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Dr. Xiu Ping Wang
Liver Disease Research Institute, Peking University, Beijing, China

Corresponding Author:
Dr. Xiu Ping Wang
Liver Disease Research Institute, Peking University, Beijing, China

Factors influencing disease progression and mortality in older adults with cirrhosis

Dr. Xiu Ping Wang

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Abstract
Older adults with cirrhosis are at an increased risk for rapid disease progression and mortality compared to younger patients. This study aims to identify key factors contributing to disease advancement and mortality in older adult patients with cirrhosis. Data from 300 patients aged 65 and older were analyzed, focusing on the impact of comorbidities, liver function, nutritional status, and access to advanced care on survival and disease progression. Findings reveal that factors such as advanced liver dysfunction, malnutrition, and multiple comorbidities significantly increase mortality and accelerate disease progression in older patients. These results underscore the need for comprehensive care tailored to the elderly cirrhotic population.

Keywords: Factors influencing, elderly cirrhotic population, older adults, cirrhosis, mortality

1. Introduction
Cirrhosis is a chronic, progressive liver disease marked by extensive scarring (fibrosis) of liver tissue, resulting in impaired liver function. It represents the final stage of chronic liver disease and is often caused by conditions such as chronic hepatitis B and C, alcohol-related liver disease, and non-alcoholic fatty liver disease (NAFLD). Globally, cirrhosis is a leading cause of mortality and morbidity, with an estimated 1.32 million deaths occurring in 2019 due to cirrhosis-related complications, according to the World Health Organization (WHO). As life expectancy increases and more people live into older age, the prevalence of cirrhosis in the elderly population is also rising, presenting unique clinical challenges. Older adults with cirrhosis are particularly vulnerable to rapid disease progression and complications due to the physiological changes that accompany aging. As people age, their liver's regenerative capacity declines, making it harder for the liver to repair itself after damage. In addition to this reduced regenerative ability, older adults are more likely to suffer from comorbidities such as diabetes, cardiovascular disease, and chronic kidney disease, which can exacerbate liver damage and complicate the management of cirrhosis. A study conducted in Europe showed that older adults with cirrhosis had significantly higher rates of mortality and liver-related complications than younger individuals with the same disease. In patients aged 65 and older, mortality from cirrhosis was found to be nearly 30% higher than in younger cohorts, with a marked increase in cirrhosis-related complications such as hepatic encephalopathy, ascites, and variceal bleeding. Another critical factor in older adults with cirrhosis is the presence of malnutrition, which is both a cause and a consequence of liver disease. Malnutrition exacerbates the deterioration of liver function and increases the risk of complications, including infections and poor healing after invasive procedures. Studies have shown that 50% of patients with cirrhosis, particularly those with advanced liver disease, suffer from some degree of malnutrition. Older adults are particularly susceptible to this, given the general decline in muscle mass and metabolic function associated with aging. Malnutrition in older cirrhotic patients is associated with a higher mortality rate, and its role in accelerating the progression of liver disease has been well documented. In addition to these biological factors, the diagnosis of cirrhosis in older adults is often delayed. Many elderly patients present with advanced disease due to non-specific symptoms such as fatigue, anorexia, and weight loss, which can be easily mistaken for normal aging or other unrelated conditions. The delay in diagnosis means that older patients often have more advanced liver damage at the time of diagnosis, leaving fewer treatment options and a poorer prognosis.

The overall management of cirrhosis in older adults requires a more nuanced approach due to the increased likelihood of comorbid conditions, which complicates the treatment of liver disease. For instance, patients with diabetes and cirrhosis experience faster progression of liver fibrosis and have a higher risk of cirrhosis-related complications, including hepatocellular carcinoma. Similarly, cardiovascular disease and chronic kidney disease, both common in the elderly population, further stress liver function and reduce survival rates. The presence of multiple comorbidities in older adults with cirrhosis creates a complex clinical picture, where the management of liver disease must be balanced with the treatment of other conditions. Despite the growing recognition of these challenges, there is a lack of comprehensive data specifically focusing on the factors influencing disease progression and mortality in older adults with cirrhosis. Most studies on cirrhosis tend to focus on younger patients, even though the elderly population represents a significant and growing subset of cirrhotic patients. This study aims to address this gap by analyzing the factors that most strongly influence disease outcomes in older adults with cirrhosis, including liver function, comorbidities, nutritional status, and access to advanced care such as liver transplantation. By identifying the most critical factors that contribute to poor outcomes in this population, we aim to provide insights that can improve management strategies and ultimately enhance survival and quality of life for older adults with cirrhosis. In light of the increased vulnerability of older adults to cirrhosis-related complications, this study will evaluate the clinical characteristics, survival rates, and progression of cirrhosis in a cohort of 300 patients aged 65 and older. Understanding the factors that contribute to worse outcomes in these patients is crucial for developing tailored interventions that address not only liver dysfunction but also the broader health issues affecting this population.

Objective of the study

The objective of the study is to identify the key factors influencing disease progression and mortality in older adults with cirrhosis.

Methodology

A retrospective study was conducted on 300 older adult patients (aged 65 and above) with cirrhosis, treated between 2015 and 2020 across multiple centers. Patients were diagnosed based on clinical findings, imaging, and liver function tests. The cohort was analyzed for key variables including liver function (Child-Pugh and MELD scores), presence of comorbidities (diabetes, cardiovascular disease, and chronic kidney disease), and nutritional status (serum albumin levels and body mass index).

Data were analyzed using Kaplan-Meier survival estimates and statistical models to correlate mortality and disease progression with patient-specific factors.

Table 1: Demographic Structure of Patients

Age Group (Years)	Number of Patients	Percentage (%)
65-70	90	30
71-75	120	40
76-80	60	20
81+	30	10

Table 1 outlines the demographic distribution of the older adult patients with cirrhosis, categorized by age groups. The majority of the patients fall within the 71-75 year age range, accounting for 40% of the study cohort, followed by 30% of patients in the 65-70 year range. This distribution reflects the increasing prevalence of cirrhosis in older adults as they age. The relatively lower number of patients in the 81+ year group (10%) suggests that cirrhosis, combined with age-related health issues, significantly impacts survival and could lead to earlier mortality in these patients.

This age distribution is important because it indicates that most patients are diagnosed with cirrhosis in their early 70s, a time when they are more likely to develop comorbidities and experience worsening liver function. The fact that 70% of the cohort is between 65 and 75 years old suggests that this is a critical period for intervention to slow disease progression and manage comorbidities. The demographic data highlight the need for targeted care for this vulnerable age group, where early diagnosis and tailored management could improve outcomes.

Table 2: Observed Sample Data

Comorbidity	Number of Patients (%)	Mortality Rate (%)
Diabetes	45	40
Chronic Kidney Disease	30	50
Cardiovascular Disease	35	30

Table 2 focuses on the prevalence of key comorbidities and their associated mortality rates in older adults with cirrhosis. Diabetes is the most common comorbidity, present in 45% of the patients, with a 40% mortality rate over three years. The high prevalence of diabetes among older cirrhotic patients reflects the metabolic risk factors that often accompany liver disease. Diabetes exacerbates the progression of cirrhosis by promoting liver fibrosis, inflammation, and insulin resistance, all of which contribute to worse outcomes. The 40% mortality rate associated with diabetes underscores its critical role in cirrhosis management and highlights the need for aggressive control of blood glucose levels in these patients. Chronic Kidney Disease (CKD) was present in 30% of the patients and had the highest mortality rate of 50%. CKD adds significant strain on the liver, as it impairs the body's ability to manage fluid and electrolyte balance, leading to complications like hepatic encephalopathy and ascites. The elevated mortality rate in patients with CKD suggests that kidney function plays a crucial role in determining survival outcomes in older adults with cirrhosis. The presence of CKD also complicates the use of certain medications for cirrhosis, such as diuretics and antivirals, which require careful dosing adjustments. Cardiovascular disease was observed in 35% of the patients and was associated with a 30% mortality rate. Cardiovascular comorbidities complicate the management of cirrhosis by increasing the risk of variceal bleeding and portal hypertension, conditions that place additional stress on the already compromised liver. The presence of cardiovascular disease also limits treatment options like liver transplantation, which is more challenging in patients with significant heart disease.

Results

The results showed significant variation in disease progression and mortality based on liver function, comorbidities, and nutritional status.

Liver Dysfunction

Advanced liver dysfunction, as indicated by Child-Pugh Class C and MELD scores above 20, was the most critical predictor of mortality and disease progression. Of the patients classified as Child-Pugh Class C, 75% experienced severe complications such as ascites and hepatic encephalopathy within two years, with a mortality rate of 65% over three years.

Comorbidities

Comorbid conditions, particularly diabetes and chronic kidney disease, were associated with significantly higher mortality rates. Patients with diabetes had a 40% mortality rate, and those with chronic kidney disease had a 50% mortality rate over three years. Cardiovascular disease, present in 35% of patients, contributed to a 30% mortality rate, largely due to the additional burden on liver function.

Nutritional Status:

Malnutrition was found to be a major risk factor for disease progression and mortality. 50% of the patients were classified as malnourished, with serum albumin levels below 3.5 g/dL or BMI below 18.5. These patients had a 45% higher mortality rate and a 60% higher rate of complications compared to well-nourished patients.

Table 3: Factors influencing mortality and disease progression

Factor	Mortality Rate (3 years, %)	Disease Progression (Complications, %)
Child-Pugh Class C	65	75
Multiple Comorbidities (3+)	50	60
Poor Nutritional Status	45	60

This study highlights several key factors influencing disease progression and mortality in older adults with cirrhosis. Advanced liver dysfunction, as indicated by high Child-Pugh and MELD scores, was the strongest predictor of both rapid disease progression and higher mortality. Patients in Child-Pugh Class C had a mortality rate of 65% over three years and were at a higher risk for complications such as ascites and hepatic encephalopathy.

The presence of multiple comorbidities, particularly diabetes and chronic kidney disease, was also a major factor contributing to increased mortality, with comorbid patients facing a 50% higher risk of death within three years. Poor nutritional status exacerbated disease progression, with malnourished patients experiencing a significantly higher rate of complications and a 45% increase in mortality.

Discussion

The findings of this study underscore the complex interaction between liver function, comorbidities, and nutrition in determining outcomes for older adults with cirrhosis. The presence of advanced liver dysfunction is the most critical determinant of mortality, as these patients have limited liver reserve and are prone to complications such as ascites and hepatic encephalopathy. In this cohort, those with Child-Pugh Class C cirrhosis had the highest rates of disease progression and death.

Comorbidities such as diabetes and chronic kidney disease further compound the risk of mortality. Patients with multiple comorbidities face significant challenges in managing their liver disease, as these conditions accelerate cirrhosis progression and limit the body's ability to recover from complications. This highlights the importance of managing comorbidities aggressively in older cirrhotic patients.

Nutritional status also plays a pivotal role in determining outcomes, with malnourished patients being more susceptible to infections, poor wound healing, and rapid liver function decline. Nutritional interventions should be a key component of care for older cirrhotic patients, as they can potentially reduce complications and improve survival.

Conclusion

This study identifies advanced liver dysfunction, multiple comorbidities, and poor nutritional status as the primary factors contributing to disease progression and increased mortality in older adults with cirrhosis. Patients with advanced liver disease, particularly those in Child-Pugh Class C, experienced the highest rates of complications and mortality, underscoring the need for early diagnosis and aggressive management. Comorbid conditions such as diabetes and chronic kidney disease further compound the risk of death, highlighting the importance of comprehensive care that addresses not only liver health but also the broader spectrum of age-related health issues. Poor nutritional status significantly worsened outcomes, reinforcing the need for nutritional interventions as part of cirrhosis management. Overall, targeted interventions, early management of comorbidities, and comprehensive care are essential to improving survival and quality of life in this vulnerable population.

References

1. Tong MJ, Hsien C, Song JJ, Kao JH, Sun HE, Hsu L, *et al*. Factors associated with progression to hepatocellular carcinoma and to death from liver complications in patients with HBsAg-positive cirrhosis. Digestive Diseases and Sciences. 2009 Jun;54:1337-1346.
2. Regev A, Schiff ER. Liver disease in the elderly. Gastroenterology Clinics of North America. 2001 Jun 1;30(2):547-563.
3. Gomez VE, Bertot CL, Wong VW, Castellanos M, Fuente ADLR, Metwally M, *et al*. Fibrosis severity as a determinant of cause-specific mortality in patients with advanced nonalcoholic fatty liver disease: A multi-national cohort study. Gastroenterology. 2018 Aug 1;155(2):443-457.
4. Kim HJ, Chu H, Lee S. Factors influencing health-related quality of life in South Koreans with chronic liver disease. Health and Quality of Life Outcomes. 2018 Dec;16:1-8.
5. Floreani A. Liver disorders in the elderly. Best Practice & Research Clinical Gastroenterology. 2009 Dec 1;23(6):909-917.
6. Fattovich GI, Giustina GI, Degos FR, Tremolada FE, Diodati G, Almasio P, *et al*. Morbidity and mortality in compensated cirrhosis type C: A retrospective follow-up study of 384 patients. Gastroenterology. 1997 Feb 1;112:463-472.
7. Rinella ME, Satapathy SK, Brandman D, Smith C, Elwir S, Xia J, *et al*. Factors impacting survival in those transplanted for NASH cirrhosis: Data from the NailNASH Consortium. Clinical Gastroenterology and Hepatology. 2023 Feb 1;21(2):445-455.
8. Henson JB, Wilder JM, Kappus MR, Barbas AS, Moylan CA, Niedzwiecki D, *et al*. Transplant outcomes

in older patients with nonalcoholic steatohepatitis compared to alcohol-related liver disease and hepatitis C. Transplantation. 2020 Jun 1;104(6).
9. Koehler EM, Schouten JN, Hansen BE, Rooij VFJ, Hofman A, Stricker BH, *et al*. Prevalence and risk factors of non-alcoholic fatty liver disease in the elderly: Results from the Rotterdam study. Journal of Hepatology. 2012 Dec 1;57(6):1305-1311.
10. Marchesini G, Bianchi G, Amodio P, Salerno F, Merli M, Panella C, *et al*. Italian Study group for quality of life in cirrhosis. factors associated with poor health-related quality of life of patients with cirrhosis. Gastroenterology. 2001 Jan 1;120(1):170-178.
11. Arvaniti V, D'Amico G, Fede G, Manousou P, Tsochatzis E, Pleguezuelo M, *et al*. Infections in patients with cirrhosis increase mortality four-fold and should be used in determining prognosis. Gastroenterology. 2010 Oct 1;139(4):1246-56.
12. Frith J, Day CP, Henderson E, Burt AD, Newton JL. Non-alcoholic fatty liver disease in older people. Gerontology. 2009 Aug 19;55(6):607-13.
13. Prince M, Chetwynd A, Newman W, Metcalf JV, James OF. Survival and symptom progression in a geographically based cohort of patients with primary biliary cirrhosis: Follow-up for up to 28 years. Gastroenterology. 2002 Oct 1;123(4):1044-1051.