoscopy. The recommendations are marked **[2016, amended 2023]**.

Recommendations marked **[2016]** last had an evidence review in 2016. In some cases, minor changes have been made to the wording to bring the language and style up to date, without changing the meaning.

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Accreditation