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# CLINICAL PROFILE OF PATIENTS OF ALCOHOLIC CIRRHOSIS OF LIVER IN A TERTIARY CARE HOSPITAL IN GUJARAT

Medicine

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## ABSTRACT

Cirrhosis of liver is a disease with a triad of parenchymal necrosis, regeneration and scarring. Globally, the incidence of Cirrhosis is on the rise, with alcohol being the most common etiology. In this study, we have studied the clinical profile of patients of Alcoholic Cirrhosis of Liver.

**Materials and Methods:** This study was an observational prospective study carried out from October 2015 to November 2016 in the Medicine department of Shri Sayaji General Hospital, Baroda. Sixty patients of Alcoholic Cirrhosis of liver, age more then 18 years, who fulfilled the inclusion criteria were enrolled in the study. After getting Ethical clearance from the college, patients were enrolled after taking a proper written informed consent. A detailed evaluation of of the history, clinical examination and investigations was done.

**Results:** Of the 60 alcoholic cirrhosis patients enrolled, the youngest was 18 years old and the oldest pateint was 75 years, with the maximum affected age group being 40-49 years(35%). The male : female ratio we observed was 19:1.The main presenting complain was Abdominal distention (88.3%), followed by Jaundice (80%) and pedal edema (58.3%).

**Conclusion:** Alcoholic Cirrhosis of liver can have a range of symptoms and signs depending on whether the patient is in clinically compensated or decompensated phase of the disease.

## KEYWORDS

Alcoholic Cirrhosis, Alcohol, Clinical Presentation.

## INTRODUCTION

Cirrhosis is a chronic liver disease in which diffuse destruction and regeneration of hepatic parenchymal cells have occurred and in which a diffuse increase in the connective tissue has resulted in the disorganization of the lobar and vascular architecture. Liver cirrhosis has emerged as a major cause of global health burden, causing significant morbidity and mortality worldwide. According to the Global Burden of Disease 2010 study, liver cirrhosis caused 31 million Disability Adjusted Life Years (DALYs), or 1.2% of global DALYs, in 2010, and one million deaths, or 2% of all deaths worldwide in that year(1,2). It is commonly caused by alcohol, hepatitis B, hepatitis C and Non alcoholic fatty liver disease. Although the clinico-pathological findings are same irrespective of the etiology of cirrhosis, the clinical course and presenting symptom can be different for each[3,4].

Alcohol is one of the leading causes of death and disability globally and the same is true for our country India. A total of 3.2% of deaths worldwide are caused by alcohol every year. As per World Health Organization one fourth to one third of male population drinks alcohol in India and neighbouring south Asian countries and the use amongst women in increasing. Alcohol use is quite common in India both in rural and urban areas with prevalence rates as per various studies varying from 23% to 74% in males in general and although it's not that common in females but it has been found to be prevalent at the rate 24% to 48 % in females in certain sections and communities. In 2005 the estimated numbers of people using alcohol in India was 62.5 million with 17.4 % of them (10.6 million) having alcohol use disorder and of all hospital admissions in India 20-30% are due to alcohol related problems[5]. Alcohol consumptioni s seen in almost all the parts of the world, and chronic liver disease due to alcohol is on the rise . Alcohol is a most frequent cause of liver disease in western countries[6]. Now, even in Asian countries like India, Alcohol is emerging as the commonest cause of Chronic Liver Disease[7].

Alcoholic liver disease is a spectrum which can range from fatty liver, acute alcoholic hepatitis to fibrosis and cirrhosis of liver.The progression of the disease depends on the amount, pattern, duration of alcohol consumption[8]. It also depends on factors such as Obesity, coexistent liver diseases, metabolic syndrome and cigarrete smoking[9] .Despite its incidence, its natural history and modifying factors of Alcoholic Liver disease remain largely unknown. Most patients are diagnosed at advanced stages of the disease; there are few active programs of early detection[10]. Twenty to 40% of alcoholics develop fibrosis, 10-20% eventually develop cirrhosis and 1-2% of cirrhotics are diagnosed with hepatocellular Carcinoma every year[11]. They usually present with complications like ascites, pedal edema or upper gatrointestinal bleeding. Other clinical manifestations include the development of jaundice or encephalopathy. On investigating these patients , as seen with all patients of cirrhosis, Serum bilirubin may be elevated or normal, Prothrombin time may be prolonged, evidence of portal hypertension such as splenomegaly, presence of ascites,increased portal vein diameter and shrunken liver would be seen on radiological investigations.Serum alanine and aspartate aminotransferases are typicallu elevate, particularly in patients who continue to drink, with Aspartate transaminase(AST) levels being higher than Alanine transaminase(ALT) levels by a 2:1 ratio. Inspite of several investigations which can be used to diagnose cirrhosis of liver, Liver biopsy remains the gold standard for diagnosis , but is rarely performed in clinical practice[12]. This is because the combination of clinical and laboratory data can make an accurate diagnosis of Alcoholic Liver Disease with the pre biopsy diagnosis of ALD being 98% specific and 79% sensitive[13,14,15].

## MATERIALS AND METHODS

### Study sample

The present study, an observational prospective study, was conducted at Shri Sayaji General Hospital, Vadodara, a tertiary health care institute, from October 2015 to November 2016. This was a cross sectional study where we enrolled 60 patients of Alcoholic Cirrhosis of Liver. Patients diagnosed as having Alcoholic Cirrhosis of Liver, on the basis of amount and duration of alcohol intake, clinical features of Cirrhosis of liver and supportive laboratory data ,with age more than 18 years were included in the study .

### Method

The patients were explained in detail about the study, following which an written informed consent was taken regarding permission for inclusion in the study. Detailed Clinical history was taken and then

patients were subjected to a thorough clinical examination. Blood samples were drawn under complete aseptic precautions after obtaining informed consent.Laboratory Investigations sent included, Complete Hemogram, Liver function tests with enzymes, Total protein and serum Albumin levels, Prothrombin time, Serum Albumin Ascitic Gradient. Additional blood investigations were sent depending on the need of the patient's clinical condition. All the patients underwent Ultrasonography of Abdomen, for visualisation of hepatic size, liver echotexture, Portal Vein diameter at porta, Flow in portal vein, Collaterals/Varices. The Ultrasound of all patients was done by a single radiologist. All patients, irrespective of a history suggestive of Gastrointestinal Bleed, were subjected to Upper GastroIntestinal Endoscopy. The lower end of Esophagus was assessed for presence of varices, stomach for congestive gastropathy and peptic ulcer. The Varices were classified as:

Grade I - Small, straight varices
Grade II – Enlarged, tortuous varices that occupy less than one-third of the lumen
Grade III- Large, coil-shaped varices that occupy more than one third of the lumen

Data Analysis: Statistical analysis was done by calculating the mean, the lowest value, the highest value, meadian and the standard deviation on MedCalc.

## RESULTS

A total of 60 patients were analyzed, of which 95% were males and only 5% were females, with a male: female ratio being 19:1(TABLE :2). The age of patients ranged from 18years to 75 years, with the mean age of presentation being 40.61+-12.04 years (TABLE :1). The maximum incidence of Alcoholic cirrhosis in both sexes taken together was in the age group of 40-49 years (35%), followed by 30-39years (26.67%). Only 16.67% patients were in the age group of 20-29 years,10% in the age group of 50-59 years and the least ,i.e 1.6% in more than 70 years and the same in less than 20 years age group.

**TABLE: 1 AGE DISTRIBUTION**

| Age group (in years) | No. of cases | Percentage (%) |
|---|---|---|
| 12-19 | 1 | 1.6 |
| 20-29 | 10 | 16.67 |
| 30-39 | 16 | 26.67 |
| 40-49 | 21 | 35 |
| 50-59 | 6 | 10 |
| 60-69 | 5 | 8.3 |
| >70 | 1 | 1.6 |

**TABLE : 2 SEX DISTRIBUTION**

| Sex | No. of Cases | Percentage (%) |
|---|---|---|
| Male | 57 | 95 |
| Female | 3 | 5 |

The main presenting symptom in our study was Abdominal Distension which was present in 53 (88.3%)patients, followed by jaundice in 48 (80%) and pedal edema in 35 (58.3%) patients. Malena and hemetemesis were present in 31(51.67%) and 10(16.67%) patients respectively. Altered sensorium was present in 5 (8.33%) patients. (TABLE:3)

**TABLE :3 PRESENTING COMPLAINTS**

| Complaints | No. of Cases | Percentage (%) |
|---|---|---|
| Abdominal Distension | 53 | 88.3 |
| Jaundice | 48 | 80 |
| Pedal edema | 35 | 58.3 |
| Malena | 31 | 51.67 |
| Fever | 29 | 48.33 |
| Abdominal Pain | 19 | 31.67 |
| Hemetemesis | 10 | 16.67 |
| Altered Sensorium | 5 | 8.33 |

**TABLE :4 FINDINGS ON GENERAL EXAINATION**

| Signs | No. of cases | Percentage (%) |
|---|---|---|
| Icterus | 46 | 76.67 |
| Pedal Edema | 32 | 53.33 |
| Pallor | 25 | 41.67 |
| Clubbing | 20 | 33.33 |
| Palmar Erythema | 8 | 13.33 |
| Spider Naevi | 5 | 8.33 |
| Parotid swelling | 3 | 5 |
| Gynecomastia | 0 | 0 |

On examination Ascites was found to be present in 51 (85%) patients , Hepatomegaly in 13(21.6%), Splenomegaly in 31(51.67%) and hepatic encephalopathy was observed in 6 (10%) patients

**TABLE :5 FINDINGS ON SYSTEMIC EXAMINATION**

| Signs | No. of Cases | Percentage (%) |
|---|---|---|
| Ascites | 51 | 85 |
| Hepatomegaly | 13 | 21.6 |
| Splenomegaly | 31 | 51.67 |
| Dilated Veins | 14 | 23.33 |
| S/o Encephalopathy | 6 | 10 |

Anemia (hemoglobin levels <11gm/dl) was present in 51 (75%) of patients, with 6patients (10%) having Hemoglobin <6gm/dl, with the mean hemoglobin level being 8.93+-2.41g/dl. The mean total leucocyte count was 9186.33+-4128.94 per cu mm.Thrombocytopenia i.e. Platelet count <1,50,000/cu mm was observed in 21 (35%) patients. Mild thrombocytopenia (>75,000 to <1,50,000/cu mm) was seen in 10 (16.6%) patients, Moderate thrombocytopenia (50,000-75,000/cu mm)was present in 7(11.6%) patients, while Severe thrombocytopenia (<50,000/cu mm) was present in 4(6.6%)patients.

On assessment of the liver function tests , 49 patients (81.67%) had Serum Bilirubin levels >=2.5mg/dl and 11 patients (18.33%) had Bilirubin levels between 1.1-2.4mg/dl. The mean Bilirubin level was 9.27+-8.44 . The mean (ALT) levels were123.68+-204.27U/l and the mean AST levels were 204.2+-211.31U/l. Patients with the AST:ALT ratio >2:1 were 31 (51.66%)

The mean Serum Albumin level was 2.44+-0.67 gm/dl, with 58 patients(96.67%) having Albumin levels <3.5gm/dl.

The Prothrombin time alongwith INR showed that 45 patients (75%) had INR >1.5.

**TABLE 6: DIFFERENT PARAMETERS AND THEIR MEANS**

| Parameter | Mean | Lowest value | Highest value | Median | SD |
|---|---|---|---|---|---|
| Age | 40.61 | 18 | 75 | 40 | 12.04 |
| Haemoglobin | 8.93 | 4.40 | 16.7 | 8.6 | 2.41 |
| Total Count | 9186.33 | 2800 | 28000 | 8400 | 4128.94 |
| Serum Bilirubin | 9.27 | 0.7 | 33.7 | 6.95 | 8.44 |
| SGPT | 123.68 | 17 | 1569 | 77.5 | 204.27 |
| SGOT | 204.2 | 24 | 1603 | 160 | 211.31 |
| Serum Albumin | 2.44 | 0.80 | 2.44 | 2.45 | 0.67 |
| Serum Na | 135.03 | 120 | 146 | 136 | 6.28 |
| Portal vein diameter | 13.3 | 7 | 20 | 12 | 2.98 |
| Prothrombin time | 19.43 | 11 | 33 | 19.2 | 5.30 |
| INR | 2.58 | 1.02 | 46.6 | 1.8 | 5.79 |

Examination of the Ascitic fluid in 51 patients having ascites revealed that there was Spontaneous Bacterial Peritonitis in 26 (50.98%) patients and the Serum Albumin Ascitic Gradient was>1.1 in 48(94.11%) patients

Upper Gastrointestinal Endoscopy revealed presence of esophageal varices in 52(86.66%)patients,whereas 8(13.3% )patients had no varices. Grade I varices were seen in 16(26.6%), Grade II in 3(5%) and Grade III varices were present in 33(55%) patients.

## DISCUSSION:

In our study, where we studied 60 patients of Alcoholic Cirrhosis of liver, we observed that the maximum incidence in both sexes was in the age group 40-49years , with the mean age being 40.61+_12.04 years. This projects that the young people are affected more ,ruining the most productive years of life. These findings are in agreement with the findings of a study done by Sen et al[16] and Sarin et al [17] where the mean age was 45.91+_10.34 years and 43+_8.7 years respectively. In a study done by Pathak OK et al[15] showed the mean age of 52.08 years. Of the

60 patients, 95% were males and 5% were females with male : female ratio in our study being 19:1. There seems to be an increase in female population with Alcoholic Cirrhosis, because a previous study by Sarin et al[17] had reported only males having the disease. Other studies by Sen et al[16] and Pathat OK et al[15] reported a ratio of 4.5:1 and 4:1 respectively. The increase in incidence in females seems due to the increase in culture of drinking in Indian women. Also, women are more susceptible than men to the toxic effects of alcohol on the liver for any given dose of alcohol, even though men abuse or depend on alcohol more than women, at a ratio of 2:1 in persons over the age of 26 years 18. Compared with their male conterparts, women with alcoholic liver disease have a more rapid progression to fibrosis that persists even after abstinence from alcohol[19].

The commonest presenting symptom in our study was Abdominal distension in 88.3% patients, followed by Jaundice and Pedal edema in 80% and 58.3% respectively.This is in consistency as seen in a study by Maskey R et al[20] where Abdominal distension was seen in 84.4% patients followed by Jaundice in 84.4% patients.The incidence was much lower in studies by Sen et al[16] and Pathak OK et al[15] where Abdominal distension was in 51.45% and 57.5% respectively. Upper Gastrointestinal bleed presenting as Malena and hemetemesis was seen in 51.67% and 16.67% patients respectively; while in studies by Pathak OK et al[15] and Sen et al[16], 26% and 29.71% patients had Upper Gastrointestinal bleeding.

Ascites was present in 85% patients in this study. A study by Maskey R et al[20] had ascites in 84.4% paitents, while Study by Sen et al[16] had 59% patients with Ascites while Medenhall had 50.9% with Ascites. Ascites is a major complication of cirrhosis, occuring in 505 of patients over 10 years of follow up. The devlopment of ascites is an important landmark in the natural history of cirrhosis as it is associated with a 50% mortality over two years, and signifies the need to consider liver transplantation as a therapeutic option[21]. Liver was palpable on examination in 25% patients, suggesting hepatomegaly, while Sen et al[16] had 44.20% patients with palpable hepatomegaly and Pathak Ok et al[15] had 51.4% patients with hepatomegaly. Splenomegaly was present in 51.67% patients, while 29.8% patients had splenomegaly in study by Pathak OK et al[15] and 36.98% in study by Sen et al[16]. Clinically , liver cirrhosis is frequently accompanied by multiple complications including splenomegaly and hypersplenism. Previous studies have suggested that these splenic abnormalities may promote the progression of liver fibrosis to cirrhosis and exacerbate disease prognosis through multiple possible pathways[22]. It has been proposed that splenic contributions to liver cirrhosis mainly occur through the promotion of hepatic fibrogenesis, perturbation of the hepatic immune microenvironment and inhibition of liver regeneration. It is also suggested that splenic immune cell alterations, especially in macrophages, monocytes and T cells, may be the most important perpetrator of this pathological process[23].

Anemia was present in 75% patients in our study, with the mean Hemoglobin level being 8.93+-2.41g/dl. In a study by Pathak OK et al, anemia was present in 42.1% patients, with the mean Hemoglobin being 11.85+-3.45g/dl. Sen et al in his study had a mean hemoglobin of 8.6+-2.02g/dl while Sarin et al had a mean hemoglobin of 10.2g/dl. Anemia in patients of cirrhosis can be due to acute or chronic gastrointestinal hemorrhage, and hypersplenism secondary to portal hypertension. In alcoholic cirrhosis , associated deficiency of folic acid and /or Vitamin B12 deficiency can be the cause of anemia.In our study, Mild thrombocytopenia was present in 16.6% patients, while Moderate and severe thrombocytopenia was present in 11.6 % and 6.6 % patients respectively. Study by Pathak OK et al had Platelet count < 1,50,000 per cu mm in 33.6% patients , whereas in our study it was in 35% patients. The prime cause of development of thrombocytopenia is splenic platelet sequestraion. Reductions in the level of activity of the hematopoietic growth factor thrombopoietin (TPO) may also play a role[24].

The mean AST levels in our study was 204.2+-211.31U/l , while the mean ALT levels was 123.68+-204.27U/l. The mean AST levels observed in studies by Sen et al and Pathak OK et al were 155.61+-85.24U/l and 142.95+-159.85U/l respectively. The mean ALT levels in Study by Sen et al was 81.65+-37.59U/l and a study by Mendenhall et al had a range of 47-50U/l. In our study ,AST:ALT ratio of >2 was present in 31 (51.66%) patients,32% in a study done by Biswas et al[25], while it was seen in 37.68% patients in the study done by Sen et al.AST:ALT ratio of more than 2:1 is characteristic in patients with alcoholic liver disease, which seems to be caused by a differential reduction in hepatic ALT due to deficiency of the cofactor pyridoxine-5-phosphate. The mean serum Albumin level in our study was 2.44+_0.67 gm/dl, with 96.67% patients having levels <3.5mg/dl.Similar results were observed in the study of Sen et al where the mean Serum Albumin was 2.46+-.7gm/dl and that of Mendenhall et al where the Serum Albumin values ranged from 2.3-3.7gm/dl. The mean Albumin was 3.22+_0.86gm/dl in the study by Pathak OKet al. One of the functions of liver is to produce the protein; albumin, the production of which decreases in patients of liver cirrhosis . The Prothrombin time was done alongwith INR and it showed that 75% patients had INR>1.5, which is consistent with findings of several similar studies.The liver plays a central role in hemostasis , as it is the site of synthesis of clotting factors, coagulation inhibitors ,and fibrinolytic proteins. The most common coagulation disturbances occuring in liver disease include thrombocytopenia and impaired humoral coagulation.Increased Prothombin time is due to Vitamin K deficiency[26].

Ascitic fluid analysis, in our study, revealed presence of Spontaneous Bacterial Peritonitis in 50.98 % patients and 94.11% patients had a SAAG of >1.1 Albumin being the single most important factor of oncotic pressure generation, the difference between the serum and ascitic albumin concentration (SAAG) is used to differentiate ascitic fluid into categories: gradient >1.1g/dl in cases with portal hypertension and <1.1g/dl in ascites unrelated to portal hypertension[27]. In a study by Kansal A[27], 77.46% patients with liver disease had SAAG>1.1

On Ultrasonography of these patients,hepatomegaly was present in 21.66% patients, Splenomegaly was present in 60% patients and Ascites was present in 90% patients. Study by Pathak OK et al had splenomegaly and ascites in 29.8% and 56.8% patients, while Sen et al showed presence of splenomegaly in 74.7% patients. Study by Biswas et al[25] showed splenomegaly in only 20% of patients.

In our study, Upper Gastrointestinal endoscopy revealed presence of esophageal varices in 86.66% patients, with 26.6% having Grade I , 5% having Grade II and 55% patients having Grade III varices. In a Study by Svoboda P et al[28], 64.9% patients of liver cirrhosis had esophageal varices on endoscopy while as tudy by Akere A et al[29] showed that esophageal varices were present on endoscopy in 96.4% patients of liver cirrhosis. Study by Sen et al showed presence of Esophageal varices in 51.19% patients.

## CONCLUSION:

To conclude, our study supports the known facts about clinical profile of patients of Alcoholic Cirrhosis. Alcoholic Cirrhosis is more prevalent in males, although there seeems to be a rise in the incidence in females, due to factors like increase in the culture of consuming alcohol in females and also because women are more susceptible to the toxic effects of alcohol. Younger age is more affected, leading to loss of the most productive years of life. Ascites was the most common finding and presenting symptom followed by Jaundice. Anemia , thrombocytopenia, Prolonged Prothrombin time are often present. SAAG>1.1 is a common finding in patients having ascites. Presence of Esophageal Varices was also seen in majority of patients , irrespective of history suggesting Upper Gastrointestinal Hemorrhage.So, Alcoholic Cirrhosis can have varied presentation from mild symptoms and signs to symptoms and signs suggesting decompensation of liver.

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