Introduction
Alcoholic Liver disease is a term that encompasses the hepatic manifestations of alcohol over consumption that includes: fatty liver, alcoholic hepatitis and chronic hepatitis with cirrhosis. Only 15% alcoholics develop liver disease. [1] Because the liver is especially vulnerable to alcohol-related injury. This type of liver cell injury is mainly reflected by elevation of various markers as most causes of liver cell injury are associated with a greater increase in ALT than AST; however, an AST to ALT ratio of 2:1 or greater is suggestive of alcoholic liver disease, particularly in the setting of an elevated gamma-glutamyl transpeptidase. [2] The ratio of the serum activities of AST and ALT was first described by Fernando De Ritis in 1957. So that this ratio is called as De Ritis ratio. The AST/ALT ratio is the ratio between the concentrations of the enzymes aspartate transaminase (AST) and alanine transaminase (ALT) in the blood of a human or animal. It is measured with a blood test and is sometimes useful in medical diagnosis to differentiate between causes of liver damage, or hepatotoxicity.

Objective- estimation of the De Ritis ratio in the cases of chronic alcoholic liver disease.

Materials and Methods: This was a cross-sectional prospective case control study conducted among 100 participants as 50 cases attending OPD of Rama Medical college of Rama University, Kanpur and remaining 50 healthy individuals of same profiles were enrolled as controls in this study. 5 ml fasting venous samples was taken for serum measurement of enzymatic markers of AST and ALT patients and normal healthy individuals and samples were analysed in auto analyser.

Results: In the present study the mean age of cases was found 48.06±10.07 yrs and in control group it was found 46.36±6.10 yrs. (p = 0.390) and the mean weight of cases was found 64.52± 6.08 kgs and in control group it was found 64.30± 6.03 kgs. (p=0.856) . In present study De Ritis ratio (AST/ALT) in case group it was found 2.03 ± 0.60 and in control group it was found in 1.35 ± 1.20(p = 0.001).

Conclusion: In the present study the De Ritis Ratio was found more in the cases of chronic alcoholic liver disease than in non-alcoholics and a significant association was obtained in the enzymatic markers between the alcoholics and non-alcoholics. It can be concluded that the level of De Ritis ratio like (AST/ALT) are raised in alcoholics as compared to non-alcoholics.

The adopted inclusion criteria were-
I) For test group-30 to 70 yrs of age group having diagnosed alcoholic liver disease and gave consent to participate were included in the present study.
II) For the control group- same age group of healthy participants and consented for the present study without having non-alcoholic liver disease were enrolled.

The exclusion criteria were-
I. Patients with history of chronic alcoholic liver disease and gave consent to participate were included in the present study.
II. For the control group- same age group of healthy participants and consented for the present study without having non-alcoholic liver disease were enrolled.

And the exclusion criteria were-
I. Patients with hyper tension, Diabetes mellitus, pancreatitis, Renal Failure.
II. Primary biliary cirrhosis and other causes of cirrhosis.
III. Case of any type of hepatitis rather than alcoholic type.
IV. Patients on drug which affects xenobiotics of liver.
V. Below 30 and above 70 age group of participants.
VI. Who did not give consent to participate in the study.

Diagnosis of Alcoholic Liver Disease: Based upon history of
long use of alcohol, clinical features, biochemical markers of Alcoholic Liver Disease and ultra sonographic features of patients, these all evidences were used to confirm a case of Alcoholic Liver Disease.

Ethical consideration- All the study process was started only after obtaining ethical approval from the institutional ethical committee. All the information about the participants was also kept confidential.

Data related to participants were collected with a pretested quanotanare based semi structured proforma was used including data information of basic profile of participants i.e. age, sex, height, weight. Blood Pressure, and duration alcohol intake.

Consent- A verbal or a written consent was obtained from a participants before the sample collection.

Blood Sample- Over night fasting venous blood sample of 5ml was collected from the each participants for estimation of AST, ALT, and other enzymatic markers like ALP and GG T etc.

Estimation of AST/ALT- It was done by using the fasting venous blood sample based upon the spectrophotometric principle and with the help of Auto analyzer machine.

Normal value used as AST- Women <31U/L and for males it is <35U/L and Normal value used for ALT for woman is <34U/L and it is <45U/L for males.

Results
In the present study total 100 males age between 30 to 70 years were enrolled as study subjects out of which 50 healthy males were taken as control and 50 alcoholic males diagnosed of alcoholic liver disease were taken as cases. All the subjects were subjected to detailed history-taking as per proforma. Test parameters were tabulated as per the master chart. The results were expressed in terms of mean ± SD. The p value <0.05 was considered as significant. In the present study the mean age of case was found 48.06± 10.07 yrs and in control group it was found 46.36± 6.61 yrs (p = 0.390, Table No. 1) and the mean weight of case was 64.52± 6.08 kgs and in control group it was found 64.30± 6.03 kgs. p=0.856, Table No. 2). In the present study the Systolic Blood pressure in cases of was found in 123.20± 9.00 mmHg and the diastolic blood pressure was found in 81.28 ± 15.77 mmHg and in the control systolic blood pressure was found 121.84 ± 12.16 mmHg and the diastolic blood pressure found as 81.28 ±15.77 mm of Hg in cases and control group and thus AST and ALT value showed mild to moderate elevation was found by a study conducted at Nepal by Majhi S et al. as per the findings of blood pressure, mean systolic blood pressure found as 123.20a±9.00 mm of Hg and mean diastolic blood pressure found in 79.50±7.03 mmHg. As per biochemical function alcohol diminishes the baro (presso) reflex by interacting with receptors in the brain stem, i.e. nucleus tractussolitarii and rostral ventrolateral medulla. Alcohol may cause hypertension by affecting the autonomic nervous system. Increased cortisol levels in regular alcohol drinkers may be due to direct stimulation of adreno

DISCUSSION
In present study, 50 subjects who are diagnosed with alcoholic liver disease were enrolled as cases and 50 normal healthy individuals were enrolled as controls and the biochemical profile is compared. When both cases and controls were matched age wise then it was found that the difference was with p value of 0.390(Table 1) which shows no statistically significant difference was observed in case of age wise distribution similarly in case of weight wise distribution among cases and controls, shows no statistically significant difference was observed(Table 2- p value of 0.856). The slight elevated weight in cases may be due to that alcohol influence hunger via several central mechanisms. The effects of alcohol on opioid, serotonergic, and GABAergic pathways in the brain all suggest the potential to increase appetite. Given the complexity of the interplay between central and peripheral signals of satiety, more research needs to be performed in order to elucidate the precise biochemical mechanism driving food intake following alcohol consumption[]. AST is increased in cases with mean value of 86.64 ± 17.52 U/L when compared with controls with mean of 31.78 ± 11.71 U/L p value is <0.05 which is significant. ALT is increased in cases with mean value of 46.60 ±18.38 U/L when compared to controls with mean value of 30.98 ± 13.55 U/L. p value is 0.05 which is also found significant. Opio CK et al. showed increase in aminotransferases in alcoholic liver disease. Another study conducted by Anil Batta et al. also showed increase AST and ALT in alcoholic liver disease. In present study De Ritis ratio (AST/ALT) in case group it was found 2.03 ± 0.60 and in control it was found 1.35 ± 1.20 and this distribution of de Ritis ratio was found statistically significant.(p=0.001, Table No.4)

### Table No-1 Age wise distribution of study subjects

<table>
<thead>
<tr>
<th>Age in year</th>
<th>cases</th>
<th>controls</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>31-35</td>
<td>2</td>
<td>8</td>
<td>0.390</td>
</tr>
<tr>
<td>36-40</td>
<td>11</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>41-45</td>
<td>8</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>46-50</td>
<td>14</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>51-55</td>
<td>4</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>56-60</td>
<td>3</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>61-65</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>66-70</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

### Table No-2 Distribution of weight (kg) of patients studied

<table>
<thead>
<tr>
<th>Weight (In Kg)</th>
<th>case</th>
<th>Control</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean±SD</td>
<td>64.52±6.08</td>
<td>64.30±6.03</td>
<td>0.856</td>
</tr>
</tbody>
</table>

### Table No-3 Blood pressure in cases and controls

<table>
<thead>
<tr>
<th>B.P. (in mmHg)</th>
<th>Cases</th>
<th>Control</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic B.P.(Mean±SD)</td>
<td>123.20 ±9.00</td>
<td>121.84±12.16</td>
<td>0.527</td>
</tr>
<tr>
<td>Diastolic B.P.(Mean±SD)</td>
<td>81.28 ±15.77</td>
<td>79.50±7.03</td>
<td>0.468</td>
</tr>
</tbody>
</table>

### Table No. 4 Comparison of AST/ALT ratio (De Ritis ratio) in cases and control

<table>
<thead>
<tr>
<th>AST/ALT ratio</th>
<th>cases</th>
<th>control</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ± SD</td>
<td>2.03 ± 0.60</td>
<td>1.35 ± 1.20</td>
<td>0.001</td>
</tr>
</tbody>
</table>
Corticotrophin hormone or potentiation of corticotropin releasing hormones by arginine vasopressin (13). The effect of blood pressure may be due to the mineralocorticoid activity of cortisol or catecholamine hypersensitivity. Alcohol stimulates the secretion of corticotrophin releasing hormone in rats leading to stimulation of cortisol secretion (14).

**Conclusion:**
In the present study the De Ritis Ratio in the cases of chronic Alcoholic Liver Disease a significant association was obtained in the enzymatic markers between the alcoholics and non-alcoholics. It can be concluded that the level of De ritis ratio like (AST/ALP) are raised in alcoholics as compared to non-alcoholics.

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**Conflicts of interest-** None.

**References**