

## Clinical Profile of Alcoholic Liver Disease and Its Association with Pattern of Alcohol Consumption and Prognostic Markers

Dr. R. L. Khare<sup>1</sup>, MD, Medicine, Dr. S. Parmawii<sup>2</sup> MBBS

<sup>1</sup>(Associate Professor, Pt. Jawaharlal Nehru Memorial Medical College, Department Of Medicine, Raipur, C.G.)

<sup>2</sup>(Pt. Jawaharlal Nehru Memorial Medical College, Department of medicine, Raipur C.G.  
Corresponding author: Dr. S. Parmawii

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**Abstract:** Background: Alcoholic Liver Disease (ALD) Is A Severe Complication Related To Chronic And Excessive Alcohol Consumption And Includes A Spectrum Of Hepatic Lesions: Fatty Liver To Chronic Hepatitis. The Liver Injury Is A Complex Process, But The Quantity, Duration And Type Of Alcohol Intake Are The Most Important Risk Factors For ALD And Correlated Well With The Prognostic Markers. Early Acceptance Of Alcohol Abuse By The Patient And The Vigilance Of The Physician's Toward Diagnosis Of Alcohol-Related Problems Is Requisite To Prevent Complications And Decreases Mortality. Aim: Present Study Aimed At Investigating The Association Of Type, Amount And Duration Of Alcohol Consumption With Clinical Profile Of Alcoholic Liver Disease And Comparison With The Prognostic Markers. Methods: The Cross-Sectional Study Design With Total 245 Patients Of ALD Were Selected In 23 To 67 Years Age Group, From Pt. Jawaharlal Nehru Memorial Medical College, Department Of Medicine, Raipur (C.G.) (Pt. JNM Medical College, Raipur) And Associated Hospital (Dr. B.R.A.M. Hospital, Raipur, C.G.). Descriptive Statistics And Correlational Test Were Used For Analysing The Data. Results: Total 245 Patients Were Selected, 232 Were Male (94.69%), 236 Were Married (96.3%), 129 Were Employed And Working As Unskilled Worker (52.7%). Most Common Complications Of ALD Includes Jaundice (69.4%) And Ascites (77.5%). The Amount Of Alcohol Consumed Was Significantly Associated With Ascites ( $P^* < 0.001$ ), Jaundice ( $P^* < 0.009$ ), Hepatorenal Syndrome ( $P^* < 0.002$ ), MDF Score ( $P^* < 0.01$ ), MELD Score ( $P^* < 0.00$ ), Child Pugh Score ( $P^* < 0.001$ ), And Also With Mortality ( $P^* < 0.04$ ). The Duration Of Alcohol Consumption Was Significantly Associated With Ascites ( $P^* < 0.0001$ ), Jaundice ( $P^* < 0.000$ ), Hepatorenal Syndrome ( $P^* < 0.04$ ), MDF Score ( $P^* < 0.0001$ ) MELD Score ( $P^* < 0.0001$ ), Child Pugh Score ( $P^* < 0.0001$ ), And Mortality ( $P^* < 0.000$ ). Conclusion: Duration And Amount Of Alcohol Consumption Play An Important Role In Development Of ALD And Correlated Well With The Prognostic Markers.

**Keywords-** Alcoholic Liver Diseases (ALD), MDF Score, MELD Score, Child Pugh Score

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### I. Introduction:

Alcoholic Liver Disease (ALD) Is A Severe Complication Related To Chronic And Excessive Alcohol Consumption,<sup>[1]</sup> Which Includes A Wide Spectrum Of Hepatic Lesions, Often Grouped Into Three Histological Stages Of ALD: Fatty Liver Or Simple Steatosis, Alcoholic Hepatitis, And Chronic Hepatitis With Hepatic Fibrosis Or Cirrhosis. These Are Not Necessarily Distinct Stages Of Evolution Of The Disease, Rather Multiple Stages May Be Present Simultaneously In A Given Individual.<sup>[2]</sup> Alcoholic Hepatitis May Progress To Permanent Damage With Continuous Alcohol Consumption, Moreover Abstinence From Alcohol May Not Lead To Complete Recovery.<sup>[3]</sup> The Diagnosis Of ALD Is Based On A Combination Of History Of Significant Alcohol Intake, Clinical Evidence Of Liver Disease, And Supporting Laboratory Abnormalities.<sup>[4]</sup>

The Maddrey Discriminant Function (MDF), Is A Disease-Specific Prognostic Score, Used To Assess Patient's Severity Of Illness. Patients With A High Score ( $\geq 32$ ) Were At Highest Risk Of Dying With One Month Mortality Of 30-50%. Other Scoring Systems Include The MELD (Model For End Stage Liver Disease) Score And The Child-Pugh Score (Child-Turcotte-Pugh Score). These Indices Appear To Be Having Similar Sensitivity And Specificity To Detect Patients With A Poor Prognosis.<sup>[5]</sup> Patient Diagnosed With Alcohol Dependence Drink Alcohol Excessively, Develop Physical Tolerance And Withdrawal. The National Family Health Survey (NFHS) 2007 Reported That 30% Of Adult Indians Consume Alcohol And Of Which 4% To 13% Are Daily Users Furthermore About 50% Of Cases Of Cirrhosis May Be Due To Alcohol Consumption.<sup>[6,7]</sup> Alcohol Causes 2.5 Million (Mortality Rate 3.8%) Deaths Each Year, Moreover The Mortality Is Secondary To Increased Risk Of Developing Cirrhosis (14% In Men And 8% In Women).<sup>[8]</sup> Women Are More Sensitive Than Men (Nearly Twice) To Alcohol Mediated Hepatotoxicity And May Develop More Severe

Alcoholic Liver Disease At Lower Doses And With Shortened Duration Of Alcohol Consumption.<sup>[9]</sup> Various Studies Show Contradictory Results About The Role Of Amount, Type And Duration Of Alcohol Exposure In Determining The Risk Of Developing Alcohol Liver Disease. A Few Of Them Showed A Dose-Dependent Effect On The Risk Of Developing ALD, While Others Showing Threshold Effect, Above Which The Risk Of Developing Cirrhosis Was Not Further Influenced By The Amount Of Alcohol.<sup>[10]</sup>

Unfortunately The Denial Of Alcohol Abuse By Patient And Physician's Ignorance Toward Diagnosis Of Alcohol-Related Problems Lead To Delay In Diagnosis, Management, Poor Outcome And Increase Mortality. Alcoholic Liver Disease (ALD) Is Very Common In This Part Of The Country While Very Few Studies Have Been Done On This Subject. Hence, We Planned This Study To Get A Detailed Demographic Profile, Laboratory Parameters, Complications And Their Prognostic Implications Among Patients Of ALD, Our Study Is A Small Step Toward The Future To Fulfil The Lacuna In This Area.

## **II. Materials And Method:**

### **Subject**

The Present Cross-Sectional Study Was Conducted In The Department Of Medicine, Pt. JNM Medical College, Raipur, And Dr. B.R.A.M. Hospital, Raipur (C.G.) From January 2016 To September 2017. The Patient Presented In Medicine O.P.D. And Got Admitted In Medicine Ward Who Diagnosed With ALD, With A Significant History Of Alcohol Consumption Determined By AUDIT-C Score  $\geq 4$  (AUDIT, World Health Organisation), Aged Between 18-60 Year, Willing And Capable To Provide Informed Consent (N=245) Were Included In Our Study. Patient Who Was HIV, Hepatitis B Or C Positive, On The Prolonged Analgesic For Other Diseases, On Hepatotoxic Drugs, Dyslipidemia, Obesity, Diabetic Patients And Hemodynamically Unstable Patients Were Excluded From Our Study.

### **Measures**

Approval From The Scientific Committee, And Clearance From The Ethical Committee Was Taken. Informed Consent Was Obtained Before Taking Up The Case For Study. A Detailed History Of Alcohol Intake I.E. Type, Amount And Duration Of Alcohol Consumption Were Taken. Clinical History And Physical Examination Findings Were Recorded. All Patients Were Subjected To The Hematological, Biochemical Studies And Radiological Studies (USG Abdomen). Data Were Collected In A Predetermined Proforma And Prognostic Markers Maddrey DF, MELD, Child Pugh Score, NLR Were Calculated.

### **Statistical Analysis**

Association Between Type, Amount And Duration Of Alcohol Consumption With The Clinical Profile Of Alcoholic Liver Disease, And Association With The Prognostic Markers Were Studied And Statistical Significance Was Calculated. Wherever P Value Was Found To Be Less Than 0.05, It Was Considered Significant.

## **III. Result:**

The Present Study Was Conducted In The Department Of Medicine, Pt. JNM Medical College, Raipur, And Dr. B.R.A.M. Hospital, Raipur (C.G.) And Included 245 Patients With Alcoholic Liver Disease, Aged Between 23-67 Year (Mean $\pm$ SD= 43.08 $\pm$ 8.38 Years). Most Of The Subjects Were Male (94.69%), Married (96.3%), Employed And Working As Unskilled Worker (52.7%). The Most Common Type Of Alcohol Consumed Was Whisky (64.5%) Followed By Beer (30.2%), Most Of The Subject Consumes ( 60.4%)  $\leq 50$  Units Of Alcohol Per Month, And Most Of Them Are Chronic Users Taking Alcohol For (54.3%)  $>10$  Years. The Majority Of The Subjects Also Consumes Other Substance (71.8%) Besides Alcohol. The Most Common Complications Found In Alcoholic Liver Disease Were Jaundice (69.4%) And Ascites (77.5%). Other Complications Include UGI Bleed (7.8%), Hepatic Encephalopathy (7.8%) And Hepatorenal Syndrome (12.7%).

## **IV. Discussion:**

Our Study Suggest That Most Of The Subjects Were Married, Male And Earning Members Of The Society. Studies Conducted By Nand Et Al, (2015)<sup>[11]</sup> And Sarin Et Al, (1997)<sup>[12]</sup> Shows Similar Demographic Profile As Our Study.<sup>[11,12]</sup> Whiskey Was The Most Common Type Of Alcohol Consumed, Followed By Beer It May Be Due To Low Cost And Easy Availability Of Whiskey Compared To Other Varieties Of Alcohol. Majority Of Subjects Are Chronic Alcohol Users, Though Taking Only  $\leq 50$  Units Of Alcohol Per Month. Our Study Shows That The Hepatorenal Syndrome Was Significantly Associated With Whiskey Though Other Studies Shows A Wide Variation In Result.<sup>[13,14]</sup> They Concluded That The Type Of Alcohol Consumed Varies According To Geographical Location, Traditions And Culture, And That The Type Of Alcohol Did Not Play A Significant Role In Causing Alcoholic Liver Disease, Nor With The Disease Severity.

Present Study Also Revealed That Jaundice And Ascites Were The Most Common Complications Found In Alcoholic Liver Disease And A Heavy Amount Of Alcohol Consumption For A Long Duration Was Associated With These Severe Complications, Poor Prognosis And Increase Rate Of Mortality. Our Study Shows That The Heavy Alcohol Consumption Was Associated With Increase Score Of MDF, MELD Score And Child Pugh Score And Shows A Linear Relationship With Them. Our Findings Are In Line With Other Studies Who Show Similar Results [3] And They All Suggested That The Duration And Amount Of Alcohol Consumption Play An Important Role In The Development Of Alcoholic Liver Disease, Determining The Complications And Severity, And Correlated Well With The Prognostic Markers.

**CONCLUSION:**

Despite Our Best Effort, There Are Limitations Of Our Study, Which Includes Small Sample Size, Lack Of A Control Group And A Lack Of Other Parameters (Radiological, And Histo-Pathological) Of ALD. These Limitations Can Be Overcome In The Future Studies. ALD Is A Severe Complication Related To Chronic And Excessive Alcohol Consumption. Duration And Amount Of Alcohol Consumption Plays An Important Role For The Development Of ALD And Correlated Well With The Prognostic Markers. Early Acceptance Of Alcohol Abuse By The Patient And The Vigilance Of The Physician's Toward Diagnosis Of Alcohol Related Problems Is Requisite To Prevent Complications And Decreases Mortality.

**Conflict Of Interest:**

The Authors Declare No Conflicts Of Interest In This Work

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**Tables And Charts:**

**Table 1:** Distribution Of Association Of Complications, Prognosis And Outcome With Units Of Alcohol Consumed Per Month In Subjects Of Alcoholic Liver Disease.

	Findings	Units Consumed Per Month			P Value
		<50	51-100	>100	
Complication	Ascites	102	62	23	0.003*
	Jaundice	92	56	22	0.009*
	UGI Bleed	11	6	2	0.966
	Hepatic Encephalopathy	11	6	2	0.966
	Hepatorenal Syndrome	15	7	9	0.002*
Prognosis	NLR	5.75	5.84	5.44	0.736
	Audit Score	13.70	14.92	18.46	<0.0001*
	MDF Score	20.82	22.54	24.65	0.014*
	MELD Score	20.82	22.54	24.65	0.006*

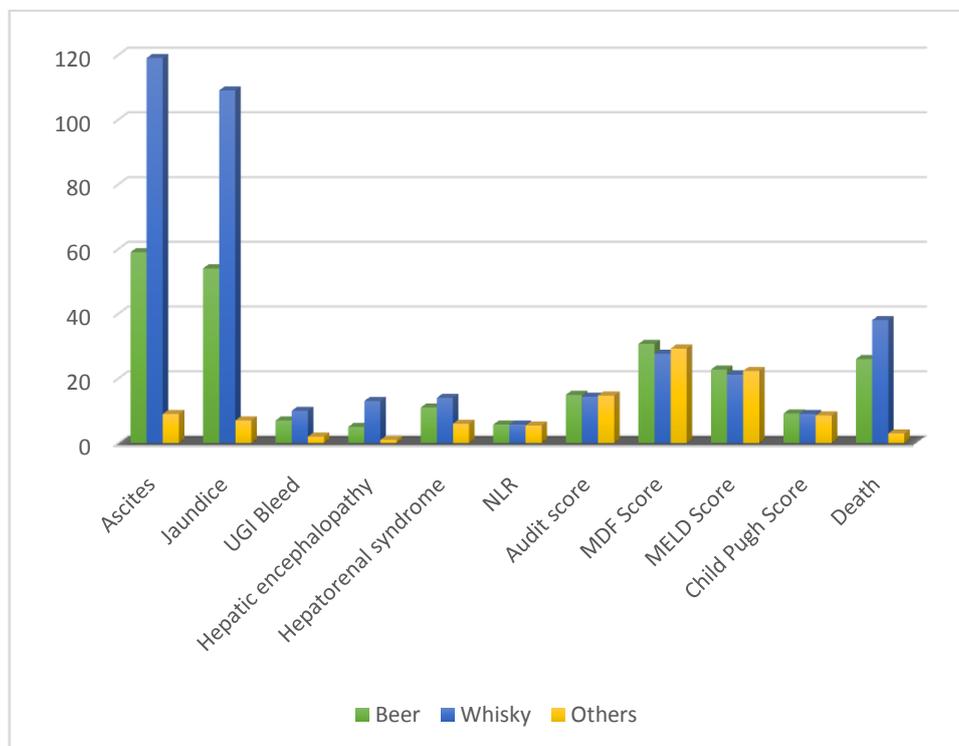
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	Child Pugh Score	8.75	9.48	9.58	<0.0001*
Outcome	Death	35	20	12	0.04*

**Table 2:** Association Of Complications, Prognostic Scores And Outcome With Duration Of Alcohol Consumption.

	Findings	Duration Of Alcohol Intake			P Value
		<=10 (N=112)	11-20 (N=84)	>20 (N=49)	
Complication	Ascites	69	72	46	<0.0001*
	Jaundice	59	68	43	<0.0001*
	UGI Bleed	9	5	5	0.669
	Hepatic Encephalopathy	8	8	3	0.738
	Hepatorenal Syndrome	8	13	10	0.042*
Prognosis	NLR	5.46	5.82	6.25	0.113
	Audit Score	13.79	15.01	15.51	<0.001*
	MDF Score	22.47	31.72	37.30	<0.0001*
	MELD Score	19.5804	22.17	25.85	<0.0001*
	Child Pugh Score	8.4554	9.32	9.93	<0.0001*
Outcome	Death	9	31	27	<0.0001*

**Chart 1:** Distribution Of Association Of Complications, Prognostic Markers And Outcome With Type Of Alcohol



Distribution Of Association Of Complications, Prognostic Markers And Outcome With Type Of Alcohol

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