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A CROSS-SECTIONAL RESEARCH ON ASSOCIATION BETWEEN HCV INFECTED HEPATOCELLULAR CARCINOMA TO ELEVATED LEVELS OF SERUM A-FETOPROTEIN FOR THE DIAGNOSIS OF DEATH FREQUENCY

[*1]Dr. Yusra Ejazz, [2]Dr. Javeria Nasim, [3]Dr.Madeeha Javed
[1]B-87825-P, RHC, Habib Abad Kasur
2MBBS, Punjab Medical College Faisalabad
3THQ Hospital Hasilpur

Abstract:
Objectives: *Research was aimed at the death frequency determination in HCV infected patients with hepatocellular carcinoma related to the elevated levels of alpha-fetoprotein serum.*
Methods: *Our research was cross-sectional by design and it was carried out in Isra University, Hospital, Hyderabad in the time span of Mar, 2013 to Apr, 2014. All diagnosed cases of HCV and hepatocellular carcinoma were compared. The age of the patients for comparison was selected as above thirty years. Samples of the blood were taken to carry the levels of serum Alfa-fetoprotein measurement. We entered and analyzed the data in SPSS – 19.*
Results: *In the total sample of 165 cases the mean age was calculated as (55.49 ± 11.67) years. Mean size of the tumor was observed as (5.63 ± 2.14) cm. In total research population 31 cases (18.8%) were observed with a size of the tumor below three centimeters, 65 cases (39.4%) had the tumor size in the range of 3 – 5 cm and 69 cases (41.8%) were observed with the size of the tumor as above 5 cm. Levels of mean Alfa-fetoprotein serum was observed as (7641.0 ± 3665.32 IU/ml). Our research also observed an overall rate of mortality as 70 cases (41.9%). Mortality was significantly associated with the above 5 cm tumor size with a significant p-value of (0.016).*
Conclusion: *Levels of Alfa-fetoprotein serum are considered as vital tool to detect hepatocellular carcinoma in the HCV patients.*
Keywords: *Hepatitis C virus (HCV), Alpha-fetoprotein levels and Hepatocellular carcinoma.*

Corresponding author:
Dr. Yusra Ejazz,
B-87825-P, RHC,
Habib Abad Kasur

QR code

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INTRODUCTION:

An early predictor for the indication of co-fetal marker is considered as the level of Alpha-fetoprotein (AFP) serum. In the early part of the life, a large AFP amount in produced in the liver of the fetal. The production of AFP stops just after birth. AFP synthesis can be seen in the hepatocellular carcinomas and hepatoblastomas; so, clinical field utilizes it excessively for the HCV prognostic marker associated to the hepatocellular carcinomas [1]. HCV burden and associated complications are increasing over the world. According to the estimates of the WHO its prevalence is three percent as observed back in 1999 as it affected a total of 170 million souls through HCV infection [2]. Hepatocellular or Malignant Hepatoma can cause liver primary malignancy, it also graded in the 3rd largest cause related to the cancer in the world. Estimates also reveal that developing countries report the incidence of HCV and its related complications about eighty percent specifically in Asia [3]. HCV has a close relation in the development and progression of the HCC, which is predominant in the case of cirrhosis. This fact increases the importance of the routine assessment and examination of the levels of AFP for the assessment of the patient's prognosis in the incidence of HCV associated with the HCC [4]. We conducted this research in a planned way for the death frequency examination caused by the enhanced level of AFP serum in HCV patients.

PATIENTS AND METHODS:

The research was by design prospective and cross-sectional and it was held in the Gastroenterology Department of Isra University Hospital, Hyderabad. Research was completed in the time span of one year starting from Mar, 2013 to Apr, 2014. Research included all HCV – HCC patients above the age of thirty years, all the participants were informed about the protocols of the research and they volunteered themselves for the research. All those patients having any hepatic failure, infection of HCC, excluding the infection of HCV, renal disease of end-stage, all those who lost follow-up and unwilling cases were excluded from the research paper. Information was gathered through well-structured questionnaire with the data of serum measurement, demography, level of AFP serum, follow-up at the interval of six weeks and outcomes through phone call. For the serum AFP measurement blood samples was taken of all the OPD visitors or in the case of hospital admissions during research. SPSS – 16 was used for the data analysis and entry. Percentage and frequency was calculated for the qualitative variables such as mortality rate, gender, educational status and economic status. Other numeric variables including serum level, age, serum AFP level and size of the tumor were shown in the form of mean ± SD. A statistical significant p-value was taken as (0.5).

RESULTS:

In the total sample population of 165 patients, male to female ratio was respectively 145 males (86.8%) and 20 females (12.2%). Males dominated female in the research by number. An overall mean age of the 165 patients was observed as (55.49 ± 11.67) years. HCV mean duration was observed as (28.17 ± 14.23) years. The mean HCC was observed as (10.54 ± 8.33) years. The patients were observed with a mean tumor size as (5.63 ± 2.14) centimeter. In the total 31 patients (18.8%) the size of the tumor was observed less than three centimeters, 65 patients (39.4%) were observed with a tumor size in the range of 3 – 5 cm; whereas, remaining 69 patients (41.8%) were observed with a tumor size of above five centimeters. Level of mean AFP serum was observed as (7641.0 ± 3665.32 IU/ml) as reflected in Table – I. An overall mortality rate in the research sample was observed as 70 patients (41.9%) at the interval of 6 weeks follow-up. Tumor size above five centimeters had a significant association with the mortality of the patients. The statistical significant p-value was taken as (0.016).

Table – I: Demographical Features

Variables		N = 165	
		Mean ± SD	
Age – Years		55.49 ± 11.67	
HCV Duration		28.17 ± 14.23	
HCC Duration		10.54 ± 8.33	
Serum AFP – IU/ML		7641 ± 3665.32	
Tumor Size – cm		5.63 ± 2.14	
Demographics		**Number**	**Percent**
Gender	Male	145	86.8
	Female	20	12.2
Education Status	No Schooling	32	19.4
	Primary	47	28.5
	Secondary	55	33.3
	Graduation	31	18.8
Socioeconomic Status	Lower	20	12.1
	Middle	95	57.6
	Upper	50	30.3

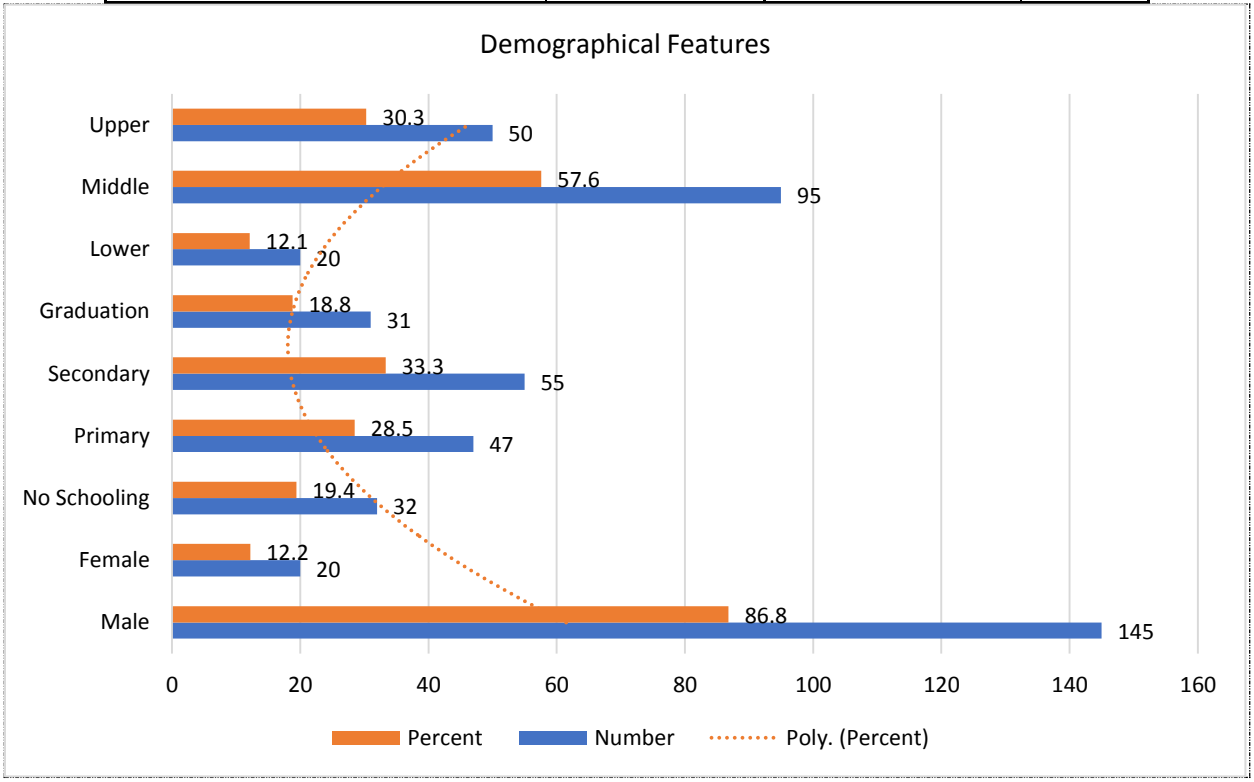


Table-II: Mortality rate in patients of HCV (Hepatitis C Virus) – HCC (Hepatocellular Carcinoma)

Detail	Number	Percentage
Died	70	14.9
Survived	95	54.57

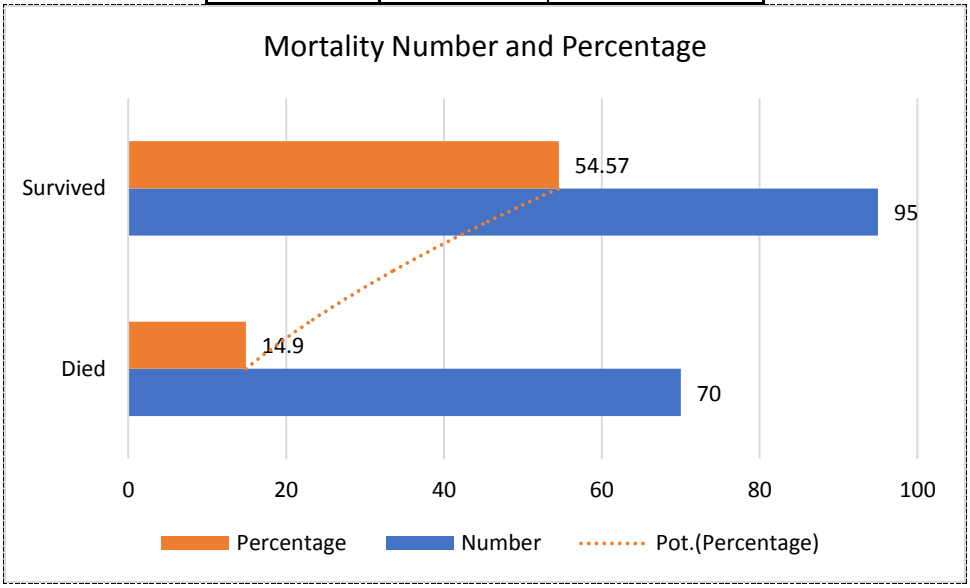
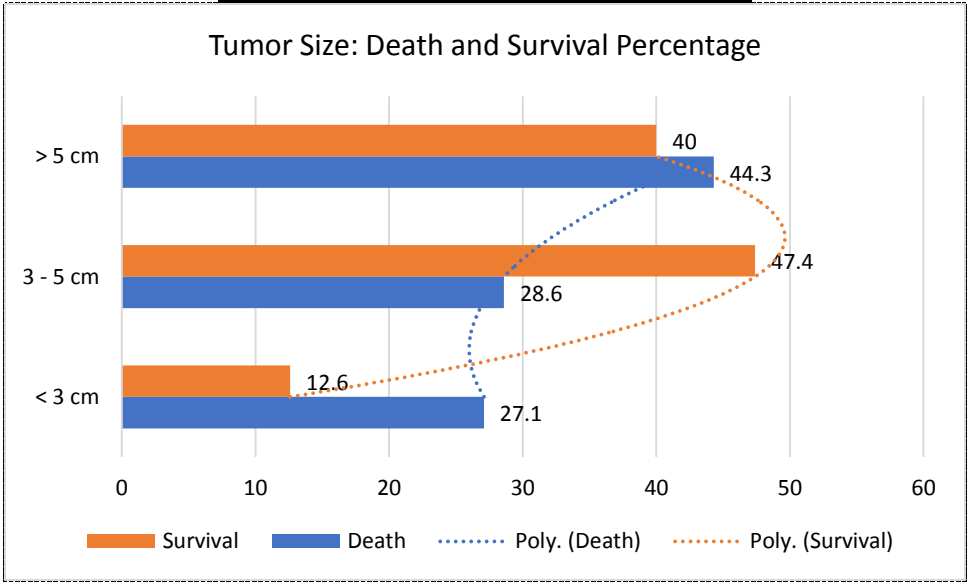


Table-III: Association of tumor size with mortality rate

Tumor Size	Death	Survival
< 3 cm	27.1	12.6
3 – 5 cm	28.6	47.4
> 5 cm	44.3	40



DISCUSSION:

Developing and under-developed countries even in this advanced era of medical ventures faces the prevalence of HCC and related mortality rate at the highest specially related to the liver carcinoma causing deaths worldwide. The HCC etiology in the world varies accordingly; The most repeated cause of the HBV in the setting of Pakistan is HCC. It is revealed through clinical investigations that there is an association between the levels of AFP and HCC development and progression. HCV infected cases also need very close observation and monitoring about the disease development and progression with the evaluation and assessment of the regular levels of serum AFP. The association of the increased AFP serum in the HCV patients is closely linked with the HCC development, this fact has been observed by many authors and documented in numerous research studies [5, 6]. We observed in our research, HCV – HCC in the majority of patients is linked with the level of AFP measures as (> 400 IU/ml). Another local held research also favors this argument [7]. A research conducted in the northern part of the India observed a raised value of AFP serum as (65%) in the cases of HCC; the highest level recorded in the research was observed as (580 mg/ml) [9]; whereas, in the southern part of India the increased level of AFP serum was observed as (47.4%) cases [10]. There is a well-established relation of these outcomes with our research. The outcomes of our research establish that mean size of the tumor was (5.63 ± 2.14) cm; whereas the mean level of serum AFP was observed as (7641.0 ± 3665.32 IU/ml), which is similar to the previous research outcomes [1, 10]. Our research shows an overall rate of mortality as (41.9%); whereas, another author has reported the mortality rate as (18.7%), which is much low in comparison to our research; variation can be attributed to the prevalent lifestyle, education status, socio-economic status and hospital facilities. Another possible relation may be associated to the awareness and knowledge level of the participants about the disease. We also noticed that mortality rate was linked with the larger tumor size specially in the case of a size above five centimeters. A significant p-value was considered as 0.016. These outcomes are related and same as observed by another local author [1].

CONCLUSION:

Levels of Alfa-fetoprotein serum are considered as vital tool to detect hepatocellular carcinoma in the HCV patients. There was a visible relation of the mortality with the size of the tumor specially in the case of above five centimeters tumor size.

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