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Letter to Editor Open Access

Does HCV Prevalence in Blood Donors Reflects the Incidence in General Population? A Study for Global Impact

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Letter to Editor

Pakistan is endemic for hepatitis C Virus (HCV) infection with around 11 million infections [1,2]. The knowledge about the prevalence of HCV in general population is very limited and it is difficult to screen the whole population of the country [3]. Over all socio-economic status of Pakistan is low, with very low budget on health surveillance system [4]. Furthermore, in past few years the allocated health budget was spent on other viral infections like Polio and Dengue due to media hypes [5]. As Pakistan has huge burden of HCV and it is necessary to keep track of surveillance of this silent killer. HCV is chronic disease and can leads to liver fibrosis and cirrhosis. The management of chronic HCV infection is very difficult and can have a substantial effect on the economic status of the individuals, society and ultimately the country. The current standard of care antiviral therapies includes interferon based and interferon free direct acting antivirals (DAAs) [6]. Interferon based regimes have side effects where as DAAs are very costly to manage for treatment of all infected individuals [7,8]. Keeping the current scenario in mind, the monitoring of HCV prevalence across the country is the need of the hour. Pakistan is a populated country with about 200 million inhabitants and it is difficult to screen all individuals due to poor socio economic situation of the country. The problem was highlighted recently [3], that it is very difficult to screen the whole population in a resource constrain country like Pakistan. But it is also very important to identify viral infection hot spot for proper management of the disease and carry out awareness campaigns. We tried to find another way of proper monitoring the HCV prevalence in Pakistan. The analysis of previously published data is carried out to find whether the prevalence of HCV in healthy blood donors reflects the seroprevalence of the virus in the general population and could be used as monitoring system. All published reports from Pakistan regarding the HCV prevalence in general healthy population or health blood donors were retrieved from different sources from 2010 to date. The data analysis showed that there are 17 and 14 studies on HCV prevalence in general population and healthy blood donors respectively from 2010-2016 (Table 1) [9-34]. Most of the studies on general populations are with small number of individuals while the results of studies on blood donors provide a larger sample groups. The total individuals screened from general population were 96,407 in previous studies while screening of 464,722 individuals were reported through blood donations. The analysis of data showed that in 2010-2013 HCV prevalence among general population ranged from 4.3-6% while a greater variability was observed in 2014 (11%). This higher prevalence and inconsistency in different years is might be due to smaller number of study subjects. On the other hand HCV prevalence in blood donor's population is consistent during study period (Figure 1). In general population HCV prevalence ranged from 4.32-11.14% while in blood donors the prevalence range is quite narrow i.e. 1.05-3.24%, most probably due to larger number of study participants. The total population of Pakistan is about 200 million and it is estimated that around 11 million are infected with HCV (1-3) which is about 5-6% of total population. On the basis of current available information (Figure 1) it seems data from blood donors showed more reliable figures (2-3% infection rate) as compared with general population (6-11% infection rate). The high risk groups for HCV infection significantly contributed in total number of infections in Pakistan. There are many other high risk groups for HCV infections like liver disease patients, pregnant women, multi transfused individuals, intravenous drug users, health care workers, prisoners, homosexual men. To further strengthen the point, the previous data from high risk groups were analyzed, which clearly suggested that these high risk groups (with infection rate up to 66%) contributed to a larger proportion in total number of HCV infections.

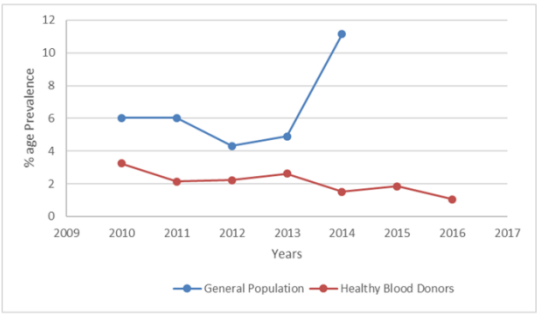

Figure 1: Comparison of HCV sero-prevalence in general population and healthy blood donors in Pakistan (2010-2016). Studies with minimum 500 study subjects are included in the analysis.

	General Population			Healthy Blood Donors		
Year	Place/city	Sample Size (N)	Sero-prevalence (%)	Place/city	Sample Size (N)	Sero-prevalence (%)

2010	Swat6	590	8.81	Multan7	10,000	4.90
				Peshawar8	32,042	1.57
	Mansehra 9	400	7			
	Thatta/ Nausheroferoz	303	25.1			
	Karachi	1997	23.83			
	Karachi	504	3.17			
	Multiple cities					
	Multan	625	9.6			
	Lahore	1892	9.4			
	Faisalabad	2736	8.8			
	Gujranwala	16,522	7.3			
	Gujrat	9770	6.8			
	Sargodha	1620	6.7			
	Rawalpindi	445	6.7			
	Sialkot	24,707	6.2			
	Bahawalpur	363	5.0			
	Islamabad	252	24.6			
	Mansehra	648	10.34			
	National Survey10	47,043	4.87			
2011	Gujranwala11	2502	2.32	KPK/FATA12	7,148	1.89
	Karachi13	32049	9.75	KPK/FATA14	62,251	2.60
				Karachi15	5,717	1.90
2012	Kech16	2000	5.5	Karachi17	5,517	2.00
	Punjab18	--	3.13	Peshawar19	127,828	2.46
	Rawalpindi20	303	17.2	Sargodha21	100	12.00
	Islamabad20	200	4			
2013	Lahore22	4,246	4.9	Karachi23	108,598	2.61
				Quetta24	356	20.8
				Lahore25	245	15.00
2014	Mardan26	1419	11.7	Karachi27	42,830	1.65
	Peshawar28	982	12.93			
2015	Islamabad29	345	33	Rawalpindi30	56,772	1.84
2016				Mardan31	5318	1.05

Table 1: Comprehensive review of HCV prevalence in healthy population and healthy blood donors of Pakistan (2010-2016).

On the basis of this discussion it could be concluded that the prediction on the basis of blood donations screening might be used as a part of surveillance system for HCV monitoring across the country. Due to current World Health Organization (WHO) guidelines, it is mandatory to screen all blood donations for blood borne viral infections (BBV) including HCV so as a part of standard operating procedures (SOP) all blood donations are screened across the country. There are blood banks in Tehsil/District Headquarter Hospitals across

the country which are actively involved in BBV screening. What is the need of hour? Just an effective communication system and a control center. This strategy will help in better implementation of blood transfusions and will be helpful to reduce BBV infections. The further confirmations of the results of current study are warranted and if succeeding studies strengthen the results, it should be applied on national level. It will act as a very well-managed, efficiently working HCV surveillance system across the country. HCV is silent disease and infection is often undiagnosed such as the virus remains infective and transmissible. The use of effective HCV screening and survillence system that can detect infection in early stage will be helpful in disease management and further spread of disease. Effective screening strategy will also results in overall reduction in chronic HCV cases and substantially reduces the incidence of liver damage and hepatocellular carcinoma. The similar data set from other countries with low socio-economic status, higher HCV prevalence and high risk of HCV infection could be analyzed and applied where applicable; not only to save extra time and money but also to encourage the blood donations screening for BBV which ultimately helps for better management of the blood borne infections.

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