**Occupational Exposures to Blood among Dentists in Jaipur District**

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**ABSTRACT**

**INTRODUCTION**

Dental personnel may be exposed to a wide variety of microorganisms in the blood and saliva of patients. This can be through direct contact, droplets or aerosols. It is well documented that indirect contact transmission of infection by contaminated instruments is possible. The aim of the study was to find out the knowledge, attitude and practice among dentists regarding occupational exposures.

**MATERIALS AND METHODS**

A community based descriptive type of observational study was conducted among the practicing dentists of the Jaipur district. A predesigned and pre-tested schedule was used to collect data regarding knowledge, attitude and practice of occupational exposures from 150 randomly selected dentists of the study area. The schedule consists of 20 items pertaining to knowledge, attitude and practice of respondents. The data collected was analysed using graph pad/Prism.

**RESULTS**

In the study it was found that the 62% dentists study population had exposure to blood among them 40.67% were males and 21.33% were females, 27.63% in rural area, 33.33% were MDS, and 26.67% aged 30 and above 30.67% has satisfactory knowledge 65.33% has positive attitude, 48.67 satisfactory-practice.

**CONCLUSION**

It was concluded that the knowledge and attitude regarding the occupational exposure procedures was more among urban than rural dentists. All dental healthcare workers should be aware of the risks from blood borne viruses associated with sharps injuries. All practices should have a policy for the management of a sharps injury; however, prevention of injuries remains the best policy.

**KEYWORDS**: Blood, Dentists, Hepatitis, Knowledge, Occupational Exposure

*How to cite this article:*

INTRODUCTION

Blood borne pathogens are microorganisms that can cause disease when transmitted from an infected individual to another non-infected individual through blood and other body fluids. Blood borne pathogens are capable of causing serious illness and even death. The most common illnesses caused by blood borne pathogens are hepatitis B (HBV), hepatitis C (HCV), and acquired immunodeficiency syndrome (AIDS) from HIV, or human immunodeficiency virus.  

Although adherence to universal precautions and routine use of appropriate barriers provide protection against most microorganisms, health care workers (HCW) are still at risk of infections due to accidental exposures, compared to the other health care settings, sharp’s injuries are more likely due to a small operating field, frequent patient movement and the variety of sharp dental instruments used in everyday practice. In the dental care setting it has been established that occupational blood exposures carry a certain risk of transmission for blood borne infections to the health care worker.

Blood-borne viruses (BBVs) in particular hepatitis B (HBV), hepatitis C (HCV) and HIV can be transmitted occupationally from infected health care workers to patients, from infected patients to health care worker, or from staff, or from patient to patient via contaminated instruments.

Hundreds of thousands of health care workers are out in the open to deadly microorganisms every year. They are exposed to preventable injuries involving over 20 different blood borne pathogens resulting about 1,000 infections per year of which the most common are HBV, HCV, and HIV. In November 2002, it was demonstrated in World Health Report data that 2.5% of HIV and 40% of hepatitis B and C cases among health care workers worldwide are a result of occupational exposures.

As for HBV, the risk of pathogen transmission with a sharp object has been estimated to be 6 to 30% while the number is 5 to 10% for HCV and 0.3% for HIV. Post-exposure prophylaxis is shown to be effective in 75 to more than 90% of the cases for HBV. As for HIV, they are found reduce the risk of infection; however, the way of preventing HCV acquisition following needle stick injury (NSI) is still unknown.

The aim of this study was to determine the knowledge, attitude and practice against exposure to blood-borne pathogens among dentists of Jaipur district.

METHODS

A community based descriptive type of cross sectional observational study was conducted among the practicing dentists of the Jaipur district. The period of the study was December 2013 to January 2014. A self-administered, predesigned questionnaire, which had been pretested for a validity and reliability, was prepared. The questionnaire was distributed among the dentists of rural and urban areas of Jaipur. The questionnaire was given to dentists by hand to them self to as to minimize the chance of attended filling the form. If dentist was working on a patient’s the questionnaire given to him and filled questionnaire was collected on next day. The filled questionnaire was collected then and there. Questionnaire was used to collect data regarding knowledge, attitude and practice of occupational exposures from 170 randomly selected dentists. Total population of dentists in Jaipur district is around
1700, 170 dentists were randomly selected, which is 10% of total dentist population. Out of 170 dentists, 20 dentists did not respond to all questions or they were unwilling to participate in the study. Questions were in English language. The questionnaire consisted of 20 questions, which were categorized under three different parts according to the knowledge, attitude and practice of the dentists, about occupational exposures. There were no penalties or rewards for participation, and dentists were told that participation was voluntary. It was stated that all collected information about participants would be treated as confidential. Chi-square test was used as statistical test. The data was analyzed using the graph pad software.

**Inclusion Criteria**
- Dentists who are not registered.

**Exclusion Criteria**
- Dentists who are not willing to participate in the study.
- Dentists who are not present at their clinic.

**RESULTS**

Of the 170 dentists questioned 150 returned the completed questionnaires (response rate: 88.23%), of the 150 responses. 67.33% of dentists were male and 32.67% were female. Among the dentists, 54.67% were general dentists and 45.33% were specialists. Among the dentists who reported occupational exposures while working at the various dental clinics, 40.67% were male dentists, 21.33% were females, 45.33% were general dentists and 33.33% were specialists, 29.33% of the respondents out of 50.67% rural and 32.67% urban dentists (Graph No.1) had occupational exposures to blood.

![Graph No.1](image1)

According to Graph No.2, there was poor knowledge towards occupational exposures among dentists practicing in rural compared to the urban areas.

![Graph No.2](image2)

According to Table No.1, more specialists had positive attitude regarding dental practices at their clinics. There was not much differences between attitudes of male and female dentists regarding dental practices were similar.
Table No.1

<table>
<thead>
<tr>
<th></th>
<th>Positive attitude %</th>
<th>Negative attitude %</th>
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</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>65.35</td>
<td>34.65</td>
</tr>
<tr>
<td>Female</td>
<td>65.31</td>
<td>34.69</td>
</tr>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDS</td>
<td>57.32</td>
<td>42.68</td>
</tr>
<tr>
<td>MDS</td>
<td>75.00</td>
<td>25.00</td>
</tr>
<tr>
<td><strong>Area</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>72.37</td>
<td>27.63</td>
</tr>
<tr>
<td>Urban</td>
<td>58.11</td>
<td>41.89</td>
</tr>
</tbody>
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Table No.2

<table>
<thead>
<tr>
<th></th>
<th>Good Practices %</th>
<th>Poor Practices %</th>
</tr>
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<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>48.51</td>
<td>51.49</td>
</tr>
<tr>
<td>Female</td>
<td>48.98</td>
<td>51.02</td>
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<tr>
<td><strong>Qualification</strong></td>
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<tr>
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<tr>
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<tr>
<td><strong>Area</strong></td>
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<td></td>
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<tr>
<td>Rural</td>
<td>62.20</td>
<td>50.00</td>
</tr>
<tr>
<td>Urban</td>
<td>38.24</td>
<td>52.70</td>
</tr>
</tbody>
</table>

DISCUSSION

Occupational exposure to blood borne pathogens is a well-recognized hazard to healthcare workers. Pre-cutaneous injuries among healthcare workers pose the greatest risk of infection. Dentists are in danger of both contracting diseases from their patients and infecting patients with pathogenic organisms carried by them or transmitted from other patients. Hepatitis B viruses (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV) are the principal blood-borne pathogens of concern to oral health professionals. With the advent of AIDS in 1981, a higher level of importance has been elucidated to the disease’s routes of transmission. Hepatitis B had earlier been identified as a blood-borne infection with potentially serious consequences, and by the mid-1970s, it was known to be at much higher prevalence in dentist than general population.

The aim of this study was to determine the knowledge, attitude and practice against exposure to blood-borne pathogens among dentists of Jaipur district. Similar study conducted by Shahram Farzin Ebrahimi et al. In the present study male dentists had experienced higher number of occupational exposures (40.67%) than female dentists (21.33%). Similar results were reported in a study done by K Bokhri et al (2012). In the results of study done by Al-Hussayeen AA et al (2007) showed higher injury rates among females than the males.

A study done by Sharifi et al (2008) on dentists of Qazvin, Iran, showed a high prevalence of which was 96.8% subjects were vaccinated. In the study done by Alavian et al, it was reported that the vaccination against hepatitis B was done in 74.8% of the participating dentists in the forty-fourth international congress of the
dentists of Iran.\textsuperscript{17} This was similar to the result of our study, this showed 85.3% dentist’s vaccination against hepatitis. The degrees of knowledge about infection transmission, especially hepatitis B, have also increased. Whereas in a study B. M. Hashemipour\textsuperscript{18} (2008) et al showed 6.1% of the medical students and none of the dental students (0.0%) vaccinated against hepatitis, Jepsen and Smith\textsuperscript{19} (2003) on 406 medical students in a study where 34% of subjects were not vaccinated against hepatitis B. Al-Sarheed\textsuperscript{20} (2004) in his study on dental students found 28.9% not vaccinated, Duffy et al\textsuperscript{21} (2004) reported 8% of the study population of Romanian dentists not to be vaccinated while 9% of them had received only two doses of vaccination.

In the present study the knowledge about occupational exposures to blood among female (34.69%) dentists was higher than male (28.71%) dentists. Similarly urban dentists (33.78%) had better knowledge regarding occupational exposure compared to rural (27.63%) dentists. But there was no difference among general and specialist dentists regarding occupational exposure to blood. This was contrary to the study done by Shahram Farzin Ebrahimi\textsuperscript{22} (2012) et al where the knowledge score of the male dentists was significantly higher than the females (P = 0.02).\textsuperscript{23,24}

**CONCLUSION**

Dentists are at a high risk of occupational exposures at their work place. Therefore, preventive measures should be taken. Also, focusing on the importance of reporting an occupational exposures and the possibility of prophylactic measures seem quite necessary. Education program and seminars should be carried out to increase the awareness of occupational exposure to blood among the dentists.

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