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Prevalence of Hepatitis C and B in MURCY Hospital Peshawar, KP, Pakistan

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Abstract
The present study was conducted to investigate the epidemiological status of hepatitis B (HBV) and hepatitis C (HCV) viral infection and associated risk factors in MURCY Hospital Peshawar, Khyber Pakhtunkhwa, Pakistan from November 2015 to April 2016. A total of 500 clinically suspected cases of HCV and a total of 300 clinically suspected cases of HBV were enrolled in the study from serum samples. HCV prevalence was significantly detected in male patients (*n* = 53, 32.5%) as compared to female patients (*n* = 97, 28.7%). Patients in the age group of 61–80 years (*n* = 38, 58.4%) were more prone to HCV, but less prevalent in the age group of 41-60 years (n=87, 25.1%). The prevalence of HVC was low (n=97, 27.7) in the people who use drugs and were high (n=53, 35.3%) in non-users of drugs. Also HBV prevalence was significantly detected in female patients (*n* = 40, 22.2%) as compared to male patients (*n* = 23, 20.8%). Patients in the age group of 41-60 years (*n* = 31, 26%) were more prone to HBV, but less prevalent in the age group of 1-20 years (n=1, 10%) and in the age group of 21-40 years (n=15, 15.3%). The overall incidence of Hepatitis C and Hepatitis B virus in the present research study was 30% (n=150) and 66% (n=65) respectively in clinically suspected cases in district Peshawar, Pakistan.

Keywords: HCV, HBV, ELISA, Prevalence, HbsAg, Anti HCV

Introduction
HCV affects about two hundred million people worldwide [1-4]. HBV causes chronic hepatitis, cirrhosis, and liver cancer [5]. HCV patients are at risk of developing chronic liver disease and even hepatocellular carcinoma [6]. Sharing of medical equipment's such as non-sterilized needles and syringes, sexual contacts with infected persons, inappropriate use of drugs, scissors, razors and other instruments used by barbers and most significantly by taking through injection may also increase the chances of getting HCV infection [8]. Patients suffering from thalassemia and organ transplant are also considered as a high risk [7-8]. Most HCV and HBV epidemiology mainly rely on HBsAg and HCV sero-prevalence studies. Approximately three percent of the world's population is living with chronic HCV [9]. In Pakistan the infected population with hepatitis is around 15000000 and cause death in the country's population. In Pakistan, the incidence of anti-HCV antibodies has been estimated to be 2.3-5.3% and that of hepatitis B antigen to be approximately 2.56-3.53% [10-11]. There are about 9000000 HBV and over 14000000 hepatitis C carriers all over the country with much higher prevalence as noted by Umer *et al.* [12-13] due to lack of proper health facilities, poor socioeconomic status and less public awareness. Epidemiological patterns of hepatitis B prevalence in different communities of Pakistan exist by limited knowledge in the general population. The present study was conducted to investigate the epidemiological status of hepatitis B (HBV) and hepatitis C (HCV) viral infection and associated risk factors in MURCY Hospital Peshawar, Khyber Pakhtunkhwa, Pakistan.

Material and Methods
Study Description
The current study was conducted in MURCY Hospital Peshawar, the capital of the KPK province of Pakistan. The data were collected from November 2015 to April 2016.

Data collection

A total of 500 cases of referred patients were selected for Hepatitis C and 300 cases for Hepatitis B who were visiting to MURCY Hospital Peshawar with many disease problems to different departments like Orthopedic, ENT, Nephrology, Medical, Surgical and Gynecology, etc. After a medical check-up of a patient the doctor referred those for HBS and HCV test. The data were collected from November 2015 to April 2016.

Lab diagnosis

In lab following tests were conducted to diagnosis of HBV and HCV infections. The common method of detecting disease ELISA method, real time PCR and (ICT) with hepatitis B virus and hepatitis C virus to examine the occurrence of antibodies of viruses by an ICT.

Immuno-chromatographic test (ICT)

ICT is the most important test for the detection of HBsAg and HCVAg. Strips were used from formative abbot. ICT positive samples were further confirmed for subsequently step evaluation [14].

Enzyme Linked Immune Sorbent Assay (ELISA)

This method is highly sensitivity and easy to perform. The samples of the long-suffering were investigated for antibodies with 3rd generation ELISA technique pursued by ICT identified for HBS and HCVAg by ELISA. We can extract DNA from all the positive samples which were confirmed by ELISA [14].

Real time PCR and DNA isolation

DNA was isolated from all the HBsAg positive and HCVAg ELISA cases and consequent RT-PCR were conducted among the assist of DNA extraction and RT-PCR equipment beginning Sacace (Sacace, Biotechnology, Italy) with the manufacturer's instruction, indoors the Cepheid elegant cycler (Nasadaq: CPHD, California, US). If both tests show have hepatitis B and C, then the individual infected and need treatment [14].

Results

In the present study total of 500 samples of Hepatitis C (HCV) were collected in which 150 (30%) were positive and 350 (70%) were negative cases (Table 1).

Table 1: Prevalence of Hepatitis C virus in population of District Peshawar.

Total samples	HCV(positive) N (%)	HCV(negative) N (%)	P value
500	150(30)	350(70)	

In the present study total of 300 samples of Hepatitis B (HBS) patients and 65 (21.67%) were positive and 235 (78.3%) were negative cases (Table 2).

Table 2: Prevalence of HBS in population of District Peshawar.

Infection	No. of Samples	Percentage %	Total Samples=300
HBS+	65	21.67%	65
HBS-	235	78.3%	235

The predominance of HCV in female was 28.7% (97), while male was 32.3% (53) (Table 3). This showed that prevalence of HCV was higher in female as compare to male.

Table 3: Prevalence of HCV on the base of gender.

Gender	+ve cases	-ve cases	Total=500
Female	97 (28.7%)	240 (71.3%)	337
Male	53 (32.5%)	110 (64.4%)	163

The prevalence of HBS in female was 22.2% (40) while male was 20.8% (25) (Table 4). This shows that prevalence of HBS was high in male as compare to female.

Table 4: Prevalence of HBS on the basis of gender.

Gender	+ve cases	-ve cases	Total=300
Female	40(22.2%)	140 (77.3%)	180
Male	25 (20.8%)	95 (79.9%)	120

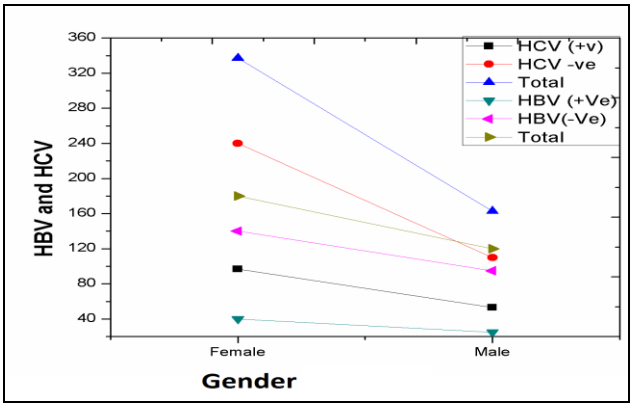

Fig 1: The occurrence of HCV was high in the age group of (61-80) with a percentage of 58.4 while the lowest in the age group of (41-61) with 25.1% (Table 5).

Table 5: Prevalence of HCV on the basis of age.

Age group	+ve cases	-ve cases	Total =500
1-20	2 (28.5%)	5 (71.4%)	7
21-40	23 (28.0 %)	59 (72%)	82
41-60	87 (25.1%)	259 (74.9%)	346
61-80	38(58.4%)	27 (41.6 %)	65

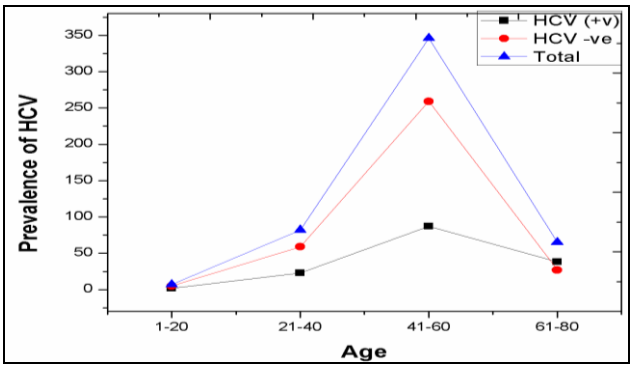

Fig 2: The prevalence of HBS was high in the age group of (41-60) with a percentage of 26 while the lowest in the age group of (1-20) with 10% (Table 6).

Table 6: Prevalence of HBS on the basis of age.

Age group	+ve cases	-ve cases	Total =300
1-20	1 (10%)	9 (90%)	10
21-40	15 (15.3%)	83(84.7%)	98
41-60	31 (26%)	88(74%)	119
61-80	15(21.4%)	55 (78.5 %)	70

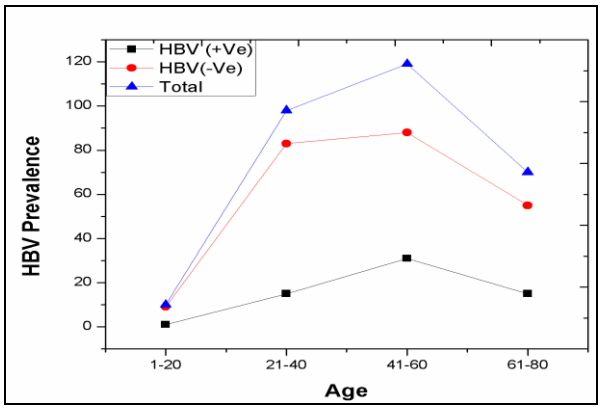

Fig 3: The prevalence of HBS on the basis of age wise distribution.

The Table 7 showed that the prevalence of HVC was high in the people who use drugs and were low in non-users of drugs.

Table 7: Association of prevalence of HCV with drugs used in district Peshawar.

Drugs used	+ve cases	-ve cases	Total=500
Yes	97(27.7%)	253 (72.3)	350
No	53 (365.3%)	97 (64.6%)	150

Discussion

The infection of HBV and HCV is one of the chief challenges countenance everywhere in the world. The majority of the developed countries have efficiently controlled this difficulty by focusing on vaccination and controlling the risk factors for spread in people. However, a number of developing countries, including Pakistan are still incapable to effectively control this infectious disease [12]. In the present research work, the higher predominance of hepatitis B and C were in the age range of 51–60 years, which shows corresponding to the study of Talpur *et al* in (2006) which contain about 65% positive patients were over the age of 40 years old. The present study results showed prevalence of 30% and 22.6% for Hepatitis-C and Hepatitis-B viruses respectively, which is nearly similar to local studies that show prevalence of 16-22% [15]. It has been stated that HBV occurrence was 22.4% in a previous study [16]. However this figure 1& 2 is more higher as compared to international studies mannered in Africa and India, that show prevalence of 3-6%. This reflects the regional high cases of viral Hepatitis in Pakistan as compared to other international and neighboring countries [17]. The current study results showed that the prevalence of hepatitis C virus (30%) was more than hepatitis B virus (22.6%). (%). Soomro *et al*. [18] also report that among the 20.67% positive patient of Hepatitis B/C, prevalence of Hepatitis B was 11.29% while Hepatitis C was 88.70%. Ali *et al* in [19] also described that the prevalence of Hepatitis B (3.6%) was less as compared to Hepatitis C (5.1%) in of all the positive patients, which illustrates that the occurrence of Hepatitis C was more than hepatitis B. The present study results also indicate that the prevalence of HCV was more in male patients (32.5%) as compared to female patients (28.7%). The previous study by Rehman *et al* in 2011showed that the HCV prevalence was more in males as compared to females [20].

Conclusion

The present study concluded that the incidence of Hepatitis B and Hepatitis C virus was very high. The present study shows the HCV prevalence was about 30% and the occurrence of HBV was 22.6% in district Peshawar.

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