



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3568725>Available online at: <http://www.iajps.com>

Research Article

**ASSESSMENT AND COMPARISON OF HEMATOLOGICAL  
PARAMETERS OF BLEEDING AMONG VARIOUS CLASSES  
OF CIRRHOTIC PATIENTS AT TERTIARY CARE HOSPITAL****Fatima Tayab, Laiba Anwar, Hajra Ishfaq**  
Nishtar Medical University, Multan**Article Received:** October 2019    **Accepted:** November 2019    **Published:** December 2019**Abstract:**

*Liver cirrhosis is a major complication of chronic liver diseases leading to ascites and upper GI bleeding this study was designed to assess the biochemical parameters associated with bleeding tendencies. Cirrhotic patients were included in the research by purposive sampling; blood was drawn under aseptic protocols. Serum was analyzed in Nishtar University hospital lab for PT, aPTT, fibrinogen level, platelet count and D-Dimer. Significant difference was observed between the three child pugh classes (A,BC) for prothrombin time P- 0.000821, Activated prothrombin time P-0.000639 serum fibrinogen p- 0.000824 and serum platelet count P- 0.000191 and there was significant difference between the serums D-Dimer Level as well with P- value 0.0193*

**Conclusion:** *There exists significant difference between the serum biomarkers among three child pugh classes of cirrhosis.*

**Key Words:** *PT, aPTT, Fibrinogen, D-dimer, Platelets*

**Corresponding author:****Fatima Tayab,**  
Nishtar Medical University, Multan

QR code



*Please cite this article in press Fatima Tayab et al., Assessment And Comparison Of Hematological Parameters Of Bleeding Among Various Classes Of Cirrhotic Patients At Tertiary Care Hospital., Indo Am. J. P. Sci, 2019; 06(12).*

**INTRODUCTION:**

Cirrhotic liver mortality is 4th common most death cause in Europe (170,000 deaths/year) and 14th round the globe (1.03 million deaths/Year) [1,2]. The 1-year mortality of liver cirrhosis varies greatly from 1% to 57% according to the complications. Child -Pugh score used in the assessing the liver dysfunction severity in clinical practice was developed by Child and Turcotte which includes albumin ascites, total bilirubin, hepatic encephalopathy, PT ( prothrombin time) or INR ( international normalized ratio) [3]. Portal hypertension develops in consequence of cirrhosis leading to esophageal varices which is lethal [4,5]. Acute variceal bleeding occurs in 70% of cirrhotic patients and is a main cause of death in these patients [6]. Mortality associated with 1<sup>st</sup> episode of bleeding ranges from 15–20% and goes up to 30% in case of Child Pugh class C while Class A (compensated cirrhosis) has low mortality rates [7]. Mortality rate due to varices has fallen due to better prognosis in recent times following Baveno VI expert consensus recommendations with significant improvements in management [8,9]. The current work was designed to assess the various bio chemical parameters responsible for bleeding (PT, APTT, Platelet count, D-dimer and fibrinogen levels comparison was made between cirrhotic patients of various classes (Child-Pugh A, BC) of cirrhosis.

**METHODOLOGY:**

Diagnosed patients (64) of liver cirrhosis of all etiologies irrespective of sex, age, and socio-economic values were included while patients with Known abnormal Coagulation profile, patients on oral contraceptive, heparin, warfarin and aspirin were excluded along with non- Cirrhotic liver patients and Pregnant women. Patients were divided into three groups on the basis of child-pugh

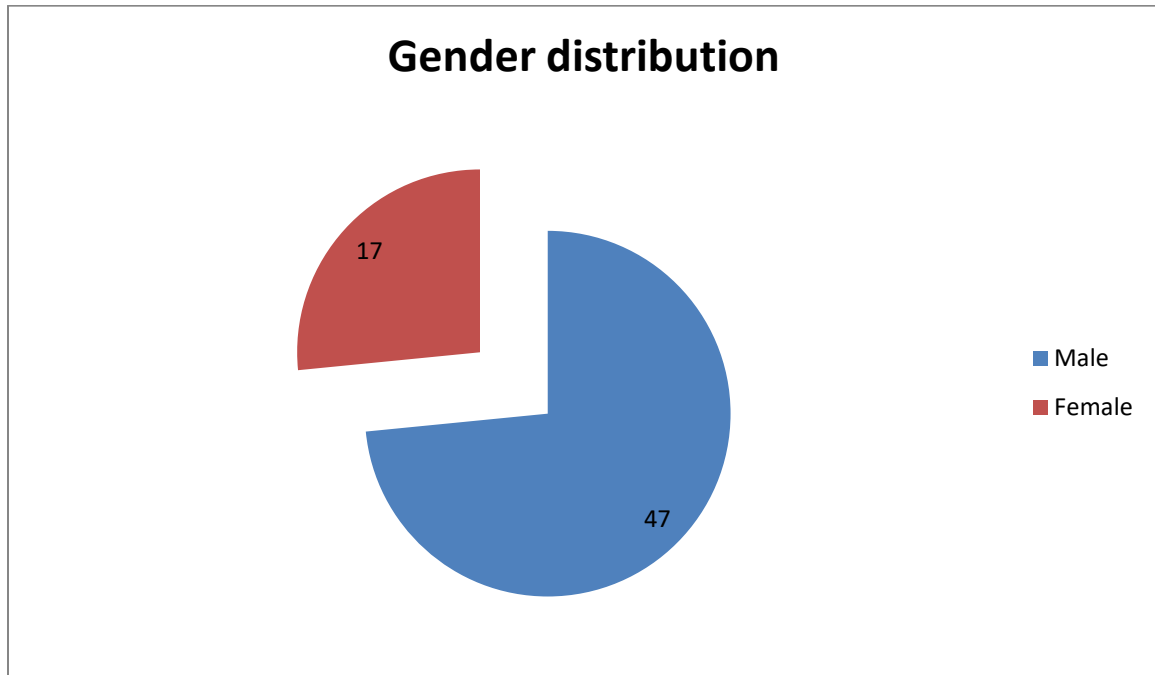
classification. With 11 patients in class A, 26 patients of class B and 27 patients of class C. Venous blood (5ml) was drawn from each patient under high precautions and placed in separate bottles. PT (Plasma prothrombin time) and APTT (Activated partial thromboplastin time) were measured using CA-50 sysmex machine. Automatic Coagulation analyzer was used to assess Plasma fibrinogen level while COBAS H232 was used for the estimation of serum D-dimer (Fibrin degradation products). CBC analyzer was used to determine Platelet count in the study population.

**Results:**

There were 64 cirrhotic patients PT was noted  $11.09 \pm 0.831$  Seconds in 11 patients belonging to Class A while it was  $12.15 \pm 2.838$  seconds in Class B and Class C patients were having PT of  $16.66 \pm 2.541$  seconds which was statistically highly significant (P-value .000821). APTT was recorded as  $27.09 \pm 4.657$  Seconds in class A,  $33.50 \pm 2.284$  seconds in Class B and  $35.62 \pm 1.779$  seconds in Class C patients and the difference was highly significant with P-value 0.000639. Serum Fibrinogen Level was  $333.90 \pm 45.007$  mg/dl in Class A patients,  $261.07 \pm 70.622$  mg/dl in class B while it was  $207.33 \pm 38.484$  mg/dl in class C with a P-value of 0.000824 that is statistically highly significant. Serum D-Dimer level was  $195.45 \pm 13.633$  ug/L in child pugh class A patients,  $212.96 \pm 37.845$  ug/L in class B patients and it was noted to be  $234.14 \pm 47.287$  ug/L in child pugh class C that was also significant p-value 0.0193. Platelet Count in patients of child pugh class A was  $375.36 \pm 39.479$  (X thousands/uL) in class B platelets were  $343.30 \pm 58.793$  (X thousands/uL) while the same were  $277.03 \pm 55.061$  (X thousands/uL) in patients of class C with a highly significant P-value 0.000191.

**Table#1. ANOVA of the study variables**

S. No	Parameter	Class- A n = 11	Class- B n = 26	Class- C n = 27	F- Value	P-Value
1.	PT (Seconds)	$11.09 \pm 0.831$	$12.15 \pm 2.838$	$16.66 \pm 2.541$	25.65	0.000821
2.	APTT (Seconds)	$27.09 \pm 4.657$	$33.50 \pm 2.284$	$35.62 \pm 1.779$	40.51	0.000639
3.	Fibrinogen Level (mg/dl)	$333.90 \pm 45.007$	$261.07 \pm 70.622$	$207.33 \pm 38.484$	21.56	0.000824
4.	D-Dimer Level (ug/L)	$195.45 \pm 13.633$	$212.96 \pm 37.845$	$234.14 \pm 47.287$	4.21	0.0193
5.	Platelet Count (X thousands/uL)	$375.36 \pm 39.479$	$343.30 \pm 58.793$	$277.03 \pm 55.061$	16.47	0.000191



**Fig#1. Pie chart showing Gender distribution of study subjects**

#### DISCUSSION:

We found significant reduction in mean platelet count from Child-pugh class A to class C consistent to findings of Senzolo M, et al (2012) [10]. However their findings were generalized to cirrhosis but not co-related to Child Pugh class. Serum Mean levels of D-dimer were found elevated to a significant extent from Child-pugh class A - C Similar consistent findings were published by Essawy F et al. (2008) and Zhang D Lei, et al. (2013) possibly due to deterioration in the liver functions [11,12]. Mean of PT (Prothrombin Time) was noted to be significantly increased from Child-Pugh class A to child-pugh class C patients consistent Massimo P et al. (2010) [13]. Senzolo M, et al. (2012) reported reduction in PT from class A to class C which is inconsistent to our findings. Our results regarding aPTT mean levels were increase from Child-Pugh class A- C that was in accordance to Senzolo M, et al. (2012). Mean of Fibrinogen concentration was found decreased to a significant level from class A to C which is parallel to reports of Essawy F, et al. (2008).

#### CONCLUSION:

There is significant difference among three child-pugh classes of cirrhotic patients in terms of serum PT, aPTT, Fibrinogen Level, D-Dimer Level and Platelet Count.

#### REFERENCES:

1. Lozano R, Naghavi M, Foreman K, et al (2012). Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 380:2095–2128.
2. Blachier M, Leleu H, Peck-Radosavljevic M, et al (2013). The burden of liver disease in Europe: a review of available epidemiological data. *J Hepatol*. 58:593–608.
3. Ying Peng, Xingshun Qi, and Xiaozhong Guo (2016) Child–Pugh Versus MELD Score for the Assessment of Prognosis in Liver Cirrhosis A Systematic Review and Meta-Analysis of Observational Studies *Medicine* 95(8):1-29.
4. de Franchis R (2015). Expanding consensus in portal hypertension: Report of the Baveno VI Consensus Workshop: Stratifying risk and individualizing care for portal hypertension. *J Hepatol* 63:743-752
5. Bledar Kraja, Iris Mone, Ilir Akshija, Adea Koçollari, Skerdi Prifti (2017) Predictors of esophageal varices and first variceal bleeding in liver cirrhosis patients *World J Gastroenterol* 23(26): 4806-4814.
6. Rudler M, Rousseau G, Benosman H et al (2012). Peptic ulcer bleeding in patients with or without cirrhosis: different diseases but the same prognosis? *Aliment Pharmacol Ther* 36:166–72.

7. Maxime Mallet, Marika Rudler, Dominique Thabut(2017). Variceal bleeding in cirrhotic patients *Gastroenterology Report*, 5(3):185–192
8. Haq I, Tripathi D(2017). Recent advances in the management of variceal bleeding. *Gastroenterol Rep (Oxf)* 5:113–26.
9. de Franchis R; Baveno(2015). Expanding consensus in portal hypertension: report of the Baveno VI Consensus Workshop: stratifying risk and individualizing care for portal hypertension. *J Hepatol* 63:743–52.
10. Senzolo, M., K. I., Rodriguez-Castro, V., Rossetto, C., Radu, S., Gavasso, P.(2012). simioni; Increased anticoagulant response to low-molecular-weight heparin in plasma from patients with advanced cirrhosis ; *J Thrombosis and Haemostasis*. 10: 1823–1829.
11. Essawy, F., O., Mahmoud, M., Zahran, A., Lotfy, R. (2008) Study of the Prognostic Significance of Clinical and Laboratory Scoring System in Diagnosis of Overt and non- Overt Disseminated Intravascular Coagulation in Chronic Liver Disease ; *Research Journal of Medicine and Medical Sciences*. 3(2): 149-157
12. Zhang Dong-LEI , Jian-YU, Hao, Ning, Yang, (2013) Value of D-dimer and protein S for diagnosis of portal vein thrombosis in patients with liver cirrhosis; *Journal of International Medical Research*. 41: 664–672
13. M Franchini, Mannucci, PM. (2008) Venous and arterial thrombosis: different sides of the same coin? *Eur J Intern Med*. 19:476–481.