

Table (1): Demographic and clinical characteristics in the examined patients

Parameters			Studied patients (N=121)
Gender	Male / Female		51 (42.1%) / 70 (57.9%)
Age (years)	Mean± SD		64.55± 10.12
	Median (Range)		65.0 (37.0- 90.0)
Residence	Rural		77 (63.6%)
	Urban		44 (36.4%)
Occupation	Employee		12 (9.9%)
	Farmer		14 (11.6%)
	Manual work		52 (43.0%)
	No work		43 (35.5%)
Special habits	Non-smoker		100 (82.6%)
	Smoker		21 (17.4%)
Diabetes mellitus 26 (21.5%)	Type I DM		3 (2.5%)
	Type II DM		23 (19.0%)
Hypertension			32 (26.4%)
Cause of liver Cirrhosis	Post HCV		59 (48.8%)
	Bilharziasis		35 (28.9%)
	HBV		11 (9.1%)
	Unknown		7 (5.8%)
	Primary biliary cirrhosis		4 (3.3%)
	Others		3 (2.5%)
	Autoimmune		2 (1.7%)
HCV (+) patients received DAAs			46 (38.0%)
Cause of admission	Encephalopathy		60 (49.58%)
	Hematemesis and melena		43 (35.5%)
	Generalized anasarca		18 (14.9%)
Clinical presentation	Ascites and edema		77 (63.6%)
	Encephalopathy		55 (45.5%)
	Jaundice		34 (28.1%)
	Palmar erythema		29 (24.0%)
	Fetor hepaticus		26 (21.5%)
	Organomegaly 21(14.4%)	Hepatomegaly	3 (2.5%)
		Splenomegaly	19 (15.7%)
	Spider nevi		10 (8.3%)

Table (2): Relation between admission HCO3 with different categorical parameters

Parameters		HCO3 classification			P value
		Patients with normal HCO3 (N=17)	Patients with low HCO3 (N=94)	Patients with high HCO3 (N=10)	
Gender	Male	(7)41.2%	(42)44.7%	(2)20.0%	0.322
	Female	(10)58.8%	(52)55.3%	(8)80.0%	
Age (years)		68.7±7.9	64.5±10.0	57.7±11.7	0.041
Diabetes mellitus	Type I DM	(1)5.9%	(1)1.1%	(1)10.0%	0.005
	Type II DM	(8)47.1%	(13)13.8%	(2)20.0%	
	No	(8)47.1%	(80)85.1%	(7)70.0%	
Hypertension		(6)35.3%	(24)25.5%	(2)20.0%	0.626
Cause of liver cirrhosis	PBC	(1)5.9%	(3)3.2%	(0)0.0%	0.625
	Autoimmune	(0)0.0%	(2)2.1%	(0)0.0%	
	Bilharziasis	(4)23.5%	(29)30.8%	(2)20.0%	
	HBV	(2)11.8%	(8)8.5%	(1)10.0%	
	Others	(0)0.0%	(2)2.1%	(1)10.0%	
	Post HCV	(10)58.8%	(45)47.9%	(4)40.0%	
	Unknown	(0)0.0%	(5)5.3%	(2)20.0%	
Child -pugh score	Class A	(0)0.0%	(3)3.2%	(2)20.0%	0.035
	Class B	(9)52.9%	(30)31.9%	(4)40.0%	
	Class C	(8)47.1%	(61)64.9%	(4)40.0%	
Liver cirrhosis complications	AKI or H.R .S	(2)11.8%	(30)31.9%	(2)20.0%	0.197
	Encephalopathy	(6)35.3%	(55)58.5%	(2)20.0%	0.022
	GIT bleeding	(7)41.2%	(37)39.4%	(7)70.0%	0.175
	Ascites	(11)64.7%	(54)57.4%	(5)50.0%	0.746
	SBP	(1)5.9%	(12)12.8%	(1)10.0%	0.707
ICU admission		(3)17.6%	(39)41.5%	(5)50.0%	0.134
Hospital course	Improvement	(16)94.1%	(64)68.1%	(10)100.0%	0.063
	Progression	(1)5.9%	(24)25.5%	(0)0.0%	
	Stationary	(0)0.0%	(6)6.4%	(0)0.0%	
Outcomes	Death	(1)5.9%	(30)31.9%	(0)0.0%	0.012
	Discharge	(16)94.1%	(64)68.1%	(10)100.0%	

$p \leq 0.05$ is considered statistically significant, $p \leq 0.01$ is considered high statistically significant, X²: 'Pearson Chi-Square test,

Primary biliary cholangitis (PBC) , SBP: spontaneous bacterial peritonitis, Others: hemochromatosis, s disease, cystic fibrosis and biliary atresia Wilson

Table (3): Relation between admission HCO₃ with different numerical parameters.

Parameters	HCO3 classification						P-value
	Patients with normal HCO3 (N=17)		Patients with low HCO3 (N=94)		Patients with high HCO3 (N=10)		
	Mean ±SD	Median	Mean ±SD	Median	Mean ±SD	Median	
Vital signs							
Pulse	84.8±11.2	84.0	86.5±9.5	89.0	88.6±8.3	87.0	.502
Systolic BP	113.5±12.7	110.0	110.4±12.3	110.0	109.0±5.7	110.0	.378
Diastolic BP	69.4±8.3	70.0	69.8±7.5	70.0	69.0±3.2	70.0	.699
Temperature	37.1±.3	37.0	37.0±.3	37.0	39.5±8.4	36.8	.279
Respiratory rate	18.7±1.6	18.0	19.5±2.5	18.0	19.8±2.0	20.0	.281
Laboratory parameters							
WBCs	9.3±4.7	9.2	10.0±4.7	9.6	7.8±3.0	8.9	.334
Neutrophils	74.7±10.4	76.8	76.5±10.5	79.0	80.9±7.0	78.5	.461
Lymphocytes	16.5±7.0	16.0	13.3±6.7	12.3	13.6±5.1	15.0	.067
HB	10.3±2.1	10.0	9.9±1.6	9.9	9.3±1.9	9.8	.050
MCV	82.5±8.6	83.0	85.1±8.3	85.1	85.3±4.9	84.0	.647
PLT	165.8±89.8	142.0	176.7±104.3	159.5	150.2±96.9	135.0	.327
ALT	42.1±48.1	25.0	35.2±27.3	28.5	33.5±41.6	15.5	.246
AST	62.6±42.6	46.0	59.5±56.1	39.0	109.7±164.1	38.0	.801
TP	6.9±.6	7.0	6.7±.9	6.7	6.8±.6	7.1	.271
ALB	2.6±.5	2.6	2.7±.5	2.8	2.6±.8	2.6	.692
Total bilirubin	2.7±2.5	1.5	3.2±4.8	1.5	3.2±3.4	1.7	.881
Direct bilirubin	2.0±2.1	1.0	2.3±3.8	1.0	2.2±2.4	1.1	.898
ABG-PH	7.4±.1	7.4	7.4±.1	7.4	7.4±.1	7.4	.131
PaCO2	31.4±8.7	33.1	27.0±6.4	26.1	36.9±3.2	36.2	.000
PaO2	76.6±21.4	78.0	73.2±21.8	71.5	70.5±18.0	67.5	.568
SaO2	89.2±23.8	97.0	90.1±19.4	94.5	83.2±29.2	94.0	.039
HCO3	23.7±1.1	24.0	18.0±3.0	18.6	27.3±1.0	27.8	.000
Base Excess	-.3±1.6	-.1	-6.2±3.5	-5.5	-.4±4.6	1.8	.000
Na+	130.6±5.4	131.0	132.1±8.5	135.0	133.2±8.9	132.5	.350
K+	3.6±.7	3.8	4.0±.9	4.0	3.9±.8	4.0	.086
Ca++	1.1±.9	1.0	1.0±.2	1.0	1.0±.2	1.0	.439
PT	15.8±4.7	15.4	16.6±5.0	15.3	17.9±8.5	15.0	.765
PC	71.2±22.3	69.5	67.1±27.7	60.0	65.2±33.6	66.3	.663
INR	1.4±.4	1.4	1.5±.4	1.4	1.7±.8	1.4	.898
S. Creatinine	1.1±.4	1.2	1.4±.6	1.2	1.0±.4	1.1	.174
BUN	36.9±14.8	35.0	39.3±16.4	37.0	37.9±12.4	32.5	.776
Blood glucose	122.1±27.1	120.0	119.4±40.1	103.0	132.8±44.0	131.0	.297
MELD Score	18.2±8.7	19.0	19.7±9.0	20.0	17.3±10.5	11.0	.722
MELD-Paco2-HCO3	21.7±9.3	25.0	24.1±6.9	23.0	24.5±9.4	23.0	.812
MELD-Bicarbonate	14.4±9.7	17.5	16.7±6.4	16.0	16.3±9.6	15.0	.823

pt: prothrombin time, pc:prothrombin concentration, INR:international normalized ratio, ALB: albumin, TP:totalprotein, WBCS:white blood cells, HB:hemoglobin, MCV: mean corpuscular volume

Table (4): Relation between admission serum sodium (Na) level with different categorical parameters.

Parameters		Admission serum sodium (Na) level classification			P value
		Patients with normal serum sodium (N=57)	Patients with mild hyponatremia (N=55)	Patients with moderated to severe hyponatremia (N=9)	
Gender	Male	(22) 38.6%	(25) 45.5%	(4) 44.4%	0.755
	Female	(35) 61.4%	(30) 54.5%	(5) 55.6%	
Age (years)		64.9±10.4	64.2±10.2	64.4±9.0	.909
Diabetes mellitus	Type I DM	(3) 3.5%	(0) 1.8%	(1) 0.0%	0.235
	Type II DM	(6) 10.5%	(15) 27.3%	(1) 22.2%	
	No	(49) 86.0%	(39) 70.9%	(7) 77.8%	
Hypertension		(14) 24.6%	(17) 30.9%	11.1%	0.416
Cause of liver cirrhosis	PBC	(2) 3.5%	(2) 3.6%	(0) 0.0%	0.974
	Autoimmune	(0) 0.0%	(2) 3.6%	(0) 0.0%	
	Bilharziasis	(15) 26.3%	(17) 30.9%	(3) 33.3%	
	HBV	(5) 8.8%	(5) 9.1%	(1) 11.1%	
	Others	(2) 3.5%	(1) 1.8%	(0) 0.0%	
	Post HCV	(30) 52.6%	(24) 43.6%	(5) 55.6%	
	Unknown	(3) 5.3%	(4) 7.3%	(0) 0.0%	
Child -pugh score	Class A	(4) 7.0%	(1) 1.8%	(0) 0.0%	0.019
	Class B	(26) 45.6%	(17) 30.9%	(0) 0.0%	
	Class C	(27) 47.4%	(36) 67.3%	(9) 100.0%	
Liver cirrhosis complications	AKI or H.R .S	(13) 22.8%	(17) 30.9%	(4) 44.4%	0.334
	Encephalopathy	(24) 42.1%	(31) 56.4%	(8) 88.9%	0.023
	GIT bleeding	(52) 52.6%	(19) 34.5%	(2) 22.2%	0.069
	Ascites	(27) 47.4%	(38) 69.1%	(5) 55.6%	0.066
	SBP	(5) 8.8%	(9) 16.4%	(0) 0.0%	0.241
ICU admission		(12) 21.1%	(16) 29.1%	(5) 55.6%	0.045
Hospital course	Improvement	(44) 77.2%	(41) 74.5%	(5) 55.6%	0.034
	Progression	(9) 15.8%	(14) 25.5%	(2) 22.2%	
	Stationary	(4) 7.0%	(1) 0.0%	(0) 22.2%	
Outcomes	Death	(13) 22.8%	(14) 25.5%	(4) 44.4%	0.038
	Discharge	(44) 77.2%	(41) 74.5%	(5) 55.6%	

X²: Pearson Chi-Square test Primary biliary cholangitis (PBC)

Table (5): Relation between admission serum sodium level (Na) with different numerical parameters.

Parameters	Admission serum sodium (Na) level classification						P-value
	Patients with normal serum sodium (N=57)		Patients with mild hyponatremia (N=55)		Patients with moderated to severe hyponatremia (N=9)		
	Mean ±SD	Median	Mean ±SD	Median	Mean ±SD	Median	
Vital signs							
Pulse	87.3±9.2	88.0	84.8±9.2	84.0	91.0±13.5	90.0	.307
Systolic BP	111.4±14.2	110.0	110.2±10.1	110.0	110.0±5.0	110.0	.738
Diastolic BP	69.6±9.1	70.0	69.0±5.4	70.0	70.0±5.0	70.0	.842
Temperature	36.9±.2	37.0	37.5±3.6	37.0	37.2±.4	37.0	.130
Respiratory rate	19.4±2.5	18.0	19.5±2.3	18.0	19.1±2.3	18.0	.827
Laboratory parameters							
WBCs	9.3±4.3	8.4	9.9±5.0	9.1	10.8±4.3	10.5	.590
Neutrophils	75.5±10.6	78.0	76.8±10.1	79.0	83.0±6.9	83.0	.161
Lymphocytes	14.2±7.0	13.9	13.8±6.7	13.0	11.3±3.6	10.0	.427
HB	9.9±1.9	9.8	10.0±2.0	10.0	10.9±2.1	10.7	.480
MCV	84.7±9.1	85.1	84.3±7.6	84.0	87.6±4.7	87.8	.328
PLT	158.5±64.1	152.0	186.8±131.1	159.0	180.2±80.8	178.0	.552
ALT	36.1±31.9	26.0	35.1±32.5	28.0	42.2±32.3	31.0	.583
AST	69.0±77.2	38.0	62.0±66.8	41.0	45.8±31.3	36.0	.874
TP	6.7±.8	7.0	6.7±.9	6.6	6.7±.5	6.8	.464
ALB	2.8±.6	2.9	2.6±.5	2.6	2.6±.6	2.6	.058
Total bilirubin	2.9±4.0	1.4	2.6±3.3	1.5	7.9±9.0	4.2	.052
Direct bilirubin	2.1±3.2	1.0	1.8±2.5	.9	6.0±7.2	3.2	.032
ABG-PH	7.4±.1	7.4	7.4±.1	7.4	7.3±.1	7.4	.174
Paco2	27.6±7.2	26.0	29.5±7.2	30.0	27.3±6.6	27.2	.292
PaO2	71.1±21.5	70.0	75.6±20.5	78.0	75.2±26.3	80.0	.428
SaO2	89.1±21.3	94.0	88.9±22.0	95.0	93.6±5.6	96.0	.806
HCO3	19.2±3.8	19.8	20.4±3.6	20.0	16.2±6.0	16.6	.018
Base Excess	-5.4-±3.8	-5.1-	-3.8-±3.7	-3.9-	-8.4-±7.0	-7.3-	.021
Na+	138.6±3.3	137.0	128.3±3.9	129.0	113.2±4.3	115.0	.000
K+	4.0±.7	3.9	3.9±.9	3.9	4.2±1.1	3.9	.812
Ca++	1.0±.2	1.0	1.0±.5	1.0	.9±.1	.9	.002
PT	15.6±4.5	14.8	17.5±6.2	15.4	17.5±2.3	18.0	.043
PC	72.1±26.7	66.3	64.7±28.6	60.0	56.2±19.7	54.8	.087
INR	1.4±.4	1.3	1.5±.5	1.4	1.7±.3	1.8	.043
S. Creatinine	1.2±.6	1.0	1.3±.6	1.2	1.5±.6	1.3	.095
BUN	35.9±13.7	35.0	41.0±16.5	40.0	44.9±21.6	42.0	.181
Blood glucose	113.7±33.3	102.0	129.2±43.3	120.0	115.6±35.5	103.0	.131
MELD Score	15.3±8.1	13.0	21.8±8.0	23.0	28.8±8.5	30.0	.000
MELD-paco2-hco3	22.2±7.1	23.0	24.9±7.6	26.0	27.4±6.7	24.0	.024
MELD-bicarbonate	14.9±6.9	15.0	17.2±7.5	18.0	19.9±5.3	17.0	.031