

Prevalence of Hepatitis 'B' and Hepatitis 'C' among Preoperative Cataract Patients in the University of Lahore Teaching Hospital

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Abstract

Purpose: To analyze the frequency of hepatitis B and C and HIV in patients undergoing cataract surgery.

Study Design: Cross-sectional study.

Place and Duration of Study: Department of Ophthalmology, The University of Lahore teaching hospital from October 2017 to July 2019.

Research Design and Method: This observational descriptive study was conducted at department of Ophthalmology in The University of Lahore teaching hospital. The duration of study was one and two year from October 2017 to October 2019. After taking informed consent from the patient and hospital ethical committee all patients presenting with cataract and undergoing cataract surgery were assessed for the presence of hepatitis B and C. Finding of hepatitis C or B was made on the criteria that a patient must be positive for either HBSAg Anti-HCV or both. Proforma were filled and data was collected and analysis was done. Pearson's correlation coefficients were calculated to calculate the occurrence of hepatitis C and B in general population undergoing cataract surgery. This was observational descriptive study in which total 1304 subjects were included in research with the history of cataract. And those patients needed cataract surgery. Two types of surgical procedures were being followed:

- 1- Phacoemulsification and IOL
- 2- Extracapsular cataract extraction with IOL

Subjects involved in studies were of the age between 40 to 85 years. And all the collected data was being analyzed by SPSS 22 VERSION.

Results: Result showed that out of 1304 patients were included. Out of 1304 the 7.7% of total patients were suffering from hepatitis B and 7.5% of total patients were having hepatitis C and just 0.2% of total patients were suffering from HIV.

Conclusion: Significant number of asymptomatic carriers of HIV and hepatitis B and C were found in preoperative cataract patients. It is suggested that preoperative screening of all cataract patients should be done so that asymptomatic carriers might not become a threat for spread of disease.

Keywords: Hepatitis B; Hepatitis C; Cataract

Introduction

Hepatitis is a disease of liver in which liver gets inflamed and swelling occurs in it. It should be stopped at its early stage but if it is not cured or treated then cancerous cells are formed in it. Sometimes people don't suffer from much of the symptoms and don't pay heed to that but as time passes, they often fall victim of different diseases like jaundice, poor appetite and many others. Many different poisonous agents and alcohols etc. are the leading causes of this disease [1].

Hepatitis B and hepatitis C are the kinds of viral diseases that are causing swelling and in which liver gets inflamed and acute and chronic types of hepatitis can occur. Every year thousands of people are being caught by hepatitis B and C. Just because they are not literate enough to take care of themselves from this dangerous virus [2]. Hepatitis B virus is infecting 2 billion people globally and 350 million of people are said to be the carriers of this virus. Moreover, World Health Organization states that about 3% of total world population is suffering from hepatitis C virus. It has been also estimated that about 70% to 80% of people were fell prey of liver diseases at their chronic stages and liver malignancy also. According to an observation annually 1 million people are being killed by hepatitis B virus and hepatitis C virus [3].

If the body fluids like blood, vaginal fluid etc. of an infected person come in contact with the body parts of other healthy people then they can also get hepatitis. Hepatitis B virus can transfer from infected body to the healthy body by many types of body fluids but hepatitis C virus can only be transferred by blood [4]. The people who are receiving blood transfusion or using injection syringes to intake drug are more likely to get that. Unluckily, if once a person is affected by this disease then he will not respond enough to any kind of medical treatment. So, steps should be taken to stop this disease [5]. Many vaccines are being invented for hepatitis B virus. These vaccines are developing ability of body to fight against those viruses for long time. And by using these vaccinations people will not fall prey of that virus and will not get ill by that [6].

These diseases are also causing great burden on Pakistan and here people are being effected on large scale [7]. In this country hepatitis B of chronic type is very severely occurring and among them 3 - 4% people are carriers of that. While type C is present in about 10 million of people in Pakistan. Actually, blood transfusion is the main root of hepatitis C virus. Use of polluted syringes and surgical instruments and inappropriate observed blood products can cause occurrence of this virus [8]. In many hospitals, there are unspecified carriers of hepatitis B and C virus who are performing different measures in which they are at risk of being contacted to transdermal blood as intravenous lines etc. due to which surgeons and other staff are mostly infected. The prevalence of this virus in hospitals and operation theaters is very high because there is deficiency of daily routine serological testing before performing cataract surgeries and it is the main cause of transmission of germs of hepatitis from one person to the other [9].

According to an estimate, in US every year about five hundred thousands of people among hospital staff come in contact to the transdermal blood every year.

In spite of all the precautionary measures and cures we couldn't get rid of fatal disease like hepatitis and moreover, we didn't even come to know that how many people are actually responsible of spreading viruses or silent carriers of viruses. Basically, this study was done to know about the frequency of people causing for that as a carrier. We should be aware for this and should take precautionary measures to wipe it out [10-14].

Cataract involves lenticular changes by which vision of affected person decreases. Actually, in this the lens present inside the eye gets opaque and hazy due to which this cross sectional and detailed based study was done under the department of ophthalmology of university of Lahore and the ethical review committee of university of Lahore certified this. In this brief study, we provided privacy to the written consent of all the subjects.

Methodology

All subjects of about 40 and more than 40 years of either gender were observed. We gathered information from all the subjects having comorbidity while only the subjects going to have cataract surgery were kept under observation and all others were excluded. In this study we observed all the subjects admitted from October 2017 to July 2019 for cataract surgeries and in them hepatitis B, hepatitis C and HIV was being observed. Total duration for this study was 1 year and 7 months. In this taken sample, about 1500 of the subjects admitted for cataract were being observed. And among them 1385 subjects were agreed for being our sample for studies. After that further 81 subjects denied for being the part of our sample for studies due to different reasons. So only 1304 patients were the part of our studies and were being observed by us.

We got all the information and to record that information and findings, proformas were being filled and static tools of analysis were being used to analyze all the information. A detailed analysis was also done by SPSS 20 software.

We used the technique of rapid chromatography immunoassay to identify the antigen of Hepatitis B and antibodies of Hepatitis C.

Results

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	40 - 45	230	17.6	17.6	17.6
	46 - 50	157	12.0	12.0	29.7
	51 - 55	213	16.3	16.3	46.0
	56 - 66	202	15.5	15.5	61.5
	66 - 72	225	17.3	17.3	78.8
	73 - 82	277	21.2	21.2	100.0
	Total	1304	100.0	100.0	

The above table showed that total 1304 patients were observed. They were of different ages. Among 1304 patients about 917 patients were of above 50 years.

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	570	43.7	43.7	43.7
	Female	734	56.3	56.3	100.0
	Total	1304	100.0	100.0	

The above table showed that high ratio of females was included. 43.7% were males and 56.3% were females.

Types of procedures of cataract surgeries					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PHACO	886	67.9	67.9	67.9
	ECCE	418	32.1	32.1	100.0
	Total	1304	100.0	100.0	

The above table showed that total 1304 patients, about 886 patients were being treated by doing PHACO while rest had ECCE.

Hepatitis B HBv					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	+VE	101	7.7	7.7	7.7
	-VE	1203	92.3	92.3	100.0
	Total	1304	100.0	100.0	

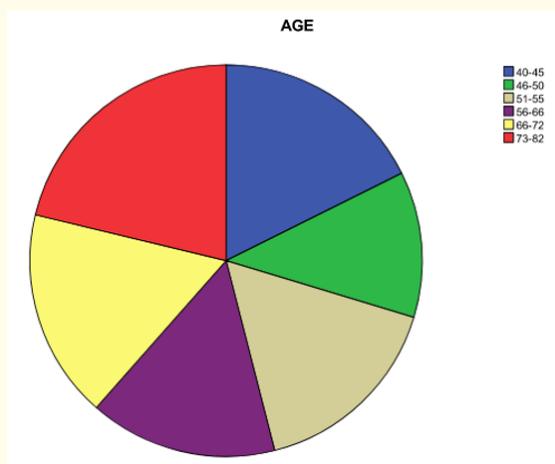
The above table showed that there were total 1304 patients. The patients suffering from hepatitis B were about 7.7% and remaining were negative.

Hepatitis C HCV					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	+VE	98	7.5	7.5	7.5
	-VE	1206	92.5	92.5	100.0
	Total	1304	100.0	100.0	

The above table showed that total 1304 patients, patients suffering from hepatitis B were about 7.7% and remaining were negative while people having hepatitis C were about 7.5% only.

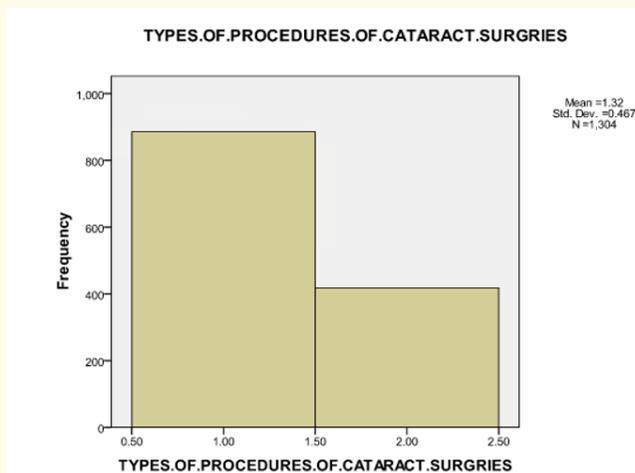
AIDS HIV					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	+VE	3	.2	.2	.2
	-VE	1301	99.8	99.8	100.0
	Total	1304	100.0	100.0	

A least proportion of patients was also involved who were suffering from HIV and they were only 3. Only 0.2% of patients among 1304 were having HIV.



Graph 1

The above pie chart showed that total 1304 patients were observed. They were of different ages. Among 1304 patients about 917 patients were of above 50 years.



Graph 2

The above histogram shows the types of procedures of cataract surgeries followed.

Descriptive statistics	N	Minimum	Maximum	Mean	Std. Deviation
Age	1304	1	6	3.66	1.773
Gender	1304	1.00	2.00	1.5629	.49622
Types of procedures of cataract surgeries	1304	1.00	2.00	1.3206	.46687
Hepatitis B HBV	1304	1.00	2.00	1.9225	.26741
Hepatitis C HCV	1304	1.00	2.00	1.9248	.26374
AIDS HIV	1304	1.00	2.00	1.9977	.04793
Valid N (list wise)	1304				

The above table showed significant results.

Discussion and Conclusion

The disease of hepatitis B and hepatitis C have been spread worldwide. It is estimated that, in 75% of cases of liver diseases, hepatitis B and hepatitis C are responsible. Hepatitis B and C viruses are spreading endemically in Asian countries. According to a study, the frequency of hepatitis B and C in Pakistan is calculated as 10% and 47% respectively. And in rural areas the frequency of hepatitis B and C was increasing consistently and suffering from higher percentage of people infected from hepatitis B and C virus. And according to an estimate the frequency of hepatitis B and C was 12.99% [15].

The whole study was done in university of Lahore teaching hospital and the camps organized under university of Lahore teaching hospital and with the collaboration of Al Baseer foundation. Those screening camps were being organized mostly in rural areas and we

noticed that the population of rural areas is suffering more than the urban areas because of many factors. And the basic factor for being that is actually the illiteracy of people to take care of themselves. The frequency of hepatitis B and C in pre-operative cataract in males was higher than the females. And in other studies related to this that were done in parts of countries were also stating the same estimated ratio. And the basic reason behind this (males are more affected than female) is that in Pakistan men are enjoying more social freedom than females. And due to more social interaction men are more likely to get this type of diseases [16].

Many studies and observations were made to evaluate this and among them mostly were in favor of this fact that men are more likely to get that disease but in some studies contrary factors were also included and according to them females are dominant over males regarding to this.

According to an estimate, in eye screening camps which were organized in rural areas, there was high amount of patients infected by hepatitis B and C virus and was the higher frequency of females than the males in this regards. Moreover, there are not enough studies which can prove the frequency of asymptomatic subjects having hepatitis B virus and hepatitis B virus. Age group of more than 40 years age old were having the high number of positive cases of hepatitis B and hepatitis C [17]. In our studies we also included asymptomatic subjects came for cataract surgeries in this way we came to know and where cataract patients were concerned. According to an estimate in 2010 eye camps were conducted in Pakistan in which 108 subjects out of 437 were suffering from hepatitis B and hepatitis C virus and in this study it was noticed that there was higher percentage of females (60.18%) who are affected by this disease than males (39.81%). The blood and body fluids are basically responsible for transfusion of viruses from one body to the other. According to an estimate in 2008, as the age of patient increases he is more likely to fall prey of that hepatitis B and Hepatitis C. 42.3% people were affected by hepatitis C virus and their ages were less than 60 years and 57.75% in the patients of more than 60 years [18].

According to an observation, 48% of world blindness is caused by cataract globally which are 18 million people according to the world health organization. In Pakistan there is also a high frequency of cataract patients. And by this diseases the patients of high age groups are usually affect because the fact behind that as the age grows up lenticular changes also start to occur in the eye and due to this age related cataract gets occurred. So in this way we can relate that that the cataract prevalence in old group patients is more than the younger [19].

A study made in JAPAN concluded that the occurrence of Hepatitis C is also responsible for occurrence of cataract in the people of high age group. In past few years it was noticed that the children were mostly felling prey of Hepatitis B and Hepatitis C. but in this study we didn't included any subject under the age of 18 years. because this study was only specific for the subjects of certain age groups and having Hepatitis B and Hepatitis C and having cataract [20].

The frequency of patients suffering from hepatitis B and Hepatitis C can be over or under-estimated.

As Pakistan is suffering from higher rate of viral diseases like Hepatitis B and Hepatitis C, we should open proper screening setups. People should being educated so that they can take care of themselves against that viral diseases. For this purpose, media can play a vital role.

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