

Incidence of Hepatitis B and C in Lady Health Visitor Students at Public Health Nursing School

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Abstract

Objective: To investigate prevalence of hepatitis B and C in lady health visitor students at Public health Nursing School Sahiwal. **Material and methods:** This study was done at Public Health Nursing School, Sahiwal, and Multan in May 2017. There are two classes of Lady Health Visitor (LHV) in the school, 50 students in each class. Total number of students is 100. Authorization for the study protocol was obtained from the Ethics Committee of Public Health Nursing School, Sahiwal, and informed consent was taken from the patients. The students are admitted on FSc basis, from Sahiwal, Khanewal and Toba Tek Singh Districts, according to the seats allocated by Govt. to these districts on merit. All the students were included in study. Age of the students ranges between 18 to 24 years. They belonged to both urban and rural areas. Screening of students was done for HCV and HBV. They were educated regarding the mode of spread of HCV and HBV. They were advised to take preventive measures for their safety as well as the safety of patients while attending patients. Those who were not vaccinated for HBV were vaccinated. That whose test was Positive, there PCR was done and treatment started from the DHQ Teaching Hospital Sahiwal. Statistical analysis was performed of the data received through questionnaire form about age and other demographic information, and screening test which was done to identify the positive HCV and HBV cases. Computer software SPSS version 23 was used to statistically analyze the data.

Results: All the students of the institution were included in the study. Among 100 students 11 were positive for HCV (11%) and 1 was positive for HBV (1%). Among these 12 cases only 1 was living in urban area and 11 were living in rural areas. **Conclusion:** Incidence of Hepatitis C is higher in Pakistan and is increasing due to lack of preventive measures. Hepatitis B and C have multiple transmission modes, there is special need to educate people in General and Health Care Professionals in particular to screen each and every patient and take necessary precautions to stop virus transmission. Special attention should be given to educate people in rural areas, including health care professionals, paramedic, quacks, beauticians and barbers.

Keywords: Hepatitis B, Hepatitis C, Health care workers, Lady Health visitors.

Introduction

Health care professionals are more vulnerable to various viral and bacterial infections. Hepatitis is one of the major infectious diseases in Pakistan [1]. It is caused by different type of viruses namely A, B, C, D and E. Among these Hepatitis B viruses (HBV) and Hepatitis C virus (HCV) has high potential to cause morbidity and mortality [2]. Hepatitis may result in chronic liver disease, liver cirrhosis and hepatocellular carcinoma [3]. End stage liver disease accounts for one in forty deaths worldwide infection with HBV and HCV [4].

An infectious and frequent disease of liver known as hepatitis B effects millions of the people around the world [5]. Almost 2000 million people all over the world are currently infected with hepatitis B virus and out of these 2000 million people almost 350 become carriers and are infected chronically [6]. Hepatitis B infection is highly susceptible except in people who are vaccinated and others who become immune to HBV after getting an infection. Different researches and clinical investigations have proved that hepatitis B virus surface antigen is

found in almost all types of body fluid [7]. Currently four types of transmission modes of HBV have been identified and documented, through sexual contact or in other words, it is a sexually transmitted disease, vertical transmission or perinatal transmission (from mother to child at birth), horizontal transmission (directly from infected to healthy person by contact) and parenteral transmission i.e. through blood and body fluids. As far as demographics of hepatitis B are concerned, the age at which this infection occurs vary among areas, countries and continents. There are certain groups of people who are at higher risk to contract this infection, including, new born babies of infected mother, sexual partners of diseased person, health care workers exposed to infected blood and body fluids and children in endemic areas [8]. Among the other population groups at high risk are, IDUs using needles without sterilization, employees and patients in hemodialysis centers, people using unsterilized medical and dental materials and equipments, people performing and getting acupuncture and tattoos with unsterilized apparatus and people living in prisons and getting blood transfusion or the recipients of other blood products are in grave risk of getting the infection of hepatitis B virus. Other risk groups are people who are not immune and travelling to endemic areas of Hepatitis B infection and heterosexuals and homosexuals.

In 1989 a virus was cloned and it was identified as the source of majority of hepatitis, non-A and non-B post transfusion infection source and later it was recognized as Hepatitis C virus causing a disease of liver known as hepatitis C. According to the World Health Organization almost 3% of the world population is infected with hepatitis C and out of these infected people almost one hundred and seventy million are chronic carriers and at great risk of developing liver cirrhosis and hepatocellular cancer [9]. The usual route of transmission of hepatitis C is parenteral route i.e. blood and blood products (Alter et al., 1999) [10]. Route of transmission is not well defined in case of HCV, neither parenteral transmission nor sexual and perinatal transmission. Hepatitis C virus has high genetic variability which is why there has been no success in developing the vaccine and also why its susceptibility is very general [11]. There are six major genotypes of hepatitis C virus from 1 to 6, and multiple subtypes stated as a, b, c, etc. IDUs sharing unsterilized needles, people in contact with dental and medical material without sterilization, people receiving blood products, blood and organs and staff and patients of hemodialysis centers in which hepatitis C is considered as nosocomial disease, these are the groups at risk of this infection. Similar to the hepatitis B, Hepatitis C can be present in people receiving tattoos and acupuncture without sterilizing their apparatus and recipients of blood, people with occupational exposure to blood, health care workers, and newborns to infected mothers are also at high risk.

To establish which occupational exposures may lead to HBV and HCV transmission and elaborate recommendations for their management, we conducted a study to identify risk factors for the transmission of HCV and HBV to LHV students of nursing school of Sahiwal after occupational exposure to HCV-infected blood or body fluids.

Material and Method

This study was done at Public Health Nursing School Sahiwal and Multan in May 2017. There are two classes of Lady Health Visitor (LHV) in the school, 50 students in each class. Total number of students is 100. Authorization for the study protocol was obtained from the Ethics Committee of Public Health Nursing School, Sahiwal and Multan, Informed consent was taken from the students taking part in the study. The students are admitted on FSc basis, from Sahiwal, Khanewal and Toba Tek Singh, Multan, Muzaffer Garh, Layyah Districts, according to the seats allocated by Govt. to these districts on merit. All the students were included in study. Age of the students ranged between 18 to 24 years. They belonged to both urban and rural areas. Students were categorized on the basis of the area they belonged to i.e. rural or urban, to assess the environmental factors involved in causing HCV or HBV. Screening of students was done for HCV and HBV. They were educated regarding the mode of spread of HCV and HBV. They were advised to take preventive measures for their safety as well as the safety of patients while attending patients. Those who were not vaccinated for HBV were vaccinated. Those, who had Positive test result, their PCR were done and treatment started from the DHQ Teaching Hospital Sahiwal and Multan.

Statistical analysis was performed of the data received through questionnaire form about age and other demographic information, and screening test which was done to identify the positive HCV and HBV cases. Computer software SPSS version 23 was used to statistically analyze the data.

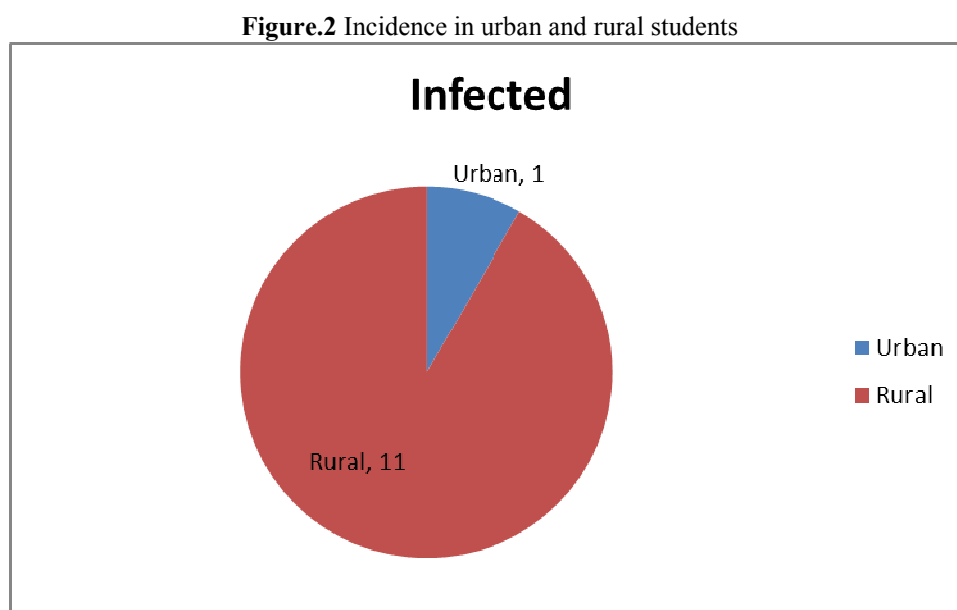
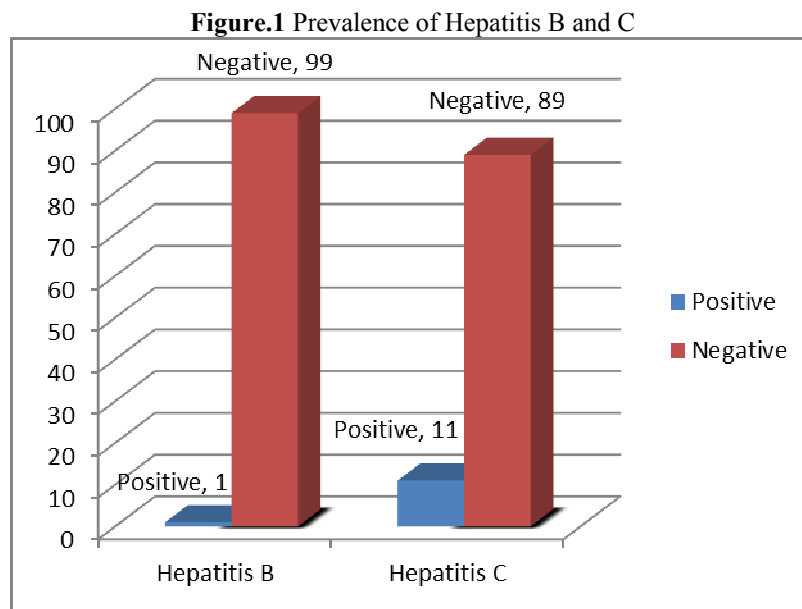
Results

As mentioned earlier all the students of the institution were included in the study. All students were female and their age ranged from 18 to 24 years. Among 100 students 11 were positive for HCV (11%) and 1 was positive for HBV (1%). Among these 12 cases only one was living in urban area and 11 were living in rural areas. In table-1 percent of students infected in rural and urban areas are showed, only one student of urban areas was affected while 11 students affected belonged to rural areas. Frequency percentage was calculated from the data obtained by screening of all 100 students. Graphical presentation of the data is shown in figure 1 and 2. Figure 1 shows percentage of patients with hepatitis B and hepatitis C, while figure 2 shows area based duration of the

infection i.e. rural and urban.

Table 1: Distribution of Hepatitis B and C in students living in urban and rural areas.

Total number of students	Not infected	Infected		B +ve	C +ve
		Urban	Rural		
100	88	01(01 %)	11(11 %)	01(1%)	11(11 %)



Discussion

Hepatitis B and C increasing incidence is alarming in developing countries like Pakistan. Incidence of HBV is decreasing due to vaccination but as there is no vaccine or satisfactory post exposure treatment of HCV. Due to poor preventive measures in our society, HCV incidence is increasing. Students included in this study are educated and under training health care providers in tertiary care level of hospital. Some studies show that HCV knowledge and awareness is very low among women and less educated people [12, 13, and 14]. In this study 11 out of 12 infected students belong to the rural areas. Other studies also show that there is remarkable difference in knowledge and prevalence of HCV and HBV in low socioeconomic, rural population as compared to urban population [15, 16]. It was also noted that although the LHV students included in this study were aware to some extent about the mode of spread of HCV and HBV but they were not very much concerned regarding their health and prevention of transmission. According to some studies the awareness level regarding the infection among

nursing interns was statically and significantly lower than medical interns [17].

Increasing incidence of HCV needs to implement proper screening of each and every patient and health care providers. Protocol for limiting the disease should be followed in every health facility, as transmission of HCV and HBV is common via needle pricks, surgical malpractice, beauticians and barbers. The results of an American multicentre study performed in 2006 showed that occupational exposure was greater in male HCWs [18]. The authors observed that men were three times more frequently infected than their female colleagues. In this context, bivariate analysis showed that glove use when performing invasive work was significantly associated with the female gender. A meta-analysis shows a statistically significant increase in the prevalence of HCV infection in HCWs compared to controls. Medical and laboratory personnel, and staff members who perform EPPs, are particularly affected [19]. In current study incidence of hepatitis C was more as compared to hepatitis B, the reason behind this difference is no vaccinations available for hepatitis C. Poor hygiene, carelessness while handling blood, IV injection abusers and relatives of the infected person are all at risk of contacting infection of both hepatitis B and hepatitis C.

Conclusion

Incidence of Hepatitis C is higher in Pakistan and is increasing due to lack of preventive measures. Hepatitis B and C have multiple transmission modes, there is special need to educate people in General and Health Care Professionals in particular to screen each and every patient and take necessary precautions to stop virus transmission. Special attention should be given to educate people in rural areas, including health care professionals, paramedic, quacks, beauticians and barbers.

Conflict of interest

There was no conflict of interest.

Funding Source

No external funding source was used.

Authors contributions:

1. *Conceived idea, design study*, ----- Humayun Israr
2. *Data collection, Manuscript writing*----- Haroon Israr
3. *Data collection, Manuscript Writting*-----Muhammad Israr Zafar
4. *Data analysis, literature review* ----- Muhammad Masood zafar
5. *Proof reading, statistical analysis* -----Aamir Furqan

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