Advanced Medical Journal, Vol.10, No.4, P.80-87,2025 https://doi.org/10.56056/amj.2025.401

Characteristics of Patients with Liver Cirrhosis Attending Azadi Center of Gastroenterology and Hepatology-Duhok Kurdistan Region

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Abstract

Background and objectives: Diagnosis of liver cirrhosis is made histologically, yet patients can present with clinical and laboratory features suggestive of end-stage liver disease and cirrhosis. The aim was to identify the causes, severity, and complications.

Methods: A cross-sectional study was conducted from March-October 2023 in the Azadi Center of Gastroenterology and Hepatology in Duhok and included 205 cases. Demographic information was taken from the patients. Then patients were examined and sent to baseline and relevant investigations. A liver biopsy was done in selected patients.

Results: The mean age of the patients was 52.4 ± 13.1. years. Males were (57.6%), and non-smokers were (68.3%). Furthermore, (64.4%) of the patients had Anorexia, (52.7%) had weight loss, (46.8%) had fever, and (43.4%) had abdominal pain. Upper endoscopic findings revealed varices in (48.8%), Portal Hypertensive Gastropathy (13.17%), Gastric Antral Vascular Ectasia (8.8%) and erosive gastritis in (3.41%). The metabolic dysfunction associated steatotic liver disease (31.22%), hepatitis B (15.61%), cryptogenic (11.22%), and hepatitis C (5.37%) were the most common types. Regarding the severity, chronic liver disease stage B was the most prevalent type (57.56%) and then type A was (21.46%). The mean scores of the Child-Pugh and the model of end stage liver disease-Sodium score were 8.05 and 18.19, respectively, which are statistically significant.

Conclusion: Ascites and esophageal varices as a complication on presentation implies a delay in the presentation and diagnosis alongside under screening for liver cirrhosis. Metabolic dysfunction associated steatotic liver disease plays a major role as an underlying cause.

Keywords: Cirrhosis, Causes, Complications, Duhok, Prognoses

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Introduction

Liver cirrhosis is an end-stage liver disease entity where the histological diagnosis is characterized by extensive hepatic fibrosis and nodules formation due to a chronic inflammatory process.[1,2] The disease takes a variable course of progression from chronic liver disease to cirrhosis. Cirrhosis is the leading cause of morbidity and mortality.[1] The disease is estimated to have a prevalence of 0.27% in the USA, with over half of the cases being unaware of their condition.[3] There are various identifiable risk factors for liver cirrhosis, including excessive alcohol intake, patients with viral hepatitis, obesity, and diabetes.[4] Clinically, liver cirrhosis is classified into four clinical stages. Stages I and II are regarded as compensated cirrhosis. Stages III and IV are decompensated cirrhosis. Stage I cirrhosis represents that, if there are no ascites, there are no varices. In stage II cirrhosis, there are varices but no ascites. In stage III, ascites are present with or without varices, and lastly, in stage IV, variceal bleeding is present with or without ascites.[1] Most cases of compensated liver cirrhosis are asymptomatic and they remain like that for years due to the presence of the sufficient amount of properly functioning hepatocytes. While the decompensated form is characterized by marked scarring and damage of the hepatocytes, which subsequently leads to complications, hence known as the stage of complications.[5] The clinical manifestations of patients with cirrhosis depend mainly on the stage of presentation, whether compensated or decompensated, and they are mainly due to liver cell dysfunction and portal hypertension. At the preclinical stage, patients might be asymptomatic or present with non-specific symptoms, such as fatigue, itching, and weight loss.[4] At the late stages, the patients start to develop more specific symptoms like gastrointestinal bleeding, jaundice, edema, and hepatic encephalopathy. Reaching the late stage of liver cirrhosis makes the patient vulnerable to complications, some of which are the complications of cirrhosis such as ascites, variceal bleeding, hepatic encephalopathy spontaneous bacterial peritonitis, hepatorenal syndrome, and hepatopulmonary syndrome. The diagnosis of liver cirrhosis is established by the presence of suggestive clinical signs and symptoms supported by laboratory findings and imaging studies. The typical findings include spider naevi, palmar erythema, gynecomastia and testicular atrophy in males in addition to the features of the underlying cause: Kayser-Fleischer ring in Wilson disease, and arrhythmia and arthritis in hemochromatosis.[6,7] The prognosis of liver cirrhosis to date is predicted by using the MELD-Na and Child-Pugh Turcotte scores and the standard treatment is liver transplantation.[8,9] This study aimed to evaluate the socio-demographic and clinical characteristics of patients with liver cirrhosis attending Azadi Gastroenterology and Hepatology Center, Duhok, Kurdistan Region, Iraq.

Patients and methods

This study was conducted as a descriptive, cross-sectional study from March 2023 until October 2023 at the Azadi Gastroenterology and Hepatology Center, Duhok city, Kurdistan Region, Iraq. A total of 205 patients were included. The inclusion criteria are all cases of liver cirrhosis, whether previously diagnosed or new cases. The diagnosis of liver cirrhosis was established by imaging studies (ultrasound, CT scan) showing features of liver cirrhosis like an irregular surface, small size, and nodular parenchyma or fibro scan showing F4 stage or liver biopsy showing features of liver cirrhosis. The liver biopsy was done only for doubtful cases and for autoimmune hepatitis cases. The questionnaires began by asking the patients about their age, sex, address, and occupation before measuring their height,

https://doi.org/10.56056/amj.2025.401

weight, and waist circumference. The waist circumference was done by selecting the midpoint between the anterior superior iliac spine and the lower border of the rib cage. The body mass index was also calculated. Then the history obtained from the patient or his/her escort including non-specific symptoms of liver cirrhosis (like anorexia, weight loss, abdominal pain, fever), hematemesis, melena, epistaxis, a history of menorrhagia, dark urine, itching, or pale stool. A history of blood transfusion, tattooing, dialysis or contact with a jaundiced patient was also taken. The past medical history was included through questions about diabetes, hypertension, heart disease, and ulcerative colitis. Chronic drug use was recorded too. A family history of liver disease, HBV or HCV was also asked for. Social history included smoking (current smoker, non-smoker, or ex-smoker) or alcoholism (duration of alcohol consumption, units per week or grams per day). After that, the patients underwent a general examination (looking for jaundice, anemia, rash, Dupuytren's contracture, pigmentation, and oedema), followed by an abdominal examination to look for hair distribution, dilated veins, palpable organs, or ascites. Then the patients were sent to relevant blood investigation, which started with baseline investigations including a complete blood count, liver transaminases and alkaline phosphatase, renal function tests, serum sodium, and potassium. Then an upper endoscope was done for the previously diagnosed or new cases to see the complications of liver cirrhosis like esophageal or gastric varices and portal hypertensive gastropathy. The screening initial investigations were done to identify the underlying causes like HBsAg, anti HCV Ab, ceruloplasmin, transferrin saturation, ferritin, and ANA. The next set of investigations relied on the screening investigations' results and included additional tests. For patients with ascites, the SAAG ratio was extrapolated. A liver biopsy was done in selected patients, like in AIH or any patients whose diagnoses were un-revealing. Later, after diagnosis, the severity of liver cirrhosis by CTP score and MELD-Na score were calculated. The protocol of the study was approved by ethical committee of Kurdistan Higher Council of Medical specialties. (The number of orders was 732 issued on 15th of March 2023). Statistical analysis was performed, and SPSS statistical software for Windows (SPSS 19.0, Chicago, IL, USA) was used.

Results

The study found that the mean+SD age of the patients with liver cirrhosis was 52.4 and ranged between 16 and 86 years old. Most patients were middle aged (between 30 and 69 years) and were Kurdish (92.7%). Males contributed for (57.6%). Housewives and employed patients contributed for (34.6 %%) and (29.8%), respectively as shown in Table (1).

Table (1): General and demographic characteristics of patients with liver cirrhosis(n=205)

Characteristics	No.	%
Age (year)*		
<30	15	7.3
30-39	22	10.7
40-49	36	17.6
50-59	67	32.7
60-69	42	20.5
≥ 70	23	11.2
Ethnicity		
Kurd	190	92.7
Arab	15	7.3
Sex		

https://doi.org/10.56056/amj.2025.401

Male	118	57.6
Female	87	42.4
Occupation		
Housewife	71	34.6
Employed	61	29.8
Unemployed	33	16.1
Retired	29	14.1
Student	11	5.4
Blood group		
O+	101	49.3
O-	4	2.0
A+	39	19.0
A-	1	0.5
AB+	33	16.1
B-	3	1.5
B+	24	11.7
Mean age: 52.4 ± 13.1 (range: 16-86 years old)		

As shown in Table (2), the history of diseases and comorbidities of the studied group revealed that (64.4%) of patients had anorexia, 52.7 % had weight loss, used chronic medications (in form of Spironolactone furosemide, lactulose, NSBB, anti-hypertensive and anti-diabetics) and a good percentage of patients had no specific symptoms of the liver cirrhosis. 52.68% had weight loss, 46.83% had fever, and 43.41% had abdominal pain. Regarding comorbidities, more than 33 % of patients had type (2) diabetes mellitus and 32% had hypertension while nearly 14% had heart failure and 12% had other comorbidities.

Table (2): Clinical features, Comorbidities and Risk factors among patients with liver cirrhosis.

Variable	No.	%
Symptoms and signs at presentation		
Anorexia	132	64.39
Weight loss	108	52.68
Epistaxis	4	1.95
Hematemesis	26	12.68
Malena	64	31.22
Abdominal pain	89	43.41
Fever	96	46.83
Itching	13	6.34
Dark urine	6	2.93
Pale stool	7	3.41
Amenorrhea	12	5.85
Menorrhagia	3	1.46
Impotence	32	15.76
Dyspnea	32	15.61
History of chronic diseases		
Type 2 diabetes mellitus	69	33.7
Hypertension	66	32.2
Heart failure	28	13.7
Other chronic diseases	23	11.2
History of risk factor associations		
Chronic user of medications	116	56.6
Current smoker	45	22.0
Ex-smoker	20	9.8
Alcoholic	38	18.5
Dental work	8	3.9
Blood transfusion	8	3.9
Tattooing	3	1.46
Dialysis	3	1.46
Family history of HBV	3	1.46
Family history of HCV	1	0.49
Contact with jaundiced patients	2	0.98

Regarding clinical examination findings, Table (3) reveals that the most common finding during examinations in this study was peripheral stigmata of CLD which was (61.46%). Ascites (61%), jaundice (56.6%),

https://doi.org/10.56056/amj.2025.401


splenomegaly (52.2%). Other findings during the examination were abdominal tenderness (44.9%) and liver cirrhosis complications (40.0%). Concerning body mass index (BMI), 40.5% of the patients were obese (BMI≥ 30 kg/m2), followed by overweight (34.6%). Waist circumference (WC) was normal in 48.3% of patients, high in 11.2%, and very high in 40.5%.

Table (3): Findings of clinical examinations and anthropometric data of patients

Findings	No.	%
Signs on clinical examinations*		
Peripheral stigmata of CLD	126	61.5
Ascites	125	61.0
Jaundice	116	56.6
Splenomegaly	107	52.2
Abdominal tenderness	92	44.9
Complications of liver cirrhosis	82	40.0
Anemia	57	27.8
Dilated veins on abdomen	48	23.4
Hepatomegaly	39	19.0
Edema	37	18.0
Hepatic encephalopathy	26	12.7
Pigmentation	7	3.4
Rash	5	2.4
Dupuytren's contracture	4	2.0
Extra -hepatic manifestations	22	10.7
BMI category		
Underweight	2	1.0
Normal weight	49	23.9
Overweight	71	34.6
Obesity Class 1	50	24.4
Obesity Class 2	24	11.7
Obesity Class 3	9	4.4
Waist circumference		
Low risk	99	48.3
High risk	23	11.2
Very high risk	83	40.5
* Some patients had more than one finding		

In terms of upper endoscopic findings (Esophagogastroduodenoscopy), Table (4) demonstrates that liver cirrhosis patients mostly had varices (48.8%) followed by normal upper endoscopy by (28.7%) then GAVE come by (8.8%) and pan erosive gastritis were (3.4%) and other findings were nearly 10.7%.

Table (4): Investigations and fibro scan scores of patients with liver cirrhosis

OGD findings	Number	Percentage
Varices	100	48.8
GAVE	18	8.8
Pan erosive gastritis	7	3.4
Normal	59	28.8
PHG	27	13.2
Others	17	8.3
Abnormal finding	43	100
UAP	327.17	19.05
Abnormal	73	98.65
Normal	1	1.35
Fibro scan score, mean (SD)	212.4 (149)	
Liver stiffness score, mean (SD) (kpa)	22.5 (3.8)	

In terms of the disease severity, Table (5) reveals that the CLD-stage B was the most prevalent type (57.6%) followed by type A (21.5%). The mean scores of the Child-Pugh –score and MELD-Na score were 8.1± 1.7 and 18.2 ± 6.2, respectively. The MASH (31.2%), ALD (18.5%), HBV (15.61%), cryptogenic (11.2%), and HCV (5.4%) were the most common types.

Table (5): Disease severity and rate of complications in patients with liver cirrhosis

Variable	No.	%
CLD-STAGE & Child Pugh Classifications CTP Score		
A	44	21.5
B	118	57.6
C	43	21.0
MELD-Na score ≥ 16	130	63.4

https://doi.org/10.56056/amj.2025.401

Diagnosis		
MASH	64	31.2
ALD	38	18.5
HBV	32	15.6
Cryptogenic	23	11.2
HCV	11	5.4
AIH	8	3.9
PSC	6	2.9
Haemochromatosis	5	2.4
Cardiac cirrhosis	4	2.0
PVT	4	1.95
Budd Chiari syndrome	2	0.98
Cholangiocarcinoma	2	0.98
Drug induced cirrhosis	2	0.98
Wilson disease	2	0.98
HCV and HBV	1	0.49
PBC	1	0.49
Child-Pugh, mean (SD)	8.1 (1.7)	-
MELD-Na, mean (SD)	18.2 (6.2)	-

Discussion

Liver cirrhosis is a chronic disease characterized by extensive hepatic fibrosis and nodule formation with over half of the cases unaware of their underlying disease. Risk factor for the disease include infection with HBV, HCV, excessive alcohol consumption, obesity and diabetes.[1–4]. The disease is usually asymptomatic, has an indolent course and usually diagnosed when the patient develops complications. The findings present significant insights into the characteristics, potential risk factors, and underlying causes of liver cirrhosis among this population. In this study, the majority of the cases were between the ages of 30 and 69, mainly males. The most common blood group was O+ and the most common symptoms encountered were anorexia, weight loss, and fever. The most common cause of Liver cirrhosis in our study was found to be Metabolic dysfunction associated steatotic liver disease MASLD followed by Alcoholic liver disease, contrary to Al Kaabi H Et al., in which the most common cause was alcohol followed by viral hepatitis. [9,10] In our study, the most prevalent chronic liver disease was stage B and most of our patients had a mean Child Pugh score of 8.05. The majority of patients had MELD-Na score ≥ 16. In contrast, Yuna Kim shows that average Child Pugh score was 7.6 (stage B) and average MELD-Na score was 15.55.[11] Varices were the most commonly encountered finding on upper endoscopy in our study. Similar findings were encountered with Ayesha Siddiqua Et al. and Svoboda P Et al.[12,13] Nonetheless, some patients presented with normal endoscopic findings (28.7%) which was higher than Svoboda P Et al 8.6 %.[10,14] Another noteworthy observation is the gender distribution. The slightly higher prevalence of liver cirrhosis among males (57.56%) compared to females (42.44%) suggests potential gender-related factors at play. Globally, men are known to have higher rates of alcohol consumption and risky behaviors compared to women, which might explain this disparity. However, the research also identifies metabolic dysfunction associated steatotic liver disease as the most common cause of liver cirrhosis in the study population, indicating that other factors like diet, sedentary lifestyle, and metabolic health might be crucial.[13] Metabolic dysfunction associated steatotic liver disease being most common underlying cause implies the widely distribution of hypertension, sedentary life style, obesity, and diabetes in the society.[15] The occupational data revealed that the majority of the patients were either employees or housewives. This finding might suggest a sedentary lifestyle and potential dietary habits associated with urban living as significant contributors. It raises questions about the role of modern lifestyle, diet, stress, and the lack of physical activity in the progression of liver diseases, especially in the context of Metabolic dysfunction associated steatotic liver disease being the predominant cause in the study. Regarding clinical

https://doi.org/10.56056/amj.2025.401

presentations, a significant number of patients presented with peripheral stigmata of Chronic liver disease and other complications such as ascites which implies a late-stage presentation and subsequently delay in treatment. This delay in seeking medical intervention might be attributed to the lack of awareness, potential stigma associated with liver diseases, or under-screening. Regarding upper endoscopic findings, 48.75% of the cases had esophageal varices and 28.7% of the cases had a normal endoscopic finding. In other studies like Hadayat, varices accounted for 92.9% followed by portal hypertension gastropathy which was 38.9%. [16]

Conclusion

The presence of complications such as ascites and esophageal varices implies a delay in the presentation and a late diagnosis, alongside under-screening for liver cirrhosis. Metabolic dysfunction associated steatotic liver disease plays a major role as an underlying cause. A high proportion of patients in this study had a high model of end-stage liver disease score of ≥ 16, which indicates the unawareness of the disease among patients and/or negligence implicating an increase in morbidity and mortality.

Conflict of Interest

None to declare.

Funding: None

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