

Seroprevalence of Hepatitis C Virus (HCV) and Hepatitis B Virus (HBV) In District Vehari, Pakistan

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ABSTRACT

The aim of the study was to evaluate the prevalence of hepatitis C virus (HCV) and hepatitis B virus (HBV) in district Vehari, Pakistan; and to highlight the alarming situation of HCV. This survey was conducted in the district from June to August 2018. A total of 697 (72.99%) cases out of 955, were found to be infected with hepatitis viruses, among which, 681 (71.3%) were infected with HCV and 16 (1.68%) with HBV. HCV was found more prevalent in females while more cases of HBV were reported in males. Overall age ranged from 31 to 60 years, with females from 51-60 years; infected with HCV and HBV in male with age range 19-30 years infected with HBV. The situation of the seroprevalence of HCV is alarming and the authorities in Pakistan should take extensive measures for the elimination of the hepatitis viruses from Pakistan.

Key Words: Seroprevalence, Hepatitis C virus, Hepatitis B virus, Pakistan.

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Hepatitis is an inflammatory disorder of the liver, caused by five types of viruses: hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis D virus (HDV), and hepatitis E virus (HEV). Among these viruses, HBV and HCV are the most common having 96% mortality rate. HCV and HBV lead to liver cancer. World Health Organization (WHO) is forcing and joining all countries on World Hepatitis Day to eradicate hepatitis completely by 2030. Pakistan is the second country in the world having 8 million (5%) cases of hepatitis C; in other words, one out of every 20 people had infected liver, reported in 2018. In addition, 7 to 9 million HBV carriers are present in Pakistan.^{1,2}

Due to poor health and limited access to clinical symptoms of the disease, it is not possible to estimate the prevalence of hepatitis in Pakistan. However, Pakistan is now working on controlling hepatitis with legislation and investment that will ensure positive results in the future. On 21st December 2018, Pakistan organised three-days' workshop by the team of WHO to discuss strategies to completely eliminate hepatitis.³ This study discussed the prevalence of HCV and HBV in the district Vehari of Punjab, Pakistan.

We collected reports from North Shore Medical Laboratory, in district headquarters Hospital, Vehari from June to August 2018 with the consent of patients. The patients with symptoms of jaundice and recommended by their physicians were included in this study; 3 ml of venous blood was collected and stored in vials containing sodium citrate.

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Serum was obtained after centrifugation and used for the qualitative detection of HBsAg and HCV antibodies using HBV and HCV rapid test (cassette) which is lateral flow chromatographic immunoassay⁴ as per laboratory protocol. The study was approved by Departmental Bioethical Committee (D/1890/2018/Biochem; Dated 19/06/2018). All the data were arranged on the excel spread sheet and then analysed in the SPSS version 21 with a significant difference of $p < 0.01$. Frequencies and percentages were obtained, and a table was formulated (Table I).

In 2009, 7.4% prevalence of hepatitis B and C was recorded in the total population of Pakistan. In the same year, Pakistan Medical Research Council (PMRC) reported 4.9% HCV and 2.5% HBV infected cases.⁵ In this study, 71.3% cases of HCV and 1.68% cases of HBV were found in district Vehari, Pakistan. Among these, 336 (35.19%) were males and 361 (37.8%) females infected with hepatitis viruses. In this study, females (37.38%) were more HCV positive while males (1.26%) were more HBV positive. Our results for HCV and HBV in terms of gender, are similar to the results reported by Munir *et al.*⁶ for the Hazara division, Pakistan.⁶ According to the age groups and gender, more hepatitis cases were found in the overall age 31 to 60 years group, while 51 to 60 years age group had more cases, 91 (9.52%) of females and 81 (8.5%) of males. Age group from 19 to 30 years had more HBV positive cases, in which 5 (0.53%) were males and 2 (0.21%) were females. In this study, only one (0.1%) case of HBV in the male from the age of 1 to 15 years was reported. Major causes of hepatitis in Pakistan are the transfusion of blood, contaminated surgical instruments, and reuse of injections. Illiteracy, poverty, lack of knowledge, and moral issues predispose to this high-risk behaviour.⁴

A huge burden and difficulties in detecting the silent cases and uncontrolled epidemic of the hepatitis viruses in Pakistan are the major challenges for the public health experts in this country.

Table I: Frequencies of hepatitis B and hepatitis C viruses in both genders and in different age groups.

	Study population		Positive for hepatitis		Negative for hepatitis		Positive for hepatitis C		Negative for hepatitis C		Positive for hepatitis B		Negative for hepatitis B	
	N	%	n	%	n	%	n	%	n	%	n	%	n	%
Total	955	100	697	72.99	258	27.01	681	71.3	274	28.7	16	1.68	939	98.32
Gender														
Male	464	48.58	336	35.19	128	13.4	324	33.92	140	14.66	12	1.26	452	47.32
Female	491	51.41	361	37.8	130	13.61	357	37.38	134	14.04	4	0.42	487	51
Age groups and gender - 1st day to 6th months														
Male	10	1.04	2	0.21	8	0.84	2	0.21	8	0.84	0	0	10	1.05
Female	8	0.84	0	0	8	0.84	0	0	8	0.84	0	0	8	0.84
6th months to 9 years														
Male	15	1.57	1	0.104	14	1.46	1	0.104	14	1.46	0	0	15	1.57
Female	17	1.8	4	0.42	13	1.36	4	0.42	13	1.36	0	0	17	1.8
10 - 18 years														
Male	65	6.8	50	5.23	15	1.55	49	5.13	16	1.67	1	0.104	64	6.7
Female	61	6.38	50	5.23	11	1.17	50	5.23	11	1.17	0	0	61	6.38
19 - 30 years														
Male	66	6.94	49	5.13	17	1.8	44	4.616	22	2.3	5	0.53	61	6.38
Female	74	7.74	57	5.97	17	1.8	55	5.76	19	2	2	0.21	72	7.53
31 - 40 years														
Male	97	10.15	71	7.43	26	2.7	68	7.12	29	3.02	3	0.314	94	9.84
Female	90	9.43	73	7.65	17	1.8	72	7.54	18	1.88	1	0.104	89	9.32
41 - 50 years														
Male	101	10.57	76	7.96	25	2.6	74	7.75	27	2.836	2	0.21	99	10.37
Female	106	11.1	83	8.7	23	2.4	82	8.59	24	2.52	1	0.104	105	11
51 - 60 years														
Male	101	10.57	81	8.5	20	2.09	80	8.37	21	2.2	1	0.104	100	10.47
Female	123	12.88	91	9.52	32	3.35	91	9.52	32	3.35	0	0	123	12.88
More than 60 years														
Male	9	0.94	6	0.63	3	0.314	6	0.63	3	0.314	0	0	9	0.94
Female	12	1.25	3	0.31	9	0.94	3	0.31	9	0.94	0	0	12	1.25

Moreover, its treatment is expensive, making it difficult to treat properly a very large number of patients in public health services. Therefore, huge efforts are needed by the administration for controlling the epidemic of hepatitis in Pakistan.

CONFLICT OF INTEREST:

Authors declared that there is no conflict of interest related to this study.

AUTHORS' CONTRIBUTION:

MZA: Data collection, statistical analysis and manuscript writing.
 HS, TR, AA: Data collection and literature review.
 NS: Manuscript writing and final draft.

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