

Oral Healthcare Professionals are Your Vaccinations Up -To Date ?

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Abstract

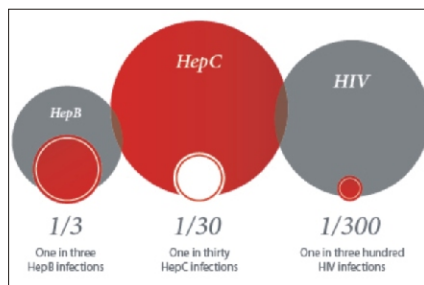
The transmission of blood-borne pathogens in the oral health-care setting has become a matter of increasing public interest and concern over the past number of years. There have been several reports of health-care workers (HCWs) infected with blood-borne pathogens, who had been involved in exposure-prone procedures. There have also been reports of infections being

transmitted due to contaminated equipment. Oral healthcare professional are prone to occupational exposures from blood borne viruses not only from needle stick injuries but also from mucous membrane exposures through aerosols generated during dental procedures. They are at significant risk from infected patients because they often have to use sharps in conventional dentistry (injections, reamers, files, burs, drills, blades, suture needles etc).

Introduction

- Occupational blood-borne infections are associated with significant morbidity and mortality. Health care workers (HCWs) are exposed to hazardous blood-borne pathogens such as hepatitis B (HBV) and hepatitis C virus (HCV). HBV and HCV infections are serious public health problems that can have consequences in terms of psychological and occupational diseases.
- There has been concern about the risk of occupational exposures to blood borne viruses (BBV) from the use of sharps among the oral healthcare professionals.
- Some of these injuries expose victims to AIDS, Hepatitis B & Hepatitis C infection each of which are potentially life threatening.
- Dentists are frequently exposed to patient's blood, oral fluids and tissues, all of which may potentially carry lethal blood borne viruses (BBV). The chief blood borne pathogens of concern are
 - Hepatitis B (HBV)
 - Hepatitis C (HCV)
 - Human Immunodeficiency Virus (HIV)
 - Others include TB, Prions, Ebola, Herpes, Mumps, Rubeola, Infectious

- Mononucleosis, Influenza and Swine flu
- Due to universal precautions like Immunization and better occupational safety measures, the number of infections from Needle Stick Injury has declined during the last decade.
- However, irrespective of all the measures, injuries will continue to occur at a baseline level. No effective vaccination has been developed against HCV and HIV till date.
- Diseases are transmissible to dentist from the infected patients and vice versa. Dental healthcare workers are at significant risk because they often have to use sharps and rotary instruments in the areas of oral cavity which often have inadequate accessibility
- Most dental procedures are carried out under Local Anesthesia, Since the patient is awake, jerky patients movements are always likely and increases the probability of injury.
- The term needle stick recently has been substituted by "INOCULATION INJURIES".



- INDIA has a larger number of population sufferings from Blood borne diseases. WHO estimates that every year 1,00,000 Indians die due to HBV infection.

How to Prevent Disease Transmission?

Standard precautions of precautions designed to prevent or reduce the risk of transmission of HIV, HBV, HCV and other blood-borne pathogens from both recognised and unrecognised sources of infection in health-care settings. Standard precautions combine the major features of universal precautions, which were designed to reduce

the risk of transmission of blood-borne pathogens and body substance isolation, which was designed to reduce the transmission of pathogens from moist body substances. Standard precautions apply to: blood, all body fluids, secretions and excretions except sweat, regardless of whether or not they contain visible blood; non-intact skin; and mucous membranes.

Standard precautions include the use of protective barriers such as gloves, waterproof gowns and aprons, water-repellent masks and protective eyewear, which can reduce the risk of exposure of the health-care worker's skin or mucous membranes to potentially infective materials. In addition, under standard precautions, it is recommended that all health-care workers take precautions to prevent injuries caused by needles, scalpels and other sharp instruments or devices.

Standard Precautions

- Wear gloves if contact possible with blood, body fluids, non-intact skin or mucous membranes.
- Prevent puncture wounds, cuts and abrasions in the presence of blood and body fluids.
- Use safety devices where appropriate and avoid use of or exposure to sharp instruments (Needles, glass, metal, etc.) when possible but, if unavoidable, take particular care in handling and disposal.
- Protect all breaks in exposed skin by means of waterproof dressings and/or gloves.
- Protect the eyes and mouth by means of a visor or goggles/safety spectacles and a waterproof mask when splashing is a possibility.
- Avoid contamination of the person or clothing by using of waterproof/water-resistant protective clothing, plastic aprons, etc.
- Wear rubber boots when the floor or ground is likely to be contaminated.
- Footwear/rubber boots should be decontaminated by a washer-disinfector.
- Health care workers should be aware of the first aid and follow up procedures to follow in the event a percutaneous or mucocutaneous exposure to blood or body

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fluids.

- Control surface contamination by blood and body fluids by containment and appropriate Decontamination of spillages.
- Ensure that all single use items are disposed of after use.
- Dispose of all contaminated waste and sharps safely.



Immunization

- No vaccination for Hepatitis C and HIV, but there is effective vaccine against Hepatitis-B.
- Successful immunization also provides protection against Hepatitis D.
- 0, 1 and 6 months course- Cost varying from Rs 75-200/- only depending on the brand available.
- Course of 3 Doses to be followed
 - a 1st dose at the time prescribed date.
 - b 2nd dose after one month following the 1st dose
 - c 3rd dose at six months after first dose
- Dentist should be tested for anti-HBs antibodies 1-2 months after completion of three doses.
- An estimated 4% of persons with acute HBV infection are also infected with Hepatitis Delta Virus (HDV).
- 10% vaccinated individuals do not produce antibodies against Hepatitis B.

Post Exposure Prophylaxis

- After exposure, first aid should be administered as necessary.
- Puncture wounds and other injuries to the skin should be washed with soap and water; mucous membrane should be flushed with water.
- Timely institution of PEP. Eg :

Vaccination/Immunoglobulin for Hepatitis B or antiretroviral drugs in case of HIV can prevent disease transmission in most of cases. In Hepatitis C disease transmission cannot be prevented.

- Steps to be followed after Injury
- Terminate all the procedures and wash the wound with water
- Do not scrub, suck and play with the affected areas
- Encourage bleeding by squeezing above the wound to increase venous back pressure.
- Each occupational exposure should be evaluated individually for its potential to transmit HBV, HCV and HIV, based on the following :
- The type and amount of body substance involved.
- The type of exposure (eg: percutaneous injuries, mucous membrane or non intact skin)
- The infection status of the source.
- The susceptibility of the exposed person.

Take-home Message

- Occupational blood-borne infections are associated with significant morbidity and mortality.
- HBV and HCV are common causes of occupational diseases transmitted from patients to health care workers and vice versa, and also to health care workers' families.
- The major source of HIV, HBV, HCV and other blood-borne pathogens is blood. However, it should be kept in mind that all body fluids can be infectious.
- The highest prevalence of HBV is seen in dentists.
- Nurses were most commonly exposed to infection (41%), followed by physicians (31%).
- Exposure to body fluids such as breast milk, bile, and cerebrospinal fluid is less often involved.
- Unnecessary injections, the frequent use of unsterile needles and inappropriate hazardous waste disposal are the major blood-borne infection risk factors in developing countries.
- Proper hand washing, use of barriers and puncture-resistant containers for sharp disposal can minimize mucocutaneous exposures.

Summary

Exposure to blood-borne pathogens poses a serious risk to oral health care workers(HCWs).We review the risk and management of human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV) infections in HCWs and also discuss current methods for preventing exposures and recommendations for postexposure prophylaxis. In the health care setting, blood-borne pathogen transmission occurs predominantly by percutaneous or mucosal exposure of workers to the blood or body fluids of infected patients. To minimize the risk of blood-borne pathogen transmission from HCWs to patients, all HCWs should adhere to standard precautions, including the appropriate use of hand washing, protective barriers, and care in the use and disposal of needles and other sharp instruments. Employers should have in place a system that includes written protocols for prompt reporting, evaluation, counseling, treatment, and follow-up of occupational exposures that may place a worker at risk of blood-borne pathogen infection. A sustained commitment to the occupational health of all HCWs will ensure maximum protection for HCWs and patients and the availability of optimal medical care for all who need it.

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