IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 18, Issue 11 Ser.2 (November. 2019), PP 34-40
www.iosrjournals.org

A Study to Correlate Serum Prolactin and Child Pugh Scoring In Cirrhosis

Dr. T.K.Rajasekarapandian M.D. , Dr. J.Kanimozhi M.D.
Corresponding Author: Dr. T.K.Rajasekarapandian M.D

Abstract:
Introduction*: Due to increasing incidence of cirrhosis we can use biomarker like serum prolactin which is elevated in cirrhosis patients. It also predicts the severity and complications of cirrhosis, so it may be helpful for early intervention[1].*
Aims and Objectives: *The study is done to find the correlation between Child Pugh scoring which is used to determine the severity of cirrhosis and serum marker Prolactin.*
Materials and Methods:*The study was conducted among 100 cirrhosis patients in Govt. Stanley Medical College and hospital*
Statistical Analysis:
The data was analyzed using SPSS version 16 and Microsoft Excel 2007.
Summary:
Key words: *Cirrhosis, Child Pugh score, Prolactin,*

Date of Submission: 24-10-2019 Date of Acceptance: 09-11-2019

I. Introduction

Cirrhosis is an end stage complication of continuous inflammation of liver parenchyma secondary to multiple etiologies. The leading causes of cirrhosis are viral hepatitis and alcohol[2].Chronic liver disease progresses to cirrhosis may occur in weeks as in complete biliary obstruction or years in chronic hepatitis. Prognosis depends not only on the cirrhosis severity but also on the comorbid illness present. Scores available to determine the severity of cirrhosis are child-pugh-turcott scoring and meld score and Von willebrand factor levels[3]. Prolactin secretion follows a characteristic pulsatile pattern with nocturnal rise. In cirrhosis there will be elevation of prolactin level and loss of circadian rhythm.[4]

The severity of cirrhosis is usually assessed by child pugh scoring which consists of the following variables albumin, ascites, bilirubin, prothrombin time, international standardized ratio and hepatic encephalopathy.[5]

Recently studies has been conducted to determine an appropriate serum marker for assessing the severity of cirrhosis . Prolactin has been determined to increase in cirrhosis and its level has been found to correlate to severity assessed by child pugh scoring . [6]

II. Aims and Objectives

To assess the relation between serum prolactin levels and child pugh scoring in cirrhosis patients as well as to establish that serum prolactin is an early marker of cirrhosis complications.

III. Materials and Methods

Source of data:

The study was conducted among 100 patients in Government Stanley Medical College hospital from All cases were selected based on inclusion and exclusion criteria. A detailed history was elicited , clinical examination and all required investigations were done for all cases. Patients above 18 years diagnosed to have cirrhosis were included in this study.Patients having conditions known to elevate prolactin levels such as Acute liver failure, Head injury, Hypothyroidism, Chronic Kidney disease, Neurosurgery, Drugs affecting serum prolactin level were excluded from this study.

Case Definition

Diagnosis of cirrhosis is based on clinical, biochemical evidence and the presence of esophageal varices, ascites with albumin gradient more than 1.1grms/l.

CLINICAL AND LAB CRITERIA	POINTS 1	2	3
ENCEPHALOPATHY	NONE	GRADE I or II	GRADE III or IV
ASCITES	NONE	MILD TO MODERATE (DIURETIC RESPONSIVE)	SEVERE (DIURETIC RESISTANT)
BILIRUBIN	<2	2-3	>3
ALBUMIN (g/dl)	>3.5	2.5-3.5	<2.5
PROTHROMBIN TIME (SECONDS OVER CONTROL)	<4	4-6	>6
INR	<1.7	1.7	1.7-2.3
CLASS A	5-6		
CLASS B	7-9		
CLASS C	10-15		

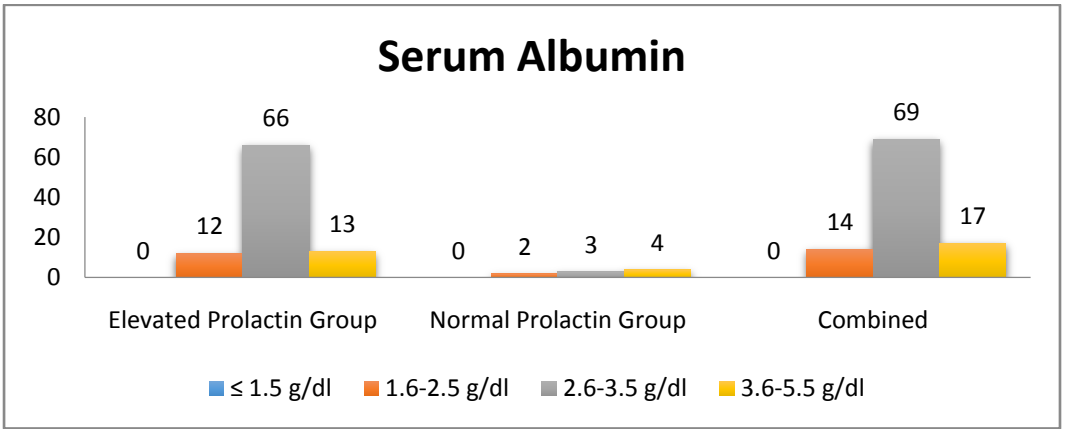
Serum prolactin levels :Male 2 to 18 ng/ml, Female 2 to 29 ng/ml Patients were subjected to following investigations -Complete blood count, Random blood sugar, Renal function test, Liver function test, Serum ascitic fluid analysis, Prothrombin time and INR, Viral markers, Ultrasound abdomen.

STATISTICAL ANALYSIS:

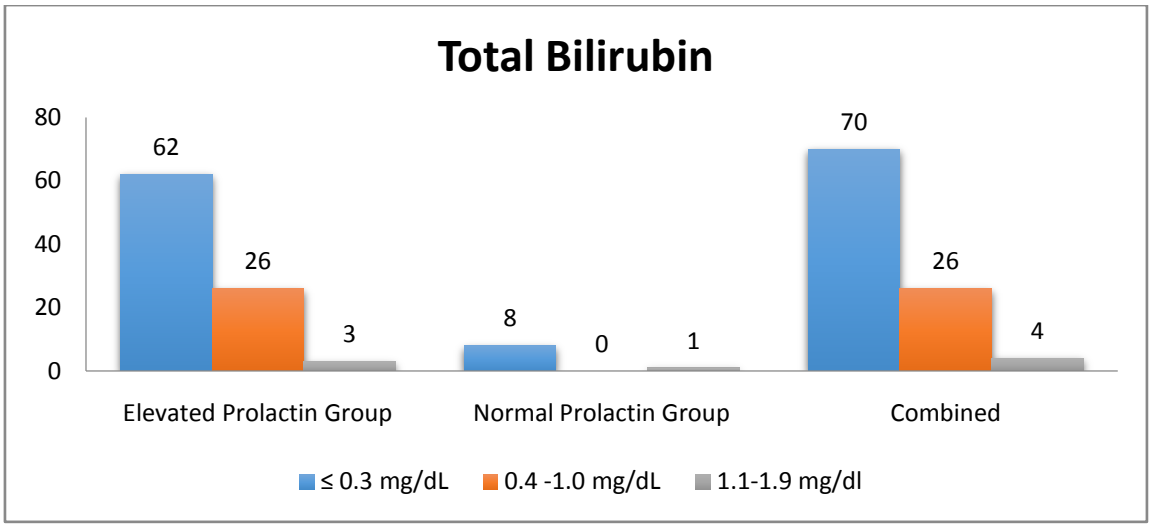
Descriptive statistics was done for all data and were reported in terms of mean values and percentages. Suitable statistical tests of comparison were done. Continuous variables were analyzed with the unpaired t test.. Categorical variables were analyzed with the Chi-Square Test and Fisher Exact Test. Statistical significance was taken as $P < 0.05$. The data was analyzed using SPSS version 16 and Microsoft Excel 2007.

IV. Discussion

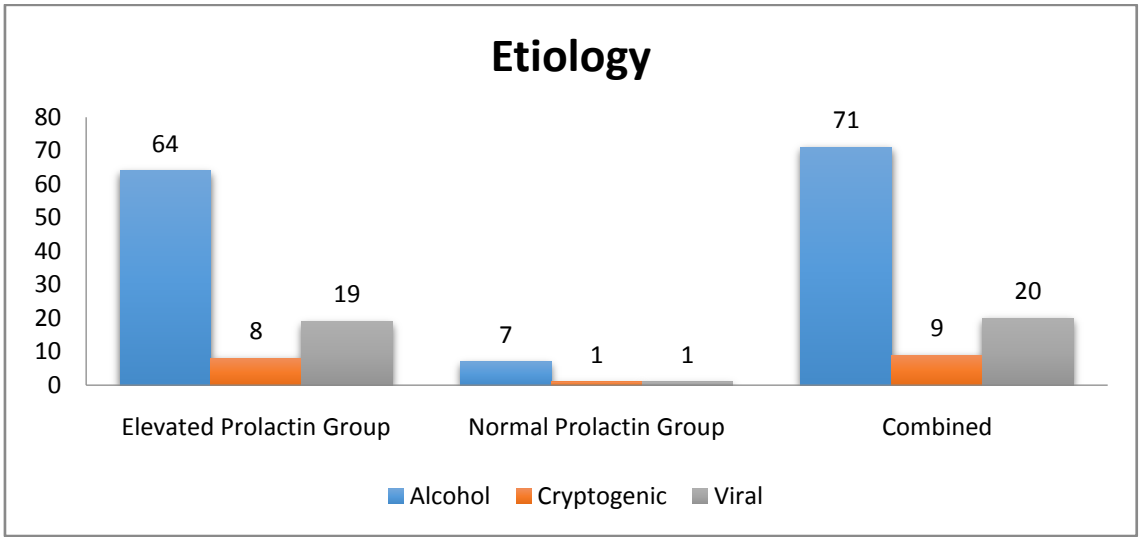
The study conducted in Stanley Medical College in 100 patients of which 83 were males, 17 were females. Most of them in the age group between 40 and 60.

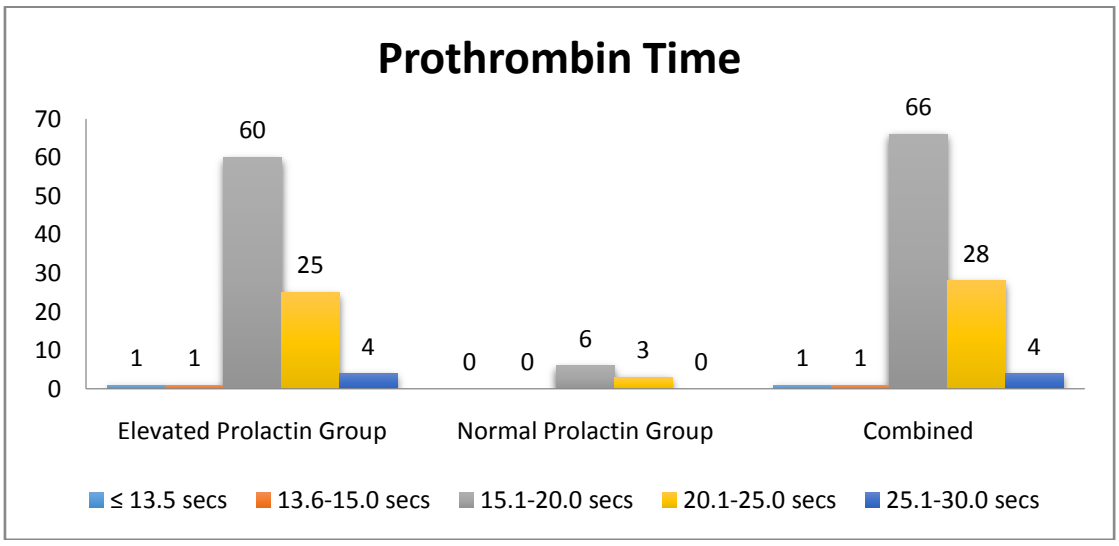


Out of 100 cirrhosis patients 78 patients whose albumin level below 3.5 g% have elevated prolactin .



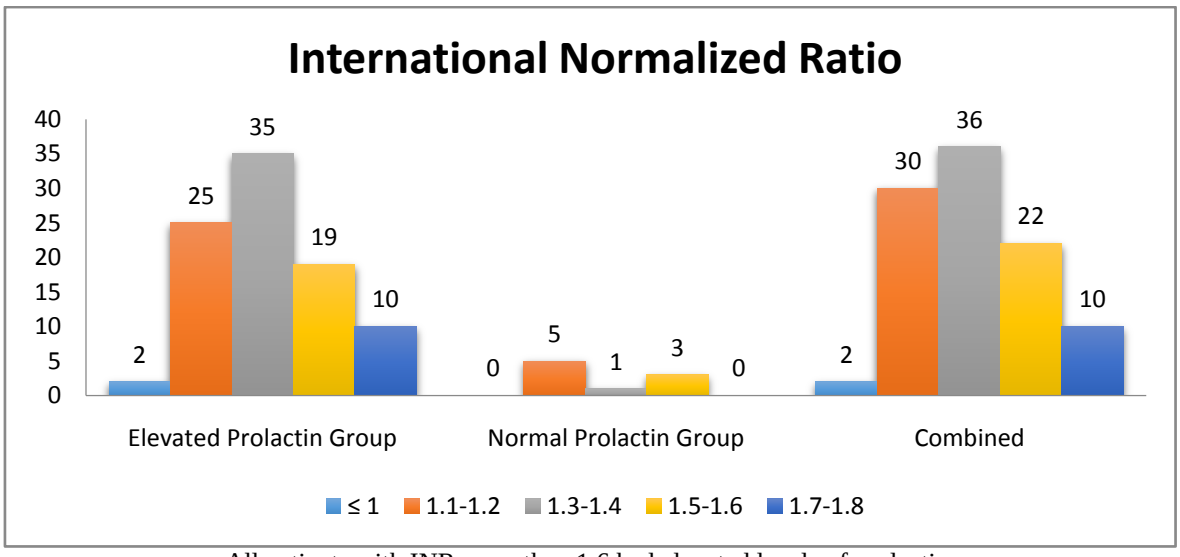
Etiology



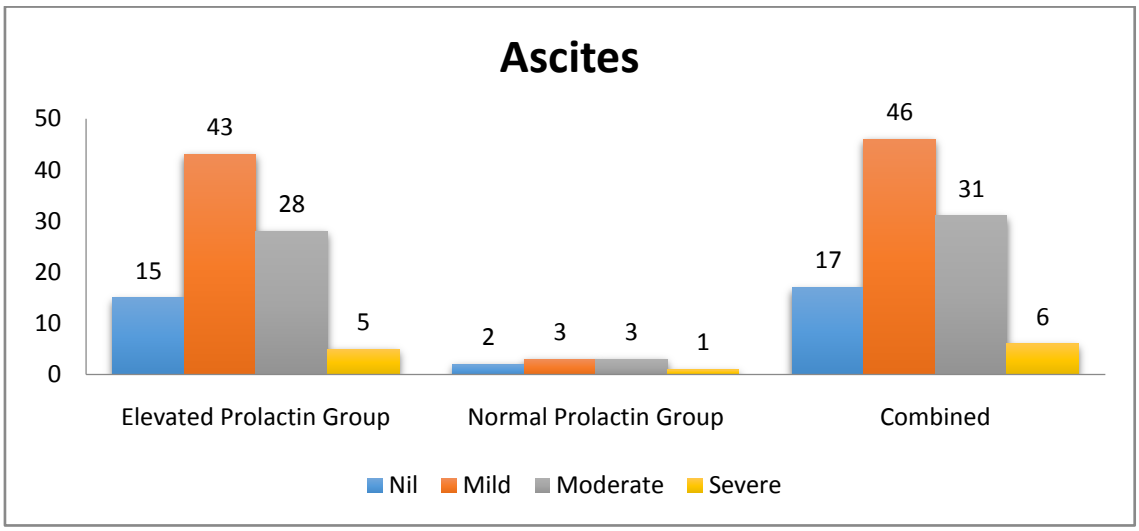


From the above details cirrhosis may be due to any reason serum prolactin level was elevated regardless of the cause. It was found to be elevated in 91/100 cirrhotic patients.

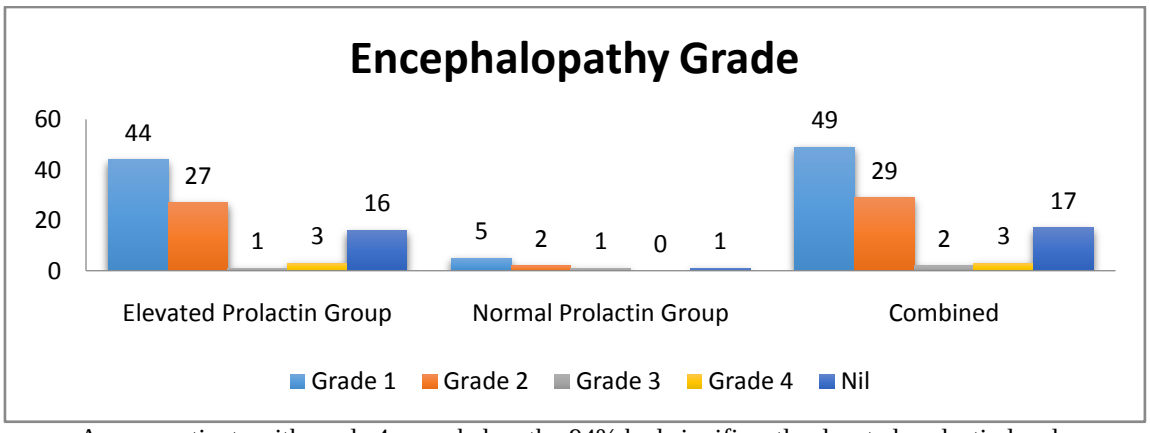
In this study 98 cirrhotic patients were found to have elevated Prothrombin time. Among them 89 patients had elevated Prolactin levels. All 4 patients with very high PT had elevated prolactin levels.



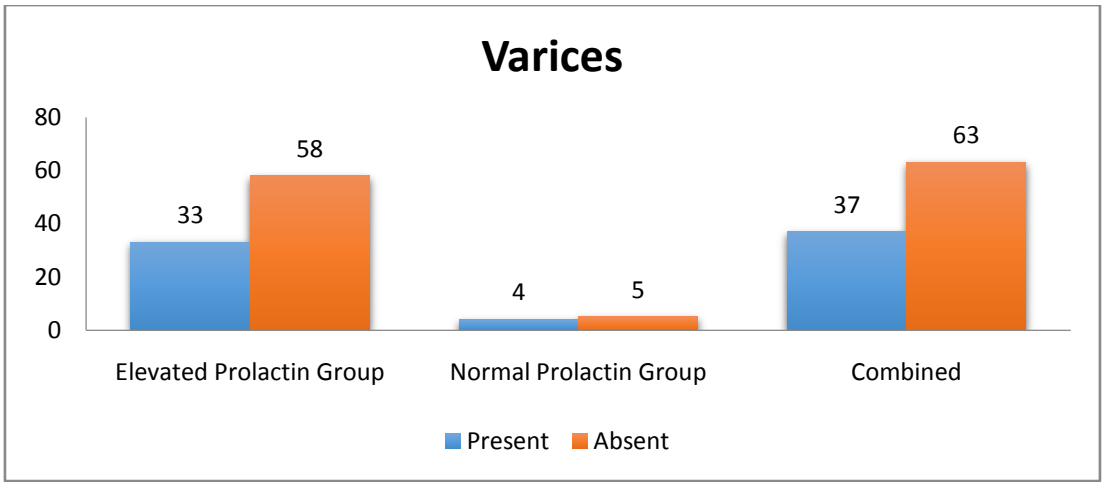
All patients with INR more than 1.6 had elevated levels of prolactin.



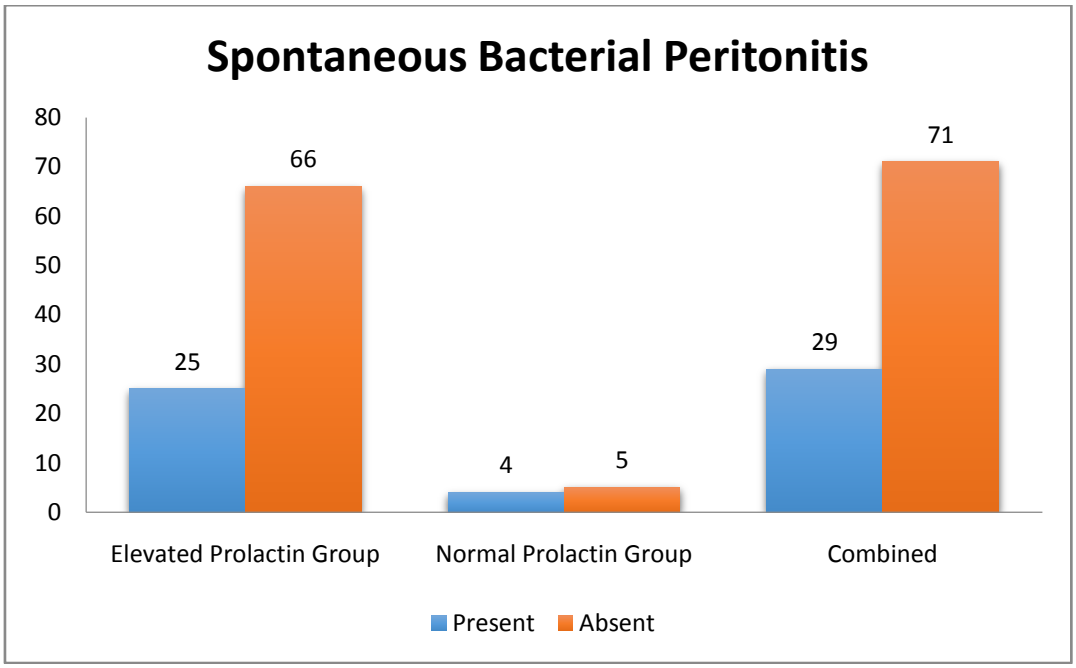
Majority of patients with ascites 76% had elevated prolactin regardless of severity.



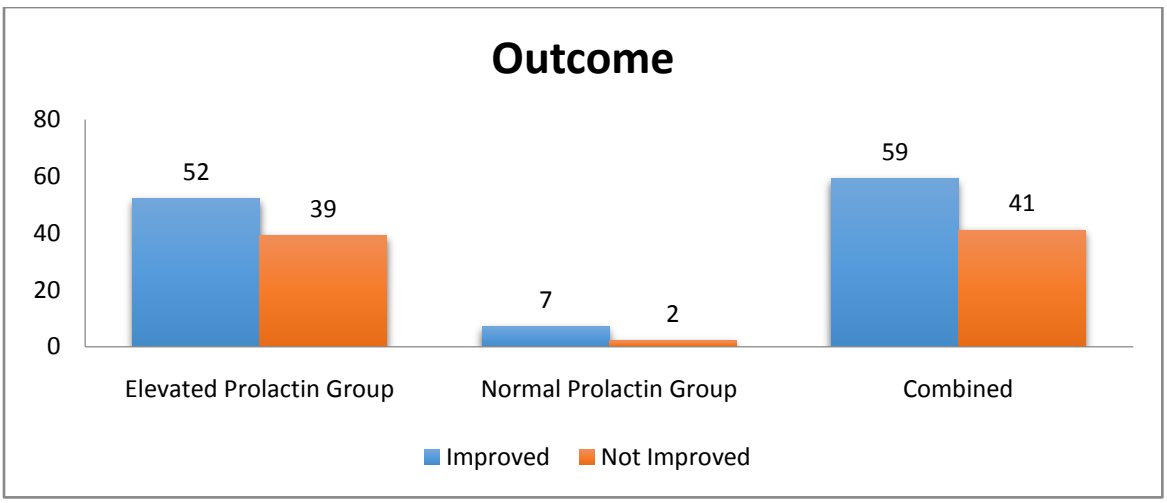
Among patients with grade 4 encephalopathy 94% had significantly elevated prolactin levels



Spontaneous Bacterial Peritonitis



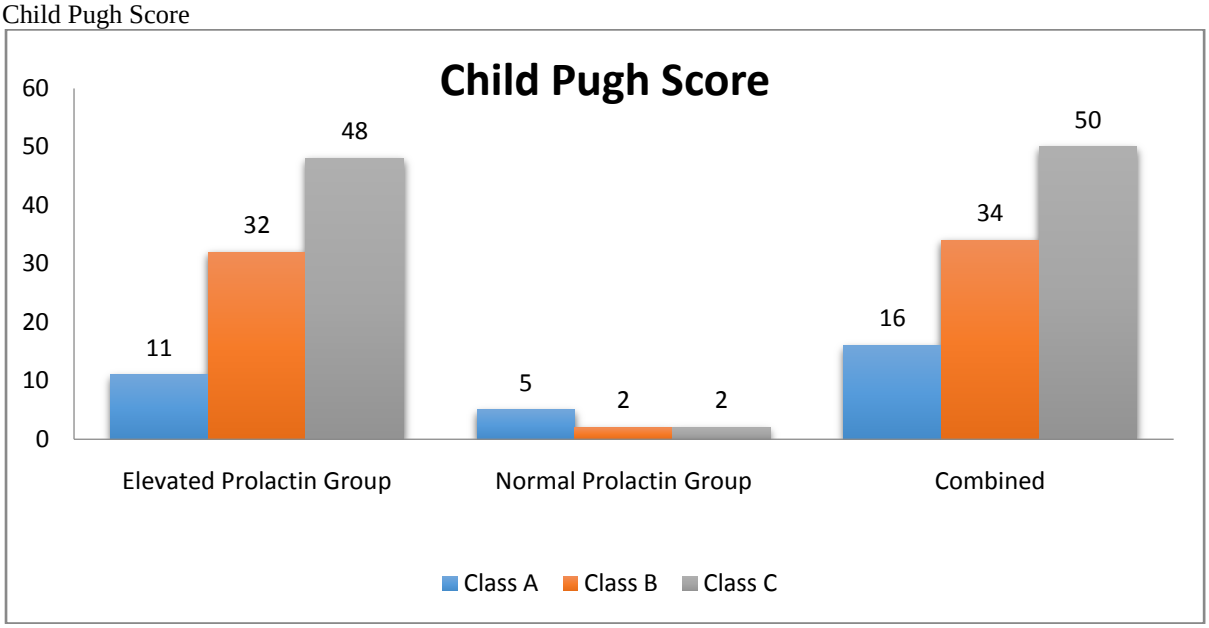
Outcome



Outcome	Elevated Prolactin Group	Normal Prolactin Group	Combined	Elevated Prolactin Group (%)	Normal Prolactin Group (%)	Combined (%)
Improved	52	7	59	57.14	77.78	59.00
Not Improved	39	2	41	42.86	22.22	41.00
Total	91	9	100	100	100	100
P value Fishers Exact Test				0.0366		

The incidence of not improved outcome was significantly more in elevated prolactin groupcompared to normal prolactin groupby a percentage difference of 20.63 percentage points (48% higher). This difference is significant with a p-value of 0.0366 as per fishers exact test. Prolactin level rises in cirrhosis with loss of circadian rhythm. Prolactin levels significantly correlates with severity of cirrhosis and its complications. Rise in prolactin level also correlating with Child pugh scoring in the assessment of severity so it can be used as a prognostic marker.

Child Pugh Score



Among the study patients, there was a statistically significant difference in relation to child pugh score status between elevated prolactin group(majority were class B – 35.16%) and normal prolactin group (majority were Class A – 55.56%) with a p value of <0.05 as per fishers exact test. Therefore we reject the null hypothesis that there is no difference in child pugh score status between the study groups

V. Summary

The study contained 100 cases of cirrhosis patients out of which 83 were males and 17 were females . Maximum number of cases were in 4th to 6th decade of life.

The incidence of class A child pugh score which signifies 100% 1 year survival and 85% 2 year survival was significantly less in elevated prolactin group compared to normal prolactin group by a percentage difference of 43.47 percentage points (78% lower).

The incidence of class C child pugh score which signifies 45% 1 year survival and 35% 2 year survival was significantly more in elevated prolactin group compared to normal prolactin group by a percentage difference of 30.53 percentage points (58% higher).

This difference is significant with a p-value of 0.0078 as per fishers exact test.

Male cirrhotic patients have elevated serum prolactin level 11.38 times more than female cirrhotic patients.Cirrhotic patients with elevated prolactin level are associated with poor prognosis.Patients belonging to class A child pugh scoring have low levels of prolactin compared to class C child pugh.

VI. Conclusion

Serum prolactin levels are comparable with child Pugh score in prediction of severity and complications of cirrhosis. Prolactin levels can be used as negative prognostic marker.

References

[1]. Correlation of serum prolactin levels to child pugh scoring system in cirrhosis of the liver , Rajeev H,Chaitanya H, JAPI jan 2016.
[2]. AnthonyPP, Nayak NC, Morphology of cirrhosi, definition , nomenclature and classification by working group J Clin Pathol 1978;31:395-414
[3]. Jepsen P, Vilstrup H, Andersen PK, et al. Comorbidity and survival of Danish cirrhosis patients: A nationwide population based cohort study . Hepatology 2008; 48: 214-20.
[4]. Prolactin levels in cirrhosis patients correlates with severity of liver disease , Juraj payer, Tomas koller , Lahim baqi and Jana kollarova, Endocrine abstracts 2008.
[5]. Child C G turcot jg1964.
[6]. International journal of applied basic and medical research. Serum prolactin level in patients with liver disease in comparison to healthy adults . Sumit khanjha, Sridharan kannan,15 jan 2016.

Dr. T.K.Rajasekarapandian M.D. "A Study to Correlate Serum Prolactin and Child Pugh Scoring In Cirrhosis." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 11, 2019, pp 34-40.