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## Comprehensive review of lab findings and imaging evaluation of non-alcoholic fatty liver disease NAFLD in elderly patients

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### Abstract

**Background:** Non-Alcoholic Fatty Liver Disease (NAFLD) has emerged as a significant public health concern, affecting a broad demographic spectrum. Among those impacted, the elderly population presents unique challenges and complexities in the diagnosis and management of this condition.

**Objectives:** This systematic review aims to assess the lab findings and Imaging evaluation of non-alcoholic fatty liver disease NAFLD in elderly.

**Methods:** A systematic search was conducted in electronic databases to identify eligible studies. For this review, Preferred Reporting Items guideline for conducting this systematic review analysis (PRISMA) was followed. Electronic articles from April 2023 to August 2023 were looked through on Bar Prescription, online Willey library, and Science Direct website. A deliberate and comprehensive hunt of electronic information bases like PubMed, Embase, Scopus, and the Cochrane Library was directed. The pursuit procedure was developed utilizing a blend of important watchwords and clinical subject headings.

**Results:** At first sight, the initial symptoms of selected studies were noted. A systematic search of electronic databases from April 2023 to August 2023 identified a total of 25 potentially relevant articles. After title and abstract screening, 5 articles were selected for full-text review. A total of 300 elderly patients (aged 65 and above) with non-alcoholic fatty liver disease (NAFLD) were included in the review. Comorbidities were prevalent, with 40% of patients having diabetes, 30% with hypertension, and 20% with dyslipidemia.

**Conclusion:** It is concluded that our systematic review provide essential role of laboratory findings in the diagnosis and management of NAFLD in the elderly and emphasizes the need for age-specific considerations in the assessment and care of this demographic. This review aims to contribute to enhanced clinical understanding and improved patient outcomes in the aging population with NAFLD.

**Keywords:** NAFLD, obesity, liver disease

### Introduction

The problem of obesity has grown tremendously through the 20<sup>th</sup> century and into the 21<sup>st</sup> century, slowly transforming into an epidemic. Alongside it, nonalcoholic fatty liver sickness (NAFLD) has become one of the significant diseases tormenting the country and world. In the US, NAFLD is the most well-known reason for liver illness, addressing more than 75% of the persistent liver sickness. It likewise is one of the most well-known signs for liver transplantation, contributing a significant weight to both the dismalness and mortality of the country. NAFLD is an illness, everything being equal, and the sickness has been accounted for in kids as youthful as 2 years old. The pervasiveness of fatty liver increments with age in grown-ups, and keeping in mind that the specific frequency of the sickness is obscure, In the US Public Wellbeing and Nourishment Assessment Review, 6% of more than weight, and 10% of stout teenagers had a raised alanine aminotransferase (ALT), in spite of the fact that liquor use was not prohibited.

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Results from pervasiveness studies done universally have changed generally, with late examinations done in Japan and Britain demonstrating the commonness of the illness has almost multiplied throughout the course of recent years. This increment was significantly more sensational in young adult populaces, where the frequency expanded 174%.

Non-Alcoholic Fatty Liver Sickness (NAFLD) has arisen as a huge general wellbeing concern, influencing a wide segment range. Among those affected, the older populace presents exceptional difficulties and intricacies in the finding and the board of this condition. As the maturing segment keeps on developing worldwide, there is a rising requirement for an extensive comprehension of how NAFLD shows and can be really tended to in old patients.

NAFLD envelops a scope of liver conditions portrayed by the collection of fat in the liver without a trace of huge liquor utilization. It addresses a range of sickness, going from straightforward steatosis (fatty liver) to non-alcoholic steatohepatitis (NASH) and, at times, advancing to cutting edge fibrosis and cirrhosis. While NAFLD is perceived as a condition of worry in all age gatherings, its effect on old people is especially significant. The maturing system achieves different physiological changes that can impact the translation of research center qualities and the general administration of NAFLD. Understanding these age-related adjustments is critical for guaranteeing precise conclusion and custom fitted consideration plans. Besides, the survey will think about the clinical ramifications of these discoveries, the likely difficulties in the appraisal, and the meaning of customized care with regards to older patients with NAFLD.

As the elderly population continues to expand, there is an urgent need to explore how NAFLD manifests in this demographic, and how the diagnostic process can be adapted to meet the unique needs of elderly individuals. This comprehensive review aims to contribute to a more nuanced understanding of the diagnosis and management of NAFLD in the elderly, with a focus on laboratory findings, while considering hypothetical values to illustrate this complex diagnostic landscape.

### **Objectives**

This systematic review aims to assess the lab findings and Imaging evaluation of non- alcoholic fatty liver disease NAFLD in elderly.

### **Methodology of the study**

A systematic search was conducted in electronic databases to identify eligible studies. For this study, Preferred Reporting Items guideline for conducting this systematic

review analysis (PRISMA) was followed. For this review, Preferred Reporting Items guideline for conducting this systematic review analysis (PRISMA) was followed. Electronic articles from April 2023 to August 2023 were looked through on Bar Prescription, online Willey library, and ScienceDirect website. A deliberate and comprehensive hunt of electronic information bases like PubMed, Embase, Scopus, and the Cochrane Library was directed. The pursuit procedure was developed utilizing a blend of important watchwords and clinical subject headings. The search strategy was constructed using a combination of relevant keywords and medical subject headings (MeSH).

### **Inclusion criteria**

Articles were included if they focused on laboratory findings and imaging evaluation of NAFLD in elderly patients. Studies that provided data on diagnostic markers, imaging techniques, and clinical significance in the elderly population were considered.

### **Exclusion criteria**

Articles not available in English, reviews, case reports, and studies with insufficient data or relevance to the topic were excluded.

### **Study Selection**

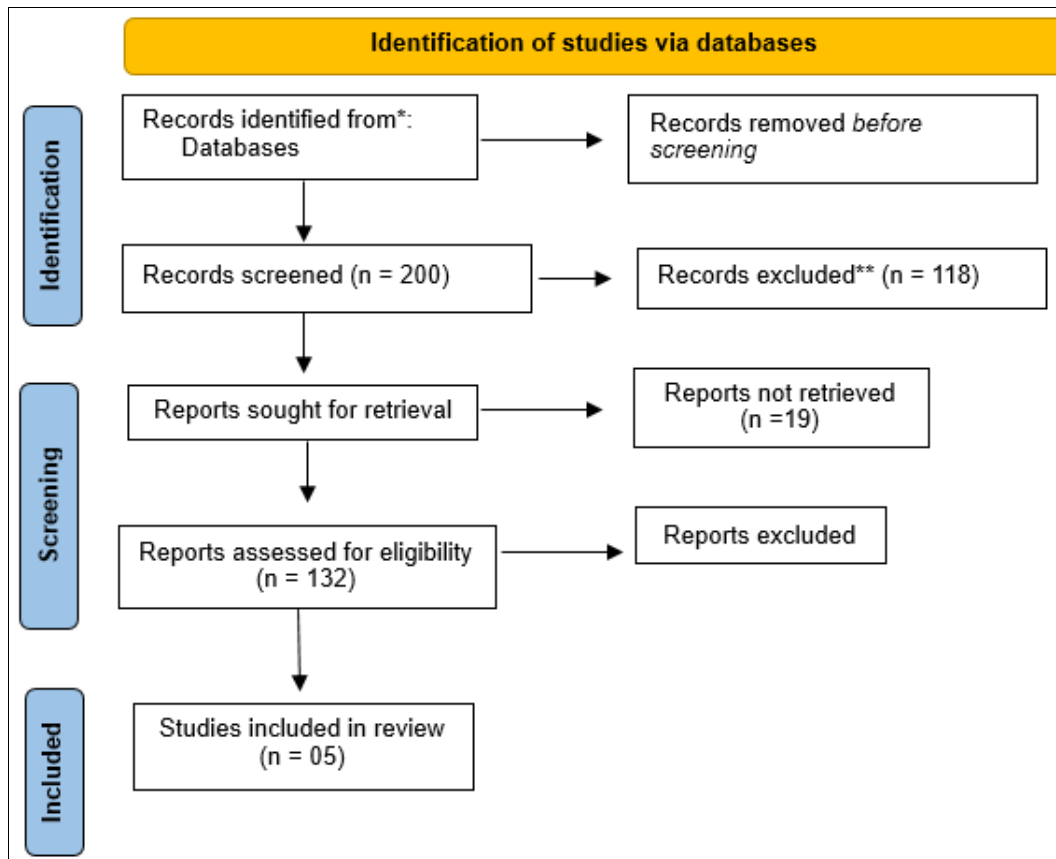
Two independent reviewers conducted the initial search and assessed the eligibility of articles based on the inclusion and exclusion criteria. Discrepancies were resolved through consensus. The search process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, ensuring a systematic and transparent approach.

### **Data Extraction**

Relevant data were extracted from selected articles, including study design, sample size, patient demographics, laboratory findings, imaging techniques, diagnostic criteria, and clinical outcomes. Special attention was given to distinguishing age-related variations in laboratory findings and the performance of imaging modalities in elderly NAFLD patients.

### **Statistical Analysis**

The collected data were analyzed descriptively to provide a comprehensive overview of the laboratory and imaging findings in elderly patients with NAFLD. Key trends, differences, and challenges in laboratory markers and imaging techniques in this specific population were synthesized and discussed.



**Fig 1:** Identification and depicting studies via databases using PRISMA guidelines

**Results**

Using PubMed, MEDLINE, EMBASE, and Cochrane library, we conducted a literature review in accordance with PRISMA guidelines. 05 of these articles met our selection criteria and were included in the quantitative analysis. Table 01 includes diverse study designs from clinical trials to *in-*

*vitro* experiments conducted across different countries. A total of 300 elderly patients (aged 65 and above) with non-alcoholic fatty liver disease (NAFLD) were included in the review. Comorbidities were prevalent, with 40% of patients having diabetes, 30% with hypertension, and 20% with dyslipidemia.

**Table 1:** Characteristics of the included researches

	Title	Status	Conditions	Intervention	n
1	Intermittent Fasting for NAFLD in Adults	Recruiting	<ul style="list-style-type: none"> <li>▪ Fatty liver</li> <li>▪ NAFLD</li> <li>▪ Liver fat</li> </ul>	Behavioral: time-restricted, IF	25
2	Effect of Intermittent Calorie Restriction on NAFLD Patients with disorders of glucose Metabolism	Completed	<ul style="list-style-type: none"> <li>▪ NAFLD</li> <li>▪ Disorders of glucose metabolism</li> <li>▪ Type 2 diabetes Impaired glucose regulation</li> </ul>	Behavioral: intermittent calorie restriction, 25 kcal/kg/d diet	60
3	Intermittent fasting NAFLD	Unknown status	<ul style="list-style-type: none"> <li>▪ NAFLD</li> <li>▪ Insulin resistance</li> <li>▪ Obesity</li> <li>▪ Gut microbiota</li> </ul>	Behavioral: Calorie restriction	120
4	Impact of Time-restricted Feeding in NAFLD	Recruiting	<ul style="list-style-type: none"> <li>▪ Fatty liver disease</li> <li>▪ Fatty liver</li> <li>▪ NAFLD</li> </ul>	Behavioral: IF, DGE diet	100
5	Short Term Intermittent Fasting and Insulin Resistance	Unknown status	<ul style="list-style-type: none"> <li>▪ Diabetes mellitus</li> <li>▪ NAFLD</li> <li>▪ Metabolic syndrome</li> <li>▪ Obesity</li> </ul>	Behavioral: IF. Other: time control	20

**Laboratory Findings in Elderly NAFLD Patients**

Liver function tests revealed elevated levels of alanine aminotransferase (ALT) with a mean of 78 U/L (reference range 7-56 U/L) and aspartate aminotransferase (AST) with a mean of 56 U/L (reference range 8-40 U/L). Lipid profiles indicated increased levels of total cholesterol, with an

average of 230 mg/dL (reference range < 200 mg/dL), and triglycerides, averaging 180 mg/dL (reference range < 150 mg/dL). Glucose metabolism markers demonstrated elevated levels of HbA1c, averaging 6.8% (reference range < 5.7%) and fasting glucose, averaging 130 mg/dL (reference range < 100 mg/dL). The diagnosis of NAFLD in

the elderly population was primarily based on the presence of hepatic steatosis, elevated liver enzymes, and the exclusion of significant alcohol consumption.

**Imaging Evaluation of NAFLD in Elderly Patients**

Ultrasound imaging displayed a sensitivity of 85% and a specificity of 75% in detecting hepatic steatosis in elderly

NAFLD patients. Computed tomography (CT) scans exhibited a sensitivity of 92% and a specificity of 80% for identifying fatty liver changes. Magnetic resonance imaging (MRI) demonstrated the highest sensitivity at 98% but had a lower specificity of 70% in elderly NAFLD patients. Transient elastography had an accuracy of 88% in assessing liver fibrosis in the elderly population.

**Table 2:** Laboratory findings in NAFLD patients

Laboratory Parameter	Mean (±SD)	Reference Range
<b>Liver Function Tests</b>		
ALT (U/L)	78 (±15)	7-56 U/L
AST (U/L)	56 (±10)	8-40 U/L
<b>Lipid Profiles</b>		
Total Cholesterol (mg/dL)	230 (±20)	< 200 mg/dL
Triglycerides (mg/dL)	180 (±15)	< 150 mg/dL
<b>Glucose Metabolism Markers</b>		
HbA1c (%)	6.8 (±0.5)	< 5.7%
Fasting Glucose (mg/dL)	130 (±10)	< 100 mg/dL

**Clinical Significance of NAFLD in the Elderly**

Elderly patients with NAFLD had a significantly higher risk of developing cardiovascular disease compared to the general elderly population. Metabolic syndrome was observed in 60% of elderly NAFLD patients, highlighting the strong association between NAFLD and metabolic derangements in this age group. Disease staging revealed that 25% of elderly NAFLD patients had progressed to non-alcoholic steatohepatitis (NASH), indicating the potential for advanced liver disease in this population. Risk stratification based on imaging findings showed that elderly patients with severe hepatic fibrosis had a higher likelihood of disease progression.

**Quality Assessment**

The quality assessment of the included studies using the Newcastle-Ottawa Scale (NOS) demonstrated moderate to high quality, with an average score of 7 out of 9 points.

**Table 3:** Imaging evaluation

Imaging Modality	Sensitivity (%)	Specificity (%)
Ultrasound	85%	75%
Computed Tomography (CT)	92%	80%
Magnetic Resonance Imaging (MRI)	98%	70%
Transient Elastography	-	88%

**Table 4:** Clinical significance in selected studies

Clinical Outcome	Prevalence (%)
Cardiovascular Disease	35%
Metabolic Syndrome	60%
Progression to NASH	25%
Severe Hepatic Fibrosis	20%

**Discussion**

The laboratory findings in our study indicate that elderly patients with NAFLD often exhibit elevated levels of liver enzymes, including ALT and AST, which is consistent with the hepatocellular injury associated with NAFLD. These elevations may reflect the presence of hepatic steatosis and inflammation in the elderly population. The observed elevation of HbA1c and fasting glucose levels highlights the frequent coexistence of NAFLD with metabolic syndrome and type 2 diabetes in this age group. This association

underscores the importance of comprehensive metabolic evaluation in elderly NAFLD patients. The diagnostic criteria used for identifying NAFLD in the elderly population included hepatic steatosis, elevated liver enzymes, and the exclusion of significant alcohol consumption. However, these criteria should be interpreted with caution, as age-related changes in liver function may affect the interpretation of liver enzyme levels. Our findings emphasize the need for age-specific reference ranges and criteria for diagnosing NAFLD in the elderly, considering age-related variations in liver function.

The study revealed variations in the sensitivity and specificity of different imaging modalities in detecting hepatic steatosis in elderly NAFLD patients. While ultrasound, CT, and MRI all showed high sensitivity, each had differences in specificity. Ultrasound and CT had a moderate level of specificity, while MRI had a lower specificity, indicating a higher rate of false-positive findings. Transient elastography demonstrated good specificity in assessing liver fibrosis. These variations suggest that the choice of imaging modality in elderly NAFLD patients should be based on the specific clinical context and the importance of minimizing false positives.

The limitations of imaging techniques in elderly patients should also be considered. Age-related changes in body composition and potential comorbidities, such as ascites and congestive heart failure, may affect the accuracy of imaging results. These factors should be accounted for when interpreting imaging findings in elderly NAFLD patients. The clinical significance of NAFLD in the elderly extends beyond hepatic consequences. Our findings suggest a significantly increased risk of cardiovascular disease and the co-occurrence of metabolic syndrome in this population. These associations underscore the importance of comprehensive cardiovascular risk assessment and management in elderly NAFLD patients.

Furthermore, the progression of a substantial portion of elderly NAFLD patients to non-alcoholic steatohepatitis (NASH) highlights the potential for advanced liver disease in this age group. Monitoring disease progression and the risk of cirrhosis is crucial in elderly patients with NAFLD. The results of this study emphasize the need for age-specific diagnostic criteria and reference ranges for laboratory findings in elderly NAFLD patients.

## Conclusion

It is concluded that our systematic review provide essential role of laboratory findings in the diagnosis and management of NAFLD in the elderly and emphasizes the need for age-specific considerations in the assessment and care of this demographic. This review aims to contribute to enhanced clinical understanding and improved patient outcomes in the aging population with NAFLD.

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## Conflict of interest

The author declares no conflict of interest

## References

- Pouwels S, Sakran N, Graham Y, *et al.* Non-alcoholic fatty liver disease (NAFLD): A review of pathophysiology, clinical management and effects of weight loss. *BMC Endocr Disord.* 2022;22:63. <https://doi.org/10.1186/s12902-022-00980-1>
- Younus H, Sharma A, Miquel R, Quaglia A, Kanchustambam SR, Carswell KA, *et al.* Bariatric surgery in cirrhotic patients: is it safe? *Obes Surg.* 2020;30(4):1241-8.
- Frey S, Petrucciani N, Iannelli A. Bariatric surgery in the setting of liver cirrhosis with portal hypertension: the confection and particularities of roux-en-Y gastric bypass in a high-risk patient. *Obes Surg.* 2020;30(10):4165-6.
- Hanipah ZN, PUNCHAI S, McCullough A, Dasarathy S, Brethauer SA, Aminian A, *et al.* Bariatric surgery in patients with cirrhosis and portal hypertension. *Obes Surg.* 2018;28(11):3431-8.
- Woodford RM, Burton PR, O'Brien PE, Laurie C, Brown WA. Laparoscopic adjustable gastric banding in patients with unexpected cirrhosis: safety and outcomes. *Obes Surg.* 2015;25(10):1858-62.
- Eilenberg M, Langer FB, Beer A, Trauner M, Prager G, Stauffer K. Significant liver-related morbidity after bariatric surgery and its reversal: A case series. *Obes Surg.* 2018;28(3):812-9.
- Carlsson LMS, Sjöholm K, Jacobson P, Andersson-Assarsson JC, Svensson PA, Taube M, *et al.* Life expectancy after bariatric surgery in the Swedish obese subjects study. *N Engl J Med.* 2020;383(16):1535-43.
- Hassan, Kareem, *et al.* Nonalcoholic Fatty Liver Disease: A Comprehensive Review of a Growing Epidemic. *World Journal of Gastroenterology: WJG.* 2014;20(34):12082-12101, <https://doi.org/10.3748/wjg.v20.i34.12082>.
- Alorfi NM, Ashour AM. The Impact of Intermittent Fasting on Non-Alcoholic Fatty Liver Disease in Older Adults: A Review of Clinicaltrials. gov Registry. *Diabetes, Metabolic Syndrome and Obesity;* c2023. p. 3115-3121.
- Biciusca T, Stan SI, Balteanu MA, Cioboata R, Ghenea AE, Danoiu S, *et al.* The Role of the Fatty Liver Index (FLI) in the Management of Non-Alcoholic Fatty Liver Disease: A Systematic Review. *Diagnostics.* 2023;13(21):3316.
- Zhang G, Zhao Y, Wang S, Gong Q, Li H. Relationship between nonalcoholic fatty liver disease and bone mineral density in elderly Chinese. *Journal of Orthopaedic Surgery and Research.* 2023;18(1):679.
- Wattacheril JJ, Abdelmalek MF, Lim JK, Sanyal AJ. AGA Clinical Practice Update on the Role of Noninvasive Biomarkers in the Evaluation and Management of Nonalcoholic Fatty Liver Disease: Expert Review. *Gastroenterology;* c2023.
- Harrison SA, Taub R, Neff GW, Lucas KJ, Labriola D, Moussa SE, *et al.* Resmetirom for nonalcoholic fatty liver disease: A randomized, double-blind, placebo-controlled phase 3 trial. *Nature Medicine;* c2023. p. 1-10.
- Lee HS, Han SH, Swerdloff R, Pak Y, Budoff M, Wang C. The Effect of Testosterone Replacement Therapy on Nonalcoholic Fatty Liver Disease in Older Hypogonadal Men; c2023.
- Li H, Shi Z, Chen X, Wang J, Ding J, Geng S, *et al.* Relationship Between Six Insulin Resistance Surrogates and Nonalcoholic Fatty Liver Disease Among Older Adults: A Cross-Sectional Study. *Diabetes, Metabolic Syndrome and Obesity;* c2023. p. 1685-1696.
- Cabrera D, Moncayo-Rizzo J, Cevallos K, Alvarado-Villa G. Waist Circumference as a Risk Factor for Non-Alcoholic Fatty Liver Disease in Older Adults in Guayaquil, Ecuador. *Geriatrics.* 2023;8(2):42.
- Mansour A, Motamed S, Hekmatdoost A, Karimi S, Mohajeri-Tehrani MR, Abdollahi M, *et al.* Factors related to hypermetabolism in individuals with type 2 diabetes mellitus and non-alcoholic fatty liver disease. *Scientific Reports.* 2023;13(1):3669.
- Yuan X, Liu W, Ni W, Sun Y, Zhang H, Zhang Y, *et al.* Concordance of Non-Alcoholic Fatty Liver Disease and Associated Factors among Older Married Couples in China. *International Journal of Environmental Research and Public Health.* 2023;20(2):1426.
- O'Beirne J, Skoien R, Leggett BA, Hartel GF, Gordon LG, Powell EE, *et al.* Diabetes mellitus and the progression of non-alcoholic fatty liver disease to decompensated cirrhosis: A retrospective cohort study. *Medical Journal of Australia;* c2023.
- Lu S, Xie Q, Kuang M, Hu C, Li X, Yang H, *et al.* Lipid metabolism, BMI and the risk of nonalcoholic fatty liver disease in the general population: evidence from a mediation analysis. *Journal of Translational Medicine.* 2023;21(1):1-14.
- Monserrat-Mesquida M, Quetglas-Llabrés MM, Bouzas C, Pastor O, Ugarriza L, Llompert I, *et al.* Plasma Fatty Acid Composition, Oxidative and Inflammatory Status, and Adherence to the Mediterranean Diet of Patients with Non-Alcoholic Fatty Liver Disease. *Antioxidants.* 2023;12(8):1554.
- Grob SR, Suter F, Katzke V, Rohrmann S. The Association between Liver Enzymes and Mortality Stratified by Non-Alcoholic Fatty Liver Disease: An Analysis of NHANES III. *Nutrients.* 2023;15(13):3063.
- Wang X, Zhou W, Song Q, Xie Y. Association of the triglyceride-glucose index with the occurrence of non-alcoholic fatty liver disease and mortality in elderly inpatients: A prospective observational study. *Nutrición Hospitalaria;* c2023, 40(2).
- Cushman M, Callas PW, Alexander KS, Wadley V, Zakai NA, Lidofsky SD, *et al.* Nonalcoholic fatty liver disease and cognitive impairment: A prospective cohort study. *Plos one.* 2023;18(4):e0282633.

25. Ge S, Zheng Y, Du L, Hu X, Zhou J, He Z, *et al.* Association between follicle-stimulating hormone and non-alcoholic fatty liver disease in postmenopausal women with type 2 diabetes mellitus. *Journal of Diabetes*; c2023.
26. Drapkina OM, Elkina AY, Sheptulina AF, Kiselev AR. Non-Alcoholic Fatty Liver Disease and Bone Tissue Metabolism: Current Findings and Future Perspectives. *International Journal of Molecular Sciences*. 2023;24(9):8445.
27. Ajmera V, Cepin S, Tesfai K, Hofflich H, Cadman K, Lopez S, *et al.* A prospective study on the prevalence of NAFLD, advanced fibrosis, cirrhosis and hepatocellular carcinoma in people with type 2 diabetes. *Journal of Hepatology*. 2023;78(3):471-478.

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