

Diagnosis and Treatment of Alcohol-Associated Liver Disease: A Patient-Friendly Summary of the 2019 AASLD Guidelines

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This article will summarize practice guidance and guidelines put forth by the American Association for the Study of Liver Diseases (AASLD)¹ in an easy-to-read format for patients and their caregivers. The difference between guidance and guidelines is that *guidelines* are supported by very strong evidence such as large randomized trials, whereas *guidance* statements are supported by smaller studies and expert opinion. This summary will hopefully help patients better understand their condition, but it should not replace expert medical care. The full document is available online at: <https://aasldpubs.onlinelibrary.wiley.com/doi/epdf/10.1002/hep.30866>.¹

ALCOHOL USE DISORDER

Alcohol use disorder (AUD) describes drinking behavior that results in negative consequences and symptoms (Fig. 1). It is a chronic disease where the patient is unable to control alcohol use despite negative personal, occupational, or health effects. AUD can be mild, moderate, or severe. It can also be relapsing, meaning symptoms may return after having been gone for some time. Rates of AUD and high-risk drinking behavior are increasing, especially among women, minorities, and those of lower socioeconomic status.

Abbreviations: AASLD, American Association for the Study of Liver Diseases; AH, alcoholic hepatitis; ALD, alcohol-related liver disease; AUD, alcohol use disorder; AUDIT-C, Alcohol Use Disorders Inventory Test; MDF, Maddrey's discriminant function; MELD-Na, Model for End-Stage Liver Disease Sodium; NAC, *N*-acetyl-L-cysteine.

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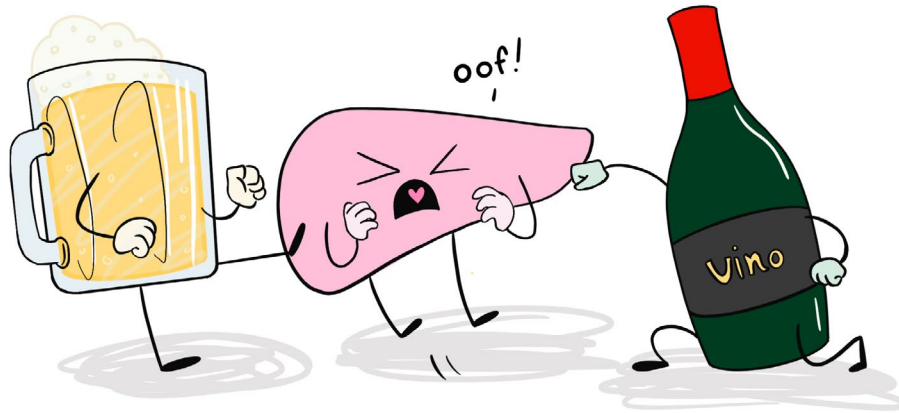


FIG 1 Drinking alcohol damages the liver and can cause end-stage liver disease (cirrhosis). Courtesy Aria Puri.

TABLE 1. DIAGNOSTIC CRITERIA FOR ALCOHOL USE DISORDER

Your Experience in the Past Year

1. You drink alcohol in larger amounts or over a longer period of time than you wanted.
2. You want to decrease the amount of alcohol in your life and have tried unsuccessfully to cut down or control alcohol use.
3. You spend a lot of time trying to get alcohol, drink alcohol, or recover from its effects.
4. You need or have a strong desire to drink alcohol.
5. Because of your drinking, you are unable to fulfill your responsibilities at work, school, or home.
6. You continue to drink alcohol even though it causes repeated problems in your social and family life.
7. You give up or decrease time with your friends, family, and coworkers to drink alcohol.
8. You continue to drink alcohol in situations that are physically dangerous.
9. You continue to drink alcohol even though you know it is hurting you physically and emotionally.
10. Alcohol tolerance, defined as either 1 or 2:
 1. You need to drink more and more alcohol to achieve the desired effect/“buzz”; or
 2. You notice a decreased physical and emotional effect even though you are drinking the same amount of alcohol.
11. Alcohol withdrawal, defined as either A or B:
 - A. Alcohol withdrawal symptoms (anxiety, shaky hands, headache, nausea, vomiting, sweating, can’t sleep, racing heart, high blood pressure, fever, hallucinations, seizures)
 - B. Alcohol (or a closely related medication, such as benzodiazepine) is used to avoid or relieve the symptoms in A.

If you answered yes to at least 2 of these symptoms, you have AUD:

- Mild: 2-3 symptoms
- Moderate: 4-5 symptoms
- Severe: ≥6 symptoms

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Diagnosis

Guidance statement: All patients receiving care in primary care and gastroenterology/hepatology outpatient clinics, emergency departments, and inpatient admissions should be screened routinely for alcohol use using validated questionnaires. Brief intervention, pharmacotherapy, and referral for treatment should be offered to patients engaged in hazardous drinking (Alcohol Use Disorders Inventory Test [AUDIT-C] ≥ 4, AUDIT > 8, binge drinkers). Alcohol biomarkers can be used to aid in diagnosis and support recovery. Urine and hair ethyl glucuronide, urine ethyl sulfate, and phosphatidylethanol are not affected by liver disease and, therefore, are preferable (Table 1).

Patient summary: All individuals receiving medical care should be tested for AUD. There are many tools to diagnose unhealthy alcohol use, including the AUDIT-C (Table 2). Patients identified as having unhealthy alcohol use may benefit from counseling to help change these habits. Individuals with high liver tests and unhealthy alcohol use should be checked for alcohol-related liver disease (ALD). Alcohol biomarkers are blood or urine tests that detect drinking over various times. These laboratory tests are used to aid in diagnosis, support recovery, and allow for healing discussions between patients and physicians.

Key point: All individuals should be tested for unhealthy alcohol use. This helps identify patients with ALD early and allows for early treatment if necessary.

TABLE 2. AUDIT-C SCREENING QUESTIONS

1. How often do you have a drink containing alcohol?	Never (0)	Monthly or less (1)	Two to four times a month (2)	Two to three times per week (3)	Four or more times a week (4)	Score _____
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2 (0)	3 or 4 (1)	5 or 6 (2)	7 to 9 (3)	10 or more (4)	_____
3. How often do you have six or more drinks on one occasion?	Never (0)	Less than monthly (1)	Monthly (2)	Two to three times per week (3)	Four or more times a week (4)	_____

The maximum score is 12. A score ≥ 4 identifies 86% of men who drink too much or have AUD. A score > 2 identifies 84% of women who drink more than is safe or have AUD.



1 drink = 12 oz of regular beer = 8-9 oz of malt liquor = 5 oz of table wine = 1.5-oz shot of 80 proof distilled spirits

Alcohol Use Treatment

Guidance statement: Referral to AUD treatment professionals is recommended for patients with advanced ALD and/or AUD to ensure access to the full range of AUD treatment options. Multidisciplinary, integrated management of ALD and AUD is recommended and improves rates of alcohol abstinence among patients with ALD. Based on limited data, the use of acamprosate or baclofen can be considered for the treatment of AUD in patients with ALD.

Patient summary: Treatment is recommended for all patients with AUD. AUD treatment can include inpatient alcohol rehabilitation, group therapy, individual therapy, or family therapy. Treatment works best when medical and AUD needs are combined in multidisciplinary visits. Medications, such as baclofen and acamprosate, can be used to reduce relapse and cravings.

Key point: Among individuals with both AUD and ALD, combined treatment with behavioral specialists and medical providers is best.

ALCOHOL-ASSOCIATED LIVER DISEASES

Alcohol-associated liver disease ranges in severity from mild alcohol-related fatty liver (steatosis) to alcohol-related fatty liver with inflammation (steatohepatitis) to alcohol-related scarring (fibrosis and cirrhosis). It is diagnosed in patients with unhealthy alcohol use. The severity and worsening of ALD depends on the amount of heavy alcohol use and other risk factors. These other risk factors include female sex, family genetics, and already existing liver disease. Gastric bypass surgery is also linked to an increased risk for

alcohol-related liver injury. ALD incidence is quickly increasing and is now the most common reason for liver transplant and liver-related deaths in the United States.

Risk Factors

Guidance statement: Patients *without* liver disease should be educated about safe levels of alcohol use for men (no more than 2 standard drinks per 24 hours) and women (no more than 1 standard drink per 24 hours). Patients *with ALD or other liver diseases*, in particular NAFLD, viral hepatitis, and hemochromatosis, should be counseled that there is no safe level of drinking, and that they should abstain.

Patient summary: Women without liver disease should consume no more than 1 standard drink per day. Men without liver disease should consume no more than 2 standard drinks per day. A standard drink contains 14 g of alcohol and is equivalent to a 12-oz can of beer, a 8-oz glass of malt liquor, a 5-oz glass of table wine, or a 1.5-oz shot of distilled spirits. However, patients with any underlying liver disease should not drink any alcohol.

Key point: If you have *any* underlying liver disease or AUD, you should STOP all alcohol use. There is no safe level of alcohol use. This is especially true if there is fatty liver from another condition, such as diabetes or obesity.

Liver Transplantation

Guidance statement: Patients with decompensated alcohol-associated cirrhosis, Child-Turcotte-Pugh class C, or Model for End-Stage Liver Disease Sodium (MELD-Na) score of at least 21 should be referred and considered for

liver transplantation. Candidate selection for liver transplantation in alcohol-associated cirrhosis should not be based solely on a fixed interval of abstinence.

Patient summary: ALD is the most common reason for liver transplant evaluation. Any patient with complications of liver disease (bleeding, confusion, fluid in the abdominal cavity, yellowing of the skin) or MELD-Na score ≥ 21 should be considered for liver transplant evaluation. In the past, 6 months of sobriety was required before liver transplant evaluation. However, we now recognize that many other factors are important when evaluating who will remain sober and succeed after liver transplant. This requires a careful evaluation by a team of mental health providers and social workers.

Key point: Ask your physician if a liver transplant evaluation is right for you, regardless of how long you have been sober from alcohol.

ALCOHOLIC HEPATITIS

Alcoholic hepatitis (AH) is a disease caused by severe liver inflammation directly from drinking too much alcohol. The amount of liver inflammation determines the seriousness of disease. Symptoms can be mild (loss of appetite, fatigue, nausea, vomiting) or severe with jaundice (yellowing of the eyes and skin), water retention, kidney failure, infection, bleeding, and confusion (Table 3). AH, which often leads to cirrhosis, can result in death but may be reversible by stopping alcohol use, increasing exercise, and eating nutritious foods.

Diagnosis

Guidance statement: The diagnosis of AH (definite, probable, possible) should be made using published consensus criteria.

TABLE 3. SIGNS AND SYMPTOMS OF AH

Signs and Symptoms of Alcoholic Hepatitis
No appetite
Nausea and vomiting
Abdominal discomfort or pain
Weight loss
Ascites
Confusion
Jaundice
Malnutrition

Patient summary: The diagnosis of AH can be made in someone with a heavy drinking history (for greater than 6 months and with less than 2 months of sobriety) who presents with yellowing of the skin within the last 8 weeks, elevated liver tests in the blood, and a bilirubin level >3.0 mg/dL. Additional tests, such as a liver biopsy, may be needed to rule out other causes, but the diagnosis can often be made without it.

Key point: The diagnosis of AH is based on signs and symptoms and rarely requires a liver biopsy.

Prognosis

Guidance statement: Laboratory-based prognostic scores should be used to determine prognosis in AH. Maddrey’s discriminant function ($MDF \geq 32$) should be used to assess the need for treatment with corticosteroids or other medical therapies. A MELD score >20 also should prompt consideration of steroid treatment. Abstinence from alcohol should be promoted to improve long-term prognosis in AH.

Patient summary: AH is a very serious condition and is associated with many complications, including death. Predictive scores, based on blood tests, exist to determine who is at greatest risk. The MDF and the MELD score help predict disease severity (Table 4). These scores also help determine which patients may benefit from steroid treatment, which can reduce inflammation. The best treatment for AH is complete alcohol abstinence. The amount of improvement with steroid use after 7 days can also help identify those responding to therapy from those who are not getting better.

Key point: AH is a serious disease associated with many complications and risk for death. Predictive scores can help determine who is at the greatest risk for these

TABLE 4. WHAT BLOOD TESTS ARE INCLUDED TO CALCULATE THE MELD SCORE?

Blood Test	Your Result
Bilirubin	___ mg/dL
International normalized ratio	___
Creatinine	___ mg/dL
Sodium	___ mEq/L
Did the patient have dialysis at least twice in the past week?	___ Yes ___ No

Calculate your MELD score here:
<https://www.mdcalc.com/meld-score-model-end-stage-liver-disease-12-older>
 A MELD score ≥ 20 indicates serious liver disease.

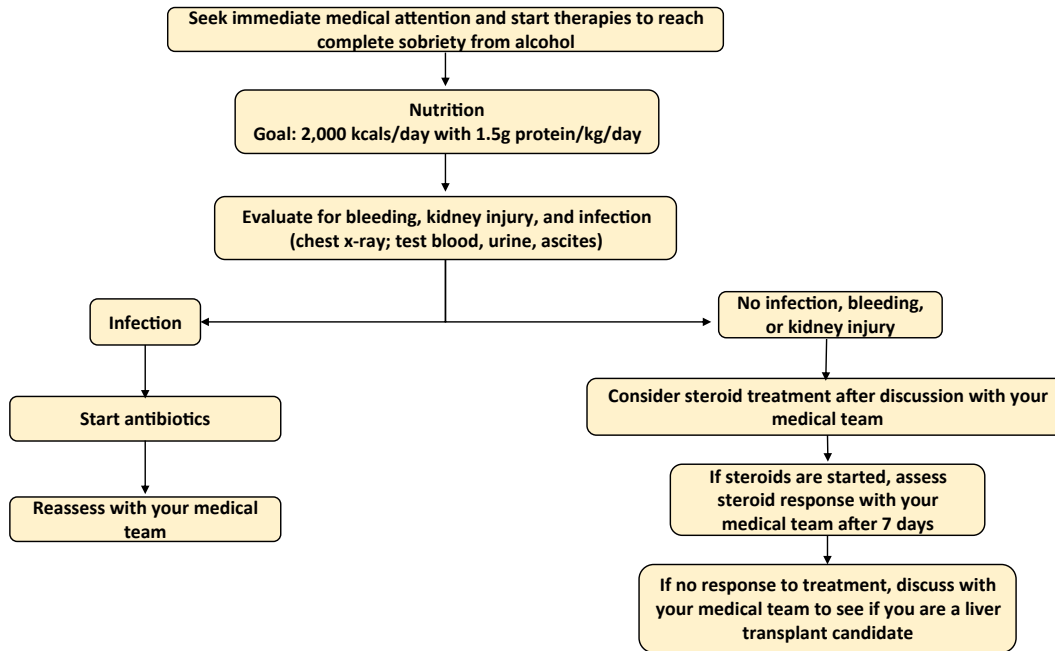


FIG 2 Treatment of AH.

complications. The response to treatment is also based on blood tests. It is important to follow closely with your medical team to understand if you are responding to therapy or if it should be stopped or changed because steroids can also have negative side effects.

Treatment

Guidance statement: Prednisolone (40 mg/day) given orally should be considered to improve 28-day mortality in patients with severe AH (MDF \geq 32) without contraindications to the use of corticosteroids. The addition of intravenous NAC (*N*-acetyl-L-cysteine) to prednisolone (40 mg/day) may improve the 30-day survival of patients with severe AH. The Lille score should be used to reassess prognosis, identify nonresponders, and guide treatment course after 7 days of corticosteroids. Patients with AH should have malnutrition addressed and treated, preferably with enteral nutrition. Abstinence is key to long-term survival; methods discussed previously for treatment of AUDs should be used to increase abstinence. Pentoxifylline is no longer recommended in the treatment of AH.

Patient summary: Patients with severe AH and *no* signs of significant infection, bleeding, or advanced kidney injury may benefit from treatment with steroids. Additional treatments, including intravenous NAC, also

can be considered. All patients benefit from nutrition (calories) and, most importantly, complete alcohol abstinence (Fig. 2).

Key Point: Although steroids can be helpful in a select group of patients with AH, complete alcohol abstinence is the *best* treatment. Sobriety results in decreased risk for complications and death.

Liver Transplantation for Severe AH

Guidance statement: Liver transplantation may be considered in carefully selected patients with favorable psychosocial profiles in severe AH not responding to medical therapy.

Patient summary: AH is a serious disease with a high risk for death. We now know that many individuals are too sick to attend AUD treatment before liver transplant evaluation, and that carefully selected patients may benefit from early liver transplantation. Such patients include, but are not limited to, those with strong social support, those who demonstrate insight into their AUD, and those who show no prior alcohol-related liver issues and no prior failed rehabilitation attempts. Different liver transplantation centers may have different rules and criteria, so it is important to check with your doctor.

Key point: Ask your liver doctor if you are a good candidate for an early liver transplant evaluation.

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