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HCV;
PREVALENCE IN THE POPULATION OF DISTRICT MULTAN PAKISTAN

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ABSTRACT… Objective: To find out the risk factors associated with HCV disease and evaluate the association of risk factors of HCV disease patient's in the population of Multan District. **Study Design:** Experimental study. **Setting:** Nishter Hospital of Multan District. **Period:** 1st January 2011 to 1st April 2012. **Methods:** 540 patients with ages 11 to 90 years old of both sexes were included in this study. All those who were surviving with HCV disease were studied with their associated risk factors such as age, family history; barber/parlor services, blood group types, drug use and weight loss were collected. For the data analysis, descriptive and Chi-square analysis are used to determine the association between risk factors and HCV. **Results:** Results shows that out of 540 patients surviving with HCV, out of which 48% are female and 52% are males. The mean age for male and female was 37 ± 12.62 and 34 ± 11.22 respectively. Results showing that blood groups types and age of the patients were significantly related to the HCV survival status at 5% level of significance. The study shows that HCV patients with blood group "O' patients are maximum as compared to other groups. **Conclusion:** HCV is more common in males as compare to female. Persons who are above 30 years old were more affected with HCV disease. Age and blood group types are the most significant factors in the patients who are surviving with HCV disease.

Key words: Blood Groups, HCV, HCV Survival, HCV Factors, Odds Ratio

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INTRODUCTION

HCV affect the 200 million people in world and estimated prevalence is 2.2%.[1] They also reported that Egypt is the highest ranked in the world for the prevalence of HCV. Pakistan is also one of the highest HCV burden country in the world and can cause the mortality due to failure and hepatocellular carcinomas.[2] According to Waheed et al.[3] there are approximately more than 10 million people are living with HCV in Pakistan. In general 90% of Pakistanis are unaware of the HCV disease.[4] Various researches have been conducted in the world and in Pakistan regarding HCV and associated risk factors. In developed countries the factors associated with the transmission of HCV are intravenous drug use, haemodialysis, blood transfusion, needle-stick injuries, tattooing, prenatal infections, tattooing, and sexual intercourse. While in developing countries the use of therapeutic injections from reused needles and improper sterilization of medical equipment's are the main source of blood transfusion disease [5]. Alcohol and drug users, blood donors, and the persons who transplant with an organ are also the source of this virus.[6] The persons who have a direct exposure to the blood are at high risk of HCV infection. Medical health workers, having a sex with a partner who had a family history of HCV, having a sex with multiple partners, low living standard, dental services, surgeries, ear piercing, and barber and parlor services are also the main source for the HCV disease.[7] In Pakistan, HCV researches have been conducted in various cities while different cities have different population behaviours and abilities to face diseases.[2] Jafri et al.[8] study the hepatitis B and C virus with associated risk factors among children in Karachi Pakistan. They find that therapeutic injections, use of new needle & and syringe, place vaccinated, father education, mother education and Ethnic Origin are the risk factors of children hepatitis B and C virus. Ghias and Pervaize[9] study the risk factors of HCV in Lahore Pakistan and conclude that age

of patient, history of blood transfusion, history of hospitalization, history of tattooing, family history of hepatitis and patient with history of operation is the significant factors of HCV. Ghias et al.[10] has also study HCV risk factors in comparison of rural and urban areas of Lahore city. They conclude that different risk factors are observed in rural and urban areas. Gorar et al.[11] study the risk factors of hepatitis B and C virus in Jamshoro district, Pakistan and find that health care worker is an additional risk factor of these viruses. In literature, we observed that the only study is conducted by Mahmood et al.[12] in Multan Pakistan concerning hepatitis B, C and HIV related to blood donors. No research have been conducted yet for the HCV factors i.e. blood groups, gender, use of parlour/ barber, use of drug, weight loss and weight loss in Multan. So this urges us to study HCV in Multan with such factors and determine the significant effect of these factors on the survival status of HCV.

METHODOLOGY

The experimental study of 540 patients with ages 11 to 90 years old of both sexes of our research study were collected from Nishter hospital Multan. Only the patients belonging to the district Multan of both sexes (male, female) were considered in this study based on the time period from 1st January 2011 to 1st April 2012. The data were collected for the analysis to determine the risk factors associated with HCV disease of male and female.

The data were analyzed by using the Statgraphics software. Descriptive statistical analysis, which includes mean, percentage, and frequencies are performed on the data. Odds Ratios and Chi-squared test are applied to check the association between the risk factors and the patient survival status with HCV disease. For p-value the significance level was set at 0.05 to check the significance, association between the risk factors and survival status of patients under HCV. And also a comparison of HCV by each risk factor and by survival status is interpreted with the help of odds ratios.

RESULTS

A total of 540 patients surviving with HCV, were studied from the general population of the district Multan which includes a 52% of male and 48% of female. The age of the studied patients with HCV ranges between 11 to 90 years old with a mean age of 35 years. Mean age of the male patients were 37 ± 12.62 while for female patients were 34 ± 11.22 as shown in table-I. From the table-I, the results show that male patients have a mean age greater than that of the female patients. It was also concluded by other studies conducted in Pakistan that male population have at high risk of suffering from HCV disease as compared to female [13]. The high percentage HCV in male is due to the contact with those risk factors that are the main cause of this disease.

Gender	Frequency	Proportion of Patients	Mean Age Mean ± SD
Male	281	52%	37 ± 12.62
Female	259	48%	34 ± 11.22
Total	540		

Table-I. Descriptive Analysis of HCV Patients by Gender

Age group wise distribution of patient surviving with HCV from the general population of district Multan under different risk factors such as barber/parlor, gender, blood group types, family history, drug use and weight loss was studied in table-II. The patient surviving with HCV by age was divided into the seven age groups. The study shows that older persons of the district Multan belong to the age group 61-70 years have less frequency of suffering with HCV disease with survival status. The reason behind is that they have less exposure to the risk factors such as drug use, dealing with the blood products etc. that causes the happening of HCV disease. The percentage of HCV was found just 1.11% in this age group. The highest frequency of patients surviving with HCV was noticed in the middle age group 31-40 in which the percentage is 33.70%. The reason of this high percentage of HCV in this age group is exposure to the risk factors that cause this disease.

Factors	Levels	Survival Status		Odds	Chi-square	P-value
		Yes Total (%)	No Total (%)	Ratio		
Gender	Over All	92 (17.04)	448 (82.96)		0.314	0.575
	Male	51 (9.44)	234(43.33)	1.138		
	Female	41 (7.59)	214 (39.63)			
	Over All	92 (17.04)	448 (82.96)		56.983	0.000*
Age Groups	11-20	7(1.30)	23(4.26)	1.998		
	21-30	23(4.26)	151(27.96)	2.773		
	31-40	18(3.33)	164(30.37)	1.329		
	41-50	19(3.52)	83(15.37)	0.558		
	51-60	12(2.22)	22(4.07)	0.061		
	61-70	5(0.93)	1(0.19)	0.152		
	Above 70	8(1.48)	4(0.74)			
	Over All	92 (17.04)	448 (82.96)		26.561	0.000*
Blood Groups	A-	15(2.78)	36(6.67)	3.102		
	A+	9(1.67)	67(12.41)	1.611		
	AB+	15(2.78)	58(10.74)	3.333		
	B-	5(0.93)	40(7.41)	2.292		
	O-	6(1.11)	33(6.11)	3.833		
	O+	15(2.78)	138(25.56)	6.667		
	AB-	1(0.19)	16(2.96)	0.962		
	B+	26(4.81)	60(11.11)			
	Over All	92 (17.04)	448 (82.96)		0.787	0.375
Family History	Yes	29(5.37)	163(30.19)	0.805		
	No	63(11.67)	285(52.78)			
	Over All	92 (17.04)	448 (82.96)		3.458	0.063
Weight Loss	Yes	73(13.52)	389(72.04)	0.583		
	No	19(3.52)	59(10.93)			
	Over All	92 (17)	448 (83)		1.349	0.245
Drug Use	Yes	34(6.30)	195(36.11)	0.761		
	No	58(10.74)	253(46.85)			
	Over All	92 (17.04)	448 (82.96)		0.357	0.550
Barber/Parlor Use	Yes	91(16.85)	439(81.30)	1.866		
	No	1(0.19)	9(1.67)			

Table-II. Association of the Risk Factors Survival Status with HCV Disease.

** Significant at 0.05 level of significance*

Patients belong to the age group 21-30 have a second highest frequency suffering from this disease and the percentage was 32.22% in this age group. Patients belong to the age group 41-50 have a percentage 18.89%. The percentage of HCV disease in the age group 51-60, 61-70, and above 71 years is 6.30%, 1.11%, and 2.22% respectively. The affect of different associated risk factors of HCV disease on the survival status are also shown in the table 2. A result shows that out of 285 (52.78%) male and 255 (47.22%) females patients from district Multan who suffering with HCV. Chi-square test (p-value=0.575) indicated that there is no significant effect of Gender on survival status of HCV patients. While odds ratio indicated that 1.138 times males are more likely to survive as female with HCV. When we study the effect of age on the HCV survival status, we have

found by the chi-square test (P-value=0.000) significant effect has shown as in table 2. On comparing age groups survival status with "11-20" as other groups, we have observed that age groups "21-30", "31-40", "41-50" having survival more as age group "11-20" because odds ratio in these age groups are greater than one. While other age groups has less survival as age group "11-20" because their odds ratios are smaller than one. Various kind of disease shows some kind of association with ABO blood groups types [14]. Hepatitis C Virus has some association with ABO blood groups and their rhesus factors[15]. However no any kind of study conducted from district Multan to check out the association of ABO blood group types in those patients who have HCV disease. The present study was conducted to find out the association if any, between blood groups and the survival status with HCV patients of district Multan. On seeing the effect of blood groups on the survival status of HCV patient, significant effect was seen (p-value=0.000). We also found that mostly HCV patients are related to blood group O (O+ or O-). By using odds ratio for comparison purposes, we have found that HCV patients with blood groups A+, AB+, B-, O-, O+ and AB- having more survival as compared to blood group A- survival. While HCV patients with blood group B+ has less survival as blood group A- patient's survival. From the above results it was observed that patients belong to blood group type O has a high chance of suffering this disease. A number of studies were carried out to see the frequency of blood groups types in Pakistan and it was found that blood group type B has a maximum frequency.[16] The ABO blood groups type varies in frequency in different population throughout the world.[17] It is clear from the study of the blood groups types of the patients of HCV disease that person's blood group types have some biological affects in suffering from HCV disease except blood group AB. There is no significant role of family history of HCV patient as P-value=0.375. We also found that mostly (64.44%) patients who have no family person which are suffering with HCV so no family history of HCV was observed. Odds ratio have shown 0.805 times more odds of those who have no family history as those who has HCV in their family. When we study the relation of HCV patients survival with patient weight loss by using chi-square test. We observed that there is no significant relations between HCV patient survival and their weight loss as P-value= 0.063. While frequency of weight loss is more (85.56%) as those frequency who are not loss (14.44%) with HCV. The results of odds ratios are also indicated similar results as we stated later. i.e. weight loss with HCV patient survival are 0.853 times more as those who are not loss their weight with HCV. The effect of drug use on the survival status of HCV patients is also tested by chi-square test. Table 2 results indicated that there is no significant effect of drug use on the HCV survival status. While odds ratios shows that the survival of those who are using drug are 0.761 times more as those who are not using drugs. Results are also shown that mostly (57.59%) are not using drugs with HCV. Parlor/ Barber using may cause the HCV and effect on patient's survival. Our study has shown that there is no significant role of parlor/ barber on HCV survival in the district of Multan. The results are also shown that mostly (98.15%) people in Multan use the Parlor/Barber. The odds ratio results indicated that the HCV patients who are using parlor/barber are 1.866 times more for surviving as those who are not using.

The chi-square test was applied to check the association of every associated risk factor among those patients who have HCV disease. P-value was also considered as a decision tool for the identification of HCV associated risk factors and compare with the level of significance set at 0.05. The table 2 shows that in the present study that the blood group types and age are the associated risk factors for the cause of the HCV patient's survival while weight loss, drug use, family history and barber/parlor have no significant impact on those patients survival who have HCV.

DISCUSSION

We have explored the problem HCV in Multan district to determine the survival status by various factors. Shah and Dar[18] have already study HCV of depressed population in Islamabad and come to know that HCV is mostly present in depressed

population as compared to general population. Our results indicated that the mean age female is high as compare to male who have a HCV disease. The high proportion was observed in the age group of 31-40. The ratio of male patients suffering from HCV disease is high as compare to female in those patients who are surviving with HCV. It was observed that the patients with blood group type O is maximum as compare to other blood group types. HCV and blood related study was also conducted by Naqvi et al.[19] in Karachi, Ghias and Pervaize[9] in Lahore city and Waheed et al.[9] in Islamabad. Various associated risk factors studied separately shows that the blood group types and age are the factors that are associated and effect the HCV patient's survival. Whereas the other factors such as barber/parlor, family history, and drug used show a no significant impact on the survival of HCV patient's survival in Multan. The weight loss in the male and female is same and is due to the treatment for the HCV disease. Similarly Khan et al.[20] studied HCV with risk factors Shaving at barber shops, dental procedures and surgery by unsterilized instruments in Banu Khyber Pkhtunkhwa which are significant.

CONCLUSION

In our study results and discussion, we have found that age groups having significant difference were observed for the HCV survival status. Similar study was conducted by Yahya and Iqbal[21] for HCV of Diabetic patients in Faisalabad and found that highest percentage in the age group "41-50 years". The survival chances by Gender at different risk factors are identical except blood groups. We also found that for HCV survival status age and blood groups are the significant factors while gender, family history, weight loss, drug use and Barber/parlor are the insignificant factors for the HCV patient's survival. The educational and socio economic level in the Multan district is low and majority of patients come in Nishter hospital Multan have a poor back ground. It is necessary to include all socio economic level in the study of the HCV disease to find out the accurate estimate about the disease.

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"From a small seed a mighty trunk may grow."

Aeschylus

AUTHORSHIP AND CONTRIBUTION DECLARATION

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