



THE STUDY ON SERUM UREA LEVEL IN CHRONIC LIVER DISEASE PATIENTS WITH ABSENCE OF ANY RENAL PATHOLOGY.

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ABSTRACT

INTRODUCTION: Chronic Liver Diseases are destruction of liver parenchyma over a period of 6 months leading to fibrosis and cirrhosis. Liver diseases decreases urea synthesis and results in accumulation of ammonia. This study was conducted with a aim to find the relation between serum urea levels in chronic liver disease patients with absence of any renal pathology.

MATERIALS AND METHOD : A total of 50 patients with chronic liver disease were enrolled and serum urea levels was viewed retrospectively

RESULTS AND OBSERVATION : Our findings showed that for the cases of chronic liver disease with absence of liver disease the serum urea level were found to be in lower range.

KEYWORDS :

INTRODUCTION

Chronic liver disease in the clinical context is a disease process of the liver that involves a process of progressive destruction and regeneration of the liver parenchyma leading to fibrosis and cirrhosis.[1] It represents a series of liver disorders of varying causes and severity in which hepatic inflammation and necrosis continue for at least 6 months.[2]

Urea is the major nitrogen-containing metabolic product of protein catabolism in humans, accounting or more than 75% of the non-protein nitrogen eventually excreted. The biosynthesis of urea from amino acid nitrogen-derived ammonia is carried out exclusive by hepatic enzymes of the urea cycle.

During the process of protein catabolism, amino acid nitrogen is converted to urea in the liver by the action of the so-called urea cycle enzymes. More than 90% of urea is excreted through the kidneys, passes through the gastrointestinal tract and skin accounting for most of the remaining minor fraction. Consequently, kidney disease is associated with accumulation of urea in blood.[3]

There are two physiological causes of reduced concentration: low-protein diet, and pregnancy. Pathological cause of reduced urea concentration is largely confined to advanced liver disease [4].

METHODS AND MATERIALS

A quantitative estimation of serum urea levels in chronic liver disease patients without any renal pathology or any co morbid condition leading to high urea level, was carried out in the laboratory of the Department of Biochemistry, Silchar Medical College & Hospital, Silchar, Assam. It was a descriptive study taking into account 50 chronic liver disease patients who were studied for a period of 5 months. Serum urea level was estimated using Urease method in autoanalyser Beckman Coulter AU480. All statistical analysis was done by using graph pad stat statistical software. All p values <0.05 considered as statistically significant.

Exclusion criteria:

Patients with :

1. Renal pathology,
2. Gastro-Duodenal Haemorrhage
3. Acute hepatitis
4. Renal failure due to any cause
5. Hepatorenal syndrome
6. Pregnant Females

RESULTS

In the present study, 50 cases of Chronic Liver Disease who were admitted and came to the outdoor of the department of medicine,

between June 2017 – October 2017 were studied. The present study is a descriptive study, results are analyzed by using unpaired student's t -test which is two tailed.

A: DEMOGRAPHIC DATA:

1) GENDER-WISE:

TABLE 1: SHOWING GENDER WISE DISTRIBUTION OF CASES

| | |
|--------|----|
| MALE | 36 |
| FEMALE | 14 |

B) ANALYSIS OF BIOCHEMICAL PARAMETERS AMONG THE CASES:

1) SERUM UREA LEVEL IN TOTAL CASES:

TABLE 2: SHOWING DISTRIBUTION FOR SERUM UREA LEVEL IN STUDIED GROUPS

| | MEAN | SD | SEM | 95% C I | p VALUE |
|------------------------|-------|------|------|---------------|---------|
| CASES WITH LOW UREA | 9.96 | 2.27 | 0.48 | 8.95-10.96 | 0.0 |
| CASES WITH NORMAL UREA | 25.35 | 6.02 | 2.12 | 20.31 – 30.38 | |

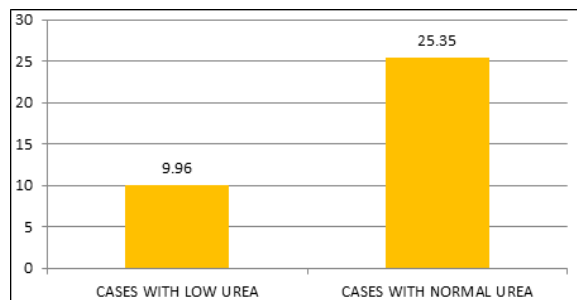


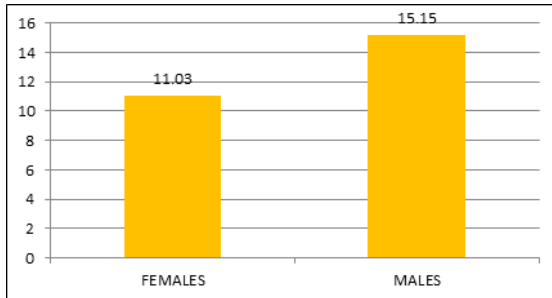
FIGURE 1: SHOWING DISTRIBUTION FOR SERUM UREA LEVELS IN STUDIED GROUPS

The mean serum urea levels with normal urea level cases is found to be 25.35 ± 6.02 and in cases with low serum urea level is 9.96 ± 2.27 . In the Unpaired t test between groups, the two-tailed P value is 0.0 (extremely significant).

2) SERUM UREA LEVEL ACCORDING TO THE GENDER:

TABLE 3: SHOWING DISTRIBUTION FOR SERUM UREA LEVEL ACCORDING TO GENDER

| | MEAN | SD | SEM | 95% C I | p VALUE |
|---------|-------|------|------|--------------|---------|
| FEMALES | 11.03 | 4.98 | 1.76 | 6.86 – 15.19 | 0.02 |
| MALES | 15.15 | 8.22 | 1.75 | 11.5 – 18.79 | |

**FIGURE 2: GRAPH SHOWING DISTRIBUTION FOR SERUM UREA LEVEL ACCORDING TO GENDER**

The mean serum urea levels of FEMALES is found to be 11.03 ± 4.98 and in males is 15.15 ± 8.22 . In the Unpaired t test between groups, the two-tailed P value is 0.02 (significant),

DISCUSSION

In our present study we have found low urea level in 40 patients and normal urea level 10 patients, the average Serum Urea level in patients was 9.6 ± 2.27 mg/dl which was extremely significantly low as compared to that in those with normal urea level. This suggest that serum urea level is decreased in chronic liver diseases. **The prevalence of low Urea in chronic liver diseases is a finding** comparable with that of Lum G et al (4) Also in the present study we have found female patients were having serum urea level of 11.03 ± 4.98 mg/dl which was significantly low as compared to that in male patients. However we dint find any study suggesting the same.

CONCLUSIONS:

From the study, it is seen that patient with chronic liver diseases, specially female patient have low serum urea level, however we need to do further study to find out whether low urea level has any prognostic significance or not.

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