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Research Article

**A RESEARCH STUDY ON EFFECTS OF ANTI HEPATITIS C VIRUS
AND HBsAg ON α -FETOPROTEIN IN CLD ADDICTED PATIENTS:
EFFECT OF SERUM ALPHA FETOPROTEIN FOR IDENTIFICATION
OF HEPATOCELLULAR CARCINOMA**¹Dr. Ammara Tariq, ²Kiran Irshad, ³Dr. Anum Shafique¹Medical Officer Khalida Memorial Hospital Sialkot²Services Hospital Lahore³PMC Faisalabad**Abstract:**

Objective: Research was held to get knowledge about the effect of serum alpha fetoprotein for identification of Hepatocellular carcinoma.

Study Design: Case Control Study (CCS).

Place and Duration of Study: Current case control research study was accomplished in the period of 12 months from May 2016 to April 2017 at Gastroenterology and Hepatology Department of Services Hospital Shadman Road, Lahore.

Material and Methods: 170 CLD patients and 130 HCC cases were included in the research paper as sample calculated by the WHO recognized calculator. Calculated the positive predictive values (PPV), negative predictive values (NPV), Sensitivity, specificity, CLD status, gender, age, HBsAg and anti-HCV statuses of patients as it was a matched case control study. examined PPV and NPV for three (6%, 11% and 20%) HCC supplementary augmentations.

Results: The value of 21 ng / ml has a comparable specificity as 89.6% Vs 89.4% and sensitivity as 60% Vs 62% and 17 ng / ml was the utmost distinctive AFP level. Above 21 ng / ml must be examined for HCC patients. The tumor fell to 26.1% with a rate of 5% when positive predictive value (PPV) was 20ng/ml (85%). Negative predictive value (NPV) was at 70% and with rate of 5% augmented to 98.07%. With percentage rate of 5 percent NPV deviate from 58.90 percent to 72.90 percent. It was observed that PPV of HCC infected patients in different groups varied with a rate of 5% from 81 percent to 91 percent. With any HCC incidence PPV was 100% in any uninfected patient.

Conclusion: After examining AFP results it was found that the risk of cancer (HCC) rises in the majority of the patients infected by CLD that can be monitored through this test. Rise in AFP levels is the symptoms of HCC for uninfected people.

Keywords: Hepatocellular carcinoma (HCC), chronic liver disease (CLD), α -Fetoprotein (AFP)

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INTRODUCTION:

Specifically, in patients of chronic liver disease (CLD), Hepatocellular carcinoma (HCC) is very common cancer type in mankind. Early judgement on unknown tumor is very essential for efficient medical treatments. This can be done through proper analyses of α -fetoprotein (AFP) serum test and sequential courses of abdominal ultrasonography of those patients who are at high risk. It has been found through recent AFP analyses that the fucosylated AFP fractions significantly describe the rise in total PFA. In other words, another HCC marker known as des-gamma-carboxyprothrombin has a great sensitivity to malignancies that are higher to AFP alone in high HCC. That's why the AFP test is very important for diagnoses of cancer in high risk HCC patients. HCC seems to be less advantageous than HBsAg-negative in the widespread sections of AFP as many false positives are shown by HBsAg-negative. Higher AFP have more concern in the examination of HCC than HBsAg in patients of hepatitis C virus (HCV) limit of which has not been proven. Due to this, diagnostic precision in the examination of HCC, the status effect of virological on the AFP is generally unsteady.

In present case control study, best serum AFP cut-off value was calculated to separate non-HCC patients and evaluate whether toxicities temper the protection of PFA for HCV and HBV.

MATERIAL AND METHODS:

An effort was made in the conduct of this research which is case control research study (CCS). Present research paper was completed in the period of one year starting from May 2016 to April 2017 at Hepatology and Gastroenterology Department of Services Hospital, Lahore. 170 CLD patients and 130 HCC cases were included in the research paper as sample calculated by the WHO recognized calculator with the help of clinical data gathered consist of primary biliary cirrhosis, hepatocellular carcinoma (HCC), HBsAg retrospectively, hereditary diseases and ectopic liver levels. Criteria of special cases was as HCC patients who have antibodies against AFP and hepatic disease, primary sclerosing cholangitis and HCV. Found 210 patients fulfilling this criterion. 170 CLD patients having anti HBsAg

amongst which 35 were female and 135 were male undergone from EPC (cirrhosis / chronic hepatitis) within the past 6 years compared with the same 170 EPC controls. From these EPC controlled patients found the presence of HCC by HSK-developed ultrasonography. Cytologic HCC diagnosis was the base of histological studies. Patients who suffered from cirrhosis were 132 and analyzed by clinical and laboratory features, biopsy and portal hypertension, endoscopy and ultrasonography according to liver histology diagnosis of chronic hepatitis. Commercially available kits were used to check albumin function, prothrombin activity (PT), alkaline phosphatase, g-glutamyl transpeptidase and serum bilirubin.

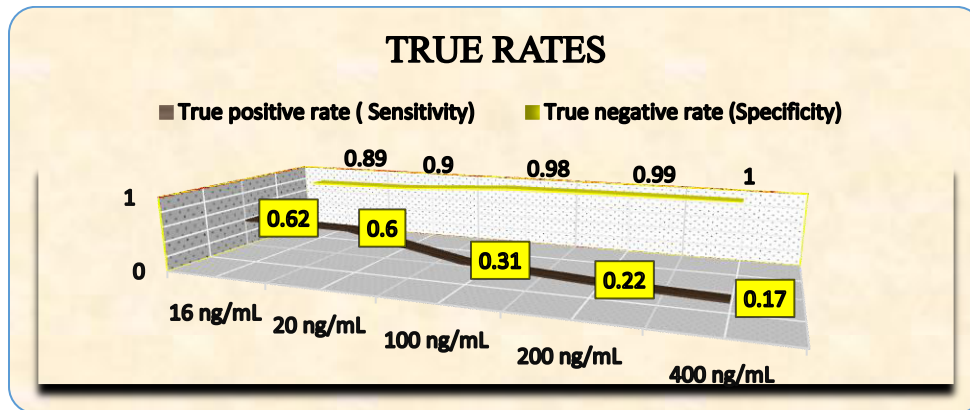
The study presented the ROC characteristic curve of distinguishing values as $100 \text{ ng / mL} \pm \text{HCC}^2$, $100 \text{ ng/mL} \pm \text{HCC}^2$, $100 \text{ ng / mL} \pm \text{HCC}^2$ for suggested value as 21 ng/mL . According to Child \pm Pugh classification judged the gravity of liver cirrhosis. Compared the previous data with massif, diffuse (non-specific tumor mass with an unspecified border), HCC, multinodular and solitary. According to the imaging method of 64 patients undergoing angiography defined the presence of vena cava or portal vein thrombosis

RESULTS:

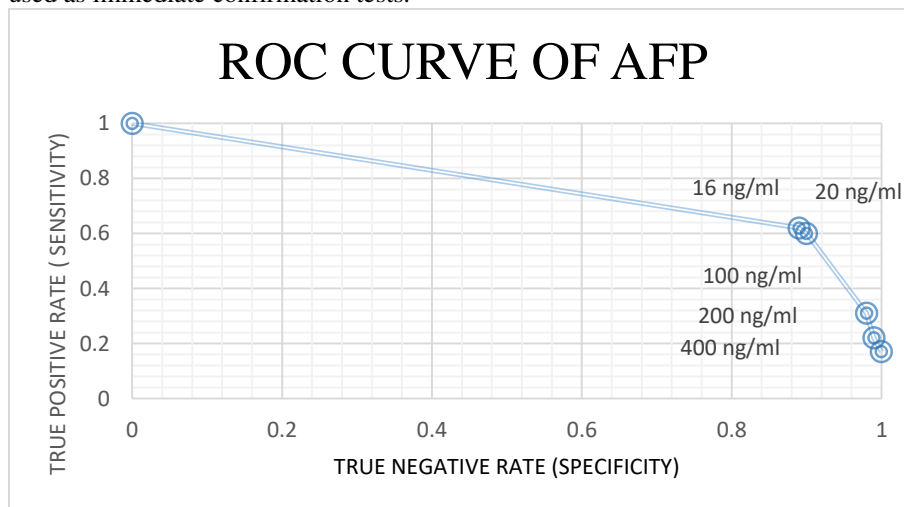
Found the availability of information of pneumonia or portal thrombosis in 149 HCC infected patients. Occurrence of thrombosis was found in 19 patients having multinodular or diffuse HCC. Six patients were found addict of metastasis. 17 patients were anti HCV2 and anti HCV1. 27 HCC patients were anti HCV1/HBsAg2, HBsAg1 and HCV/HBsAg. 128 patients from control groups were informed about alcohol consumption. Consumption of alcohol was reported in 128 patients of control group. 38 control patients (29.7%) and 48 patients HCC (30.6%) for at least 5 years, drunk alcohol at the frequency of 80 g/day. There were 13 patients of HCC liver cirrhosis and 12 HBsAg2 / anti-HCV2 (seronegative controls) who absorbed more alcohol. Child-Pugh score was existing in 151 patients of HCC and 154 patients of control group. Positive and negative true rates are displayed below in the table.

Table No 1: Sensitivity and specificity rates

AFP Values	16 ng/mL	20 ng/mL	100 ng/MI	200 ng/mL	400 ng/mL
True positive rate (Sensitivity)	0.62	0.60	0.31	0.22	0.17
True negative rate (Specificity)	0.89	0.90	0.98	0.99	1.00



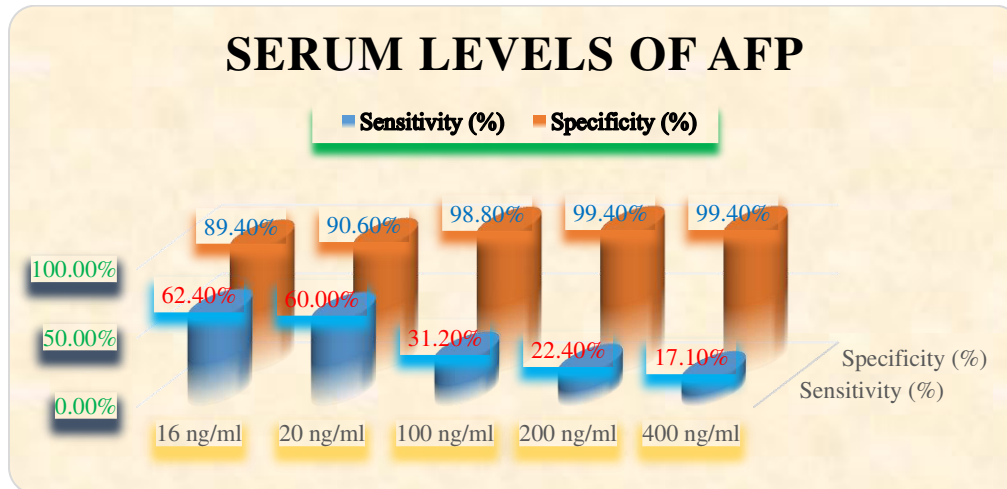
Proposed values of 21 ng / mL values, 400, 200, 100 ng / mL \pm HCC ² are gathered by the ROC characteristic curve study, correspondingly, for distinctive values. In the ubiquity of solid focal liver lesions, the last two values are known as HCC used as immediate confirmation tests.



The specificity and the sensitivity of 20 ng/ml were approximately same but best discriminant value was 16 ng/ml. That is why, for analyses of subsections of patients 20 ng/mL was considered the best cut off point. Results are shown in table below.

Table No 2: Serum levels of AFP with percentages of Specificity and Sensibility

AFP cut off (ng/ml)	Sensitivity (%)	Specificity (%)
16 ng/ml	62.4 %	89.4 %
20 ng/ml	60.0 %	90.6 %
100 ng/ml	31.2 %	98.8 %
200 ng/ml	22.4 %	99.4 %
400 ng/ml	17.1 %	99.4 %



HCC turned out to be the three more ubiquity in the 50% patients of PPV amongst the total selected patients through AFP reports. 25.1% was an amazing effect on VPP for the cutoff value of 20 ng/ml which is very usual assessment amongst tumor demolition. Exact triple of HCC patients were monitored by using the image of 200 ng/ml which is lower than the good frequency of VPP. Every cut-off value touches a good NPV (90%) when prevalence of HCC was set to 10% as displayed in the table below.

Table No 3: PPV and NPV for the diagnosis of HCC of 4 serum levels of AFP

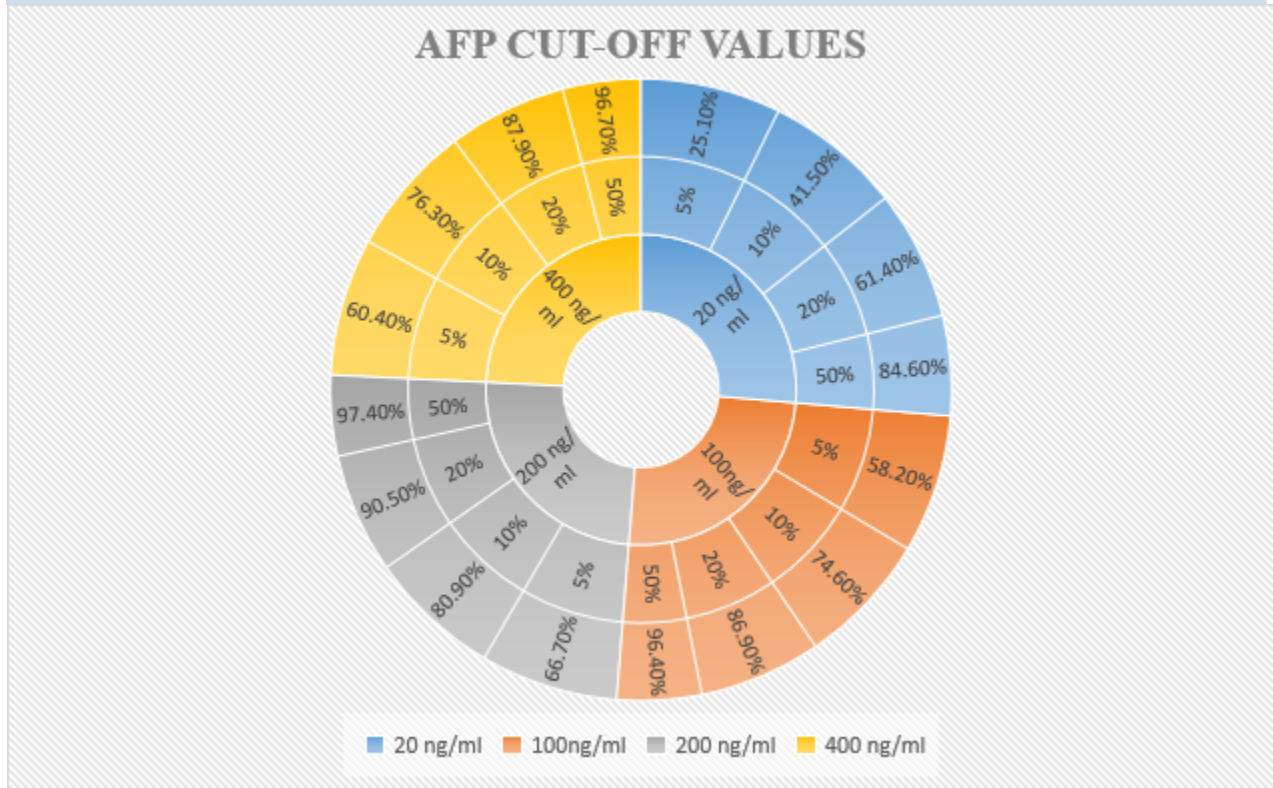
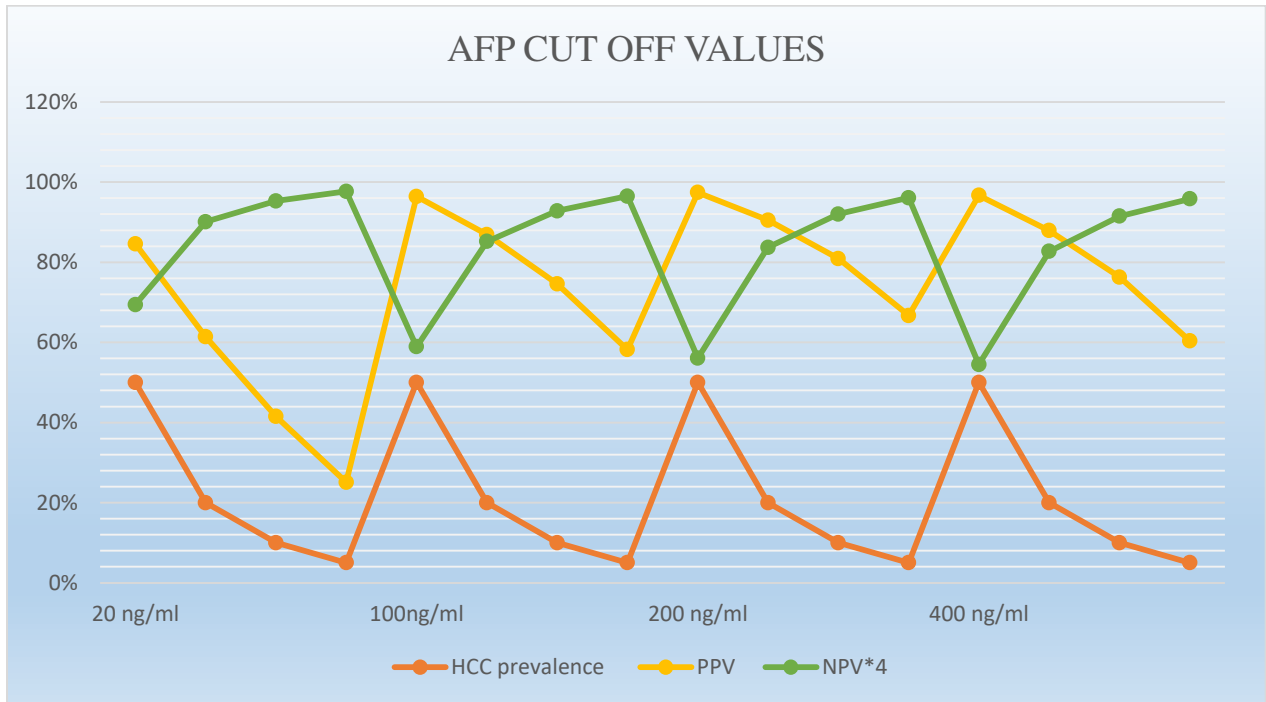
AFP*1 cut off value	HCC*2 prevalence	PPV*3	NPV*4
20 ng/ml	50 %	84.6 %	69.4 %
	20 %	61.4 %	90.1 %
	10 %	41.5 %	95.3 %
	05 %	25.1%	97.7 %
100ng/ml	50 %	96.4%	58.9 %
	20 %	86.9 %	85.2 %
	10 %	74.6 %	92.8 %
	05 %	58.2 %	96.5 %
200 ng/ml	50 %	97.4 %	56.1 %
	20 %	90.5 %	83.7 %
	10 %	80.9 %	92.0 %
	05 %	66.7 %	96.1 %
400 ng/ml	50 %	96.7 %	54.5 %
	20 %	87.9 %	82.7 %
	10 %	76.3 %	91.5 %
	05 %	60.4 %	95.8 %

* AFP = α -Fetoprotein

** HCC = Hepatocellular Carcinoma

*** PPV = Positive Predictive Value

**** NPV = Negative Predictive Value



In separate cancer prevalence examined the NPV and PPV of AFP (20mg/ml). with a reduction in cancer prevalence PPV dramatically reduced in 3 groups of patients with virological status. Results are shown in table below.

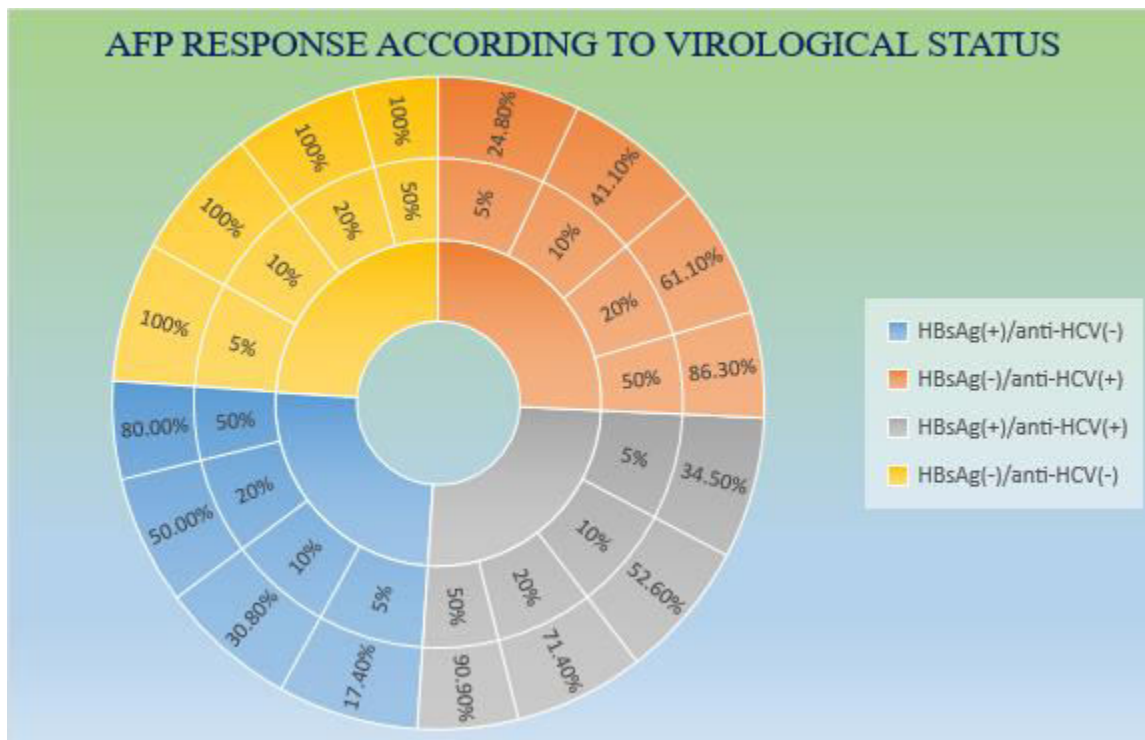
Table No 4: According to virological status of patients, PPV and NPV of serum AFP

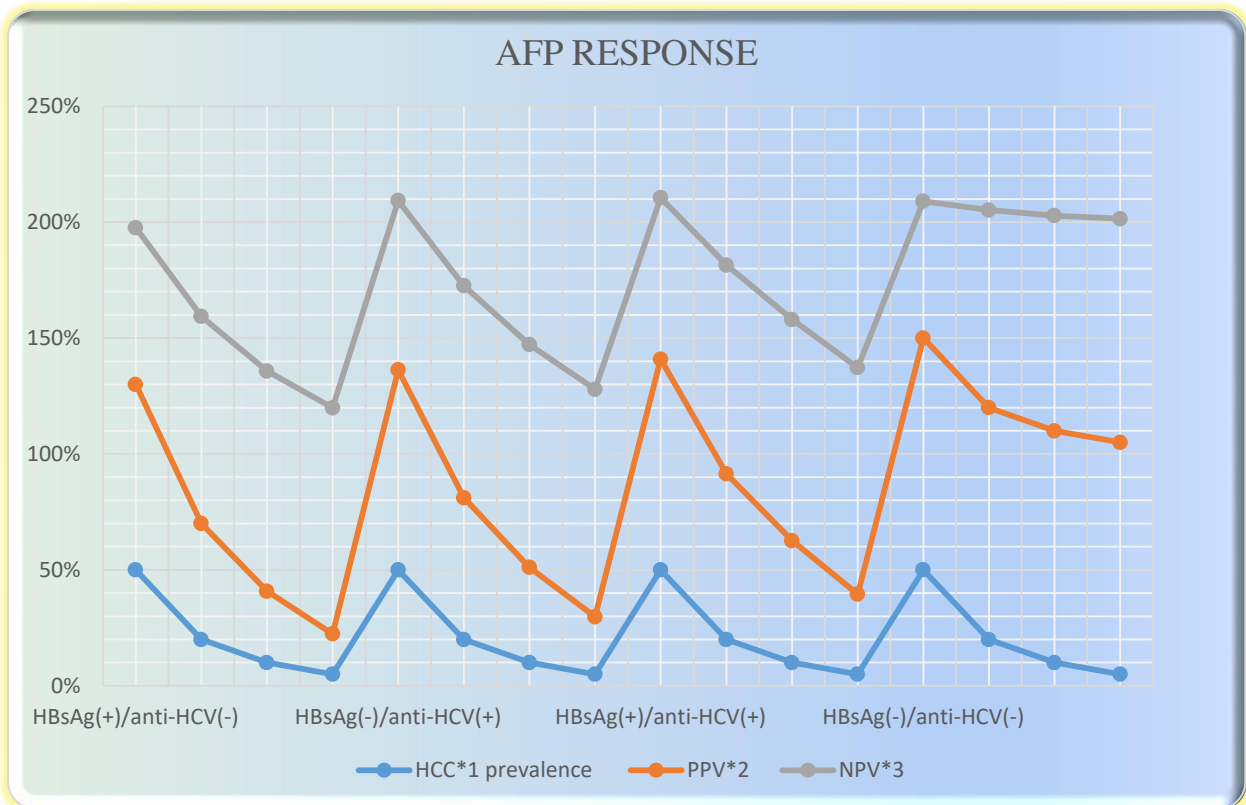
Patients type	HCC*1 prevalence	PPV*2	NPV*3
HBsAg(+)/anti-HCV(-)	50 %	80.0 %	67.6 %
	20 %	50.0 %	89.3 %
	10 %	30.8 %	95.0 %
	05 %	17.4 %	97.5 %
HBsAg(-)/anti-HCV(+)	50 %	86.3 %	73.0 %
	20 %	61.1 %	91.5 %
	10 %	41.1 %	96.1 %
	05 %	24.8 %	98.1 %
HBsAg(+)/anti-HCV(+)	50 %	90.9 %	69.6 %
	20 %	71.4 %	90.1 %
	10 %	52.6 %	95.4 %
	05 %	34.5 %	97.7 %
HBsAg(-)/anti-HCV(-)	50 %	100 %	59.0 %
	20 %	100 %	85.2 %
	10 %	100 %	92.8 %
	05 %	100 %	96.5 %

* HCC = Hepatocellular Carcinoma

** PPV = Positive Predictive Value

*** NPV = Negative Predictive Value





DISCUSSION:

AFP is very generally used for diagnosis of HCC. Here in Pakistan, preciseness shown by AFP is 82.00 percent and before this, to find HCC amongst the CLD patients 16ng/ml was considered as the cutoff point as described in the past studies. According to our findings of this study, for scrutinizing of HCC in CLD patients 20ng/ml is the utmost recommended cutoff value for AFP as specificity and sensitivity are same at this prescribed value. Predictive values play a vital role in medical examination of susceptibility and also specificity so extra consideration should be diverted towards these values. Results of this study show that outcomes of alpha fetoprotein values are not adequate in NPV patients. As the predictive value was unsympathetically influenced by the prevalence of the CLD, it was noticed that as per preset level of 50% prevalence the result of HCC prevalence was higher. Because of this, during the study for medical treatment expected values of tumor cycles were calculated. The type of biological disease did not significantly disturb the predictive value of HCC prevalence, PPV is very small to be accepted in all addicted patients. However, educed sensitivity of AFP unluckily weakened the advantage of clinical estimate of high NPV. With abnormal AFP the probability of HCC of a patient which means that the unacceptably low PPV is another problem for this

point of AFP results that it minimizes to 25% of the smallest prevalence of tumor. This amount is same as stated in the previous studies about cirrhotic patients with cutoff value of 15ng/ml.

CONCLUSION:

It was found in current study that disease kind have no effects on the statistics of AFP amongst CLD patients. Substantially, through the observation from AFP, anxiety of patients and extra medical costs can be avoided and in a large number of patients not affected by any type of tumor malignancy, complaints can be reduced for identification of disease. AFP might be the best source of identification of HCC between infected and uninfected patients.

REFERENCES:

1. Mazzaferro V, Droz dit Busset M, Bhoori S. Alpha Fetoprotein (AFP) in liver transplantation for HCC, the lower, the better. *Hepatology*. 2018 Feb 09.
2. Saad Y, Awad A, Alakel W, Doss W, Awad T, Mabrouk M. Data mining of routine laboratory tests can predict liver disease progression in Egyptian diabetic patients with hepatitis C virus (G4) infection: a cohort study of 71 806 patients. *European journal of gastroenterology &*

- hepatology, 2018 Feb 01, 30(2):201-6.
3. Nishioka ST, Sato MM, Wong LL, Tiirikainen M, Kwee SA. Clinical and molecular sub-classification of hepatocellular carcinoma relative to alpha-fetoprotein level in an Asia-Pacific island cohort.
 4. Akuta N, Toyota J, Karino Y, Ikeda F, Ido A, Tanaka K, Takaguchi K, Naganuma A, Tomita E, Chayama K, Fujiyama S. Potent viral suppression and improvements in alpha-fetoprotein and measures of fibrosis in Japanese patients receiving a daclatasvir/asunaprevir/beclabuvir fixed-dose combination for the treatment of HCV genotype-1 infection. *Journal of gastroenterology*. 2018 Mar 02 :1-9.
 5. Yeh ML, Huang CI, Huang CF, Hsieh MH, Hsieh MY, Lin ZY, Chen SC, Huang JF, Kuo PL, Kuo HT, Dai CY. Post-treatment alpha fetoprotein and platelets predict hepatocellular carcinoma development in dual-infected hepatitis B and C patients after eradication of hepatitis C. *On co-target*. 2018 Feb 23, 9(15):12240.
 6. Kawaguchi T, Ide T, Koga H, Kondo R, Miyajima I, Arinaga-Hino T, Kuwahara R, Amano K, Niizeki T, Nakano M, Kuromatsu R. Rapidly growing hepatocellular carcinoma after direct-acting antiviral treatment of chronic hepatitis C. *Clinical journal of gastroenterology*. 2018 Feb 01, 11(1):69-74.
 7. Tzartzeva K, Obi J, Rich NE, Parikh ND, Marrero JA, Yopp A, Waljee A, Singal AG. Surveillance Imaging and Alpha Fetoprotein for Early Detection of Hepatocellular Carcinoma in Patients with Cirrhosis: A Meta-analysis. *Gastroenterology*. 2018 Feb 06.
 8. Yu, S.J., Kwon, J.H., Kim, W., Yoon, J.H., Lee, J.M., Lee, J.Y., Cho, E.J., Lee, J.H., Kim, H.Y., Jung, Y.J. and Kim, Y.J., 2018. Initial Alpha-Fetoprotein Response Predicts Prognosis in Hepatitis B-related Solitary HCC Patients After Radiofrequency Ablation. *Journal of clinical gastroenterology*, 52(3), pp-e18-e26.
 9. Lee, S.S. and Sherman, M., 2018. Alpha-fetoprotein: why won't it go gentle into the good night?
 10. Kawano A, Shigematsu H, Miki K, Ichiki Y, Morita C, Yanagita K, Takahashi K, Dohmen K, Nomura H, Ishibashi H, Shimoda S. Diabetes Mellitus Prevents an Improvement in the Serum Albumin Level During Interferon-free Sofosbuvir-based Therapy for Chronic Hepatitis C Patients: A Multi-Institutional Joint Study. *Internal Medicine*. 2018 Jan 11:9857-17.
 11. Gamil M, Alborai M, El Sayed M, Elsharkawy A, Asem N, -Elbaz T, Mohey M, Abbas B, Mehrez M, Esmat G. Novel scores combining AFP with non-invasive markers for prediction of liver fibrosis in chronic hepatitis C patients. *Journal of medical virology*. 2018 Jan 06.