

HEPATITIS B – METHODS OF STERILIZATION AND DISINFECTION

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ABSTRACT:

Hepatitis b is a slow killer and hence its potency is knowingly ignored. India has the second largest pool of HBV carriers. Hepatitis B causes health threat to dentists and orthodontic patients. In this article we would be describing the various methods of sterilization and disinfection of orthodontic clinic and instruments which protects both patient and orthodontist.

KEYWORDS: hepatitis B, HBV, sterilization for dental patients, disinfection.

INTRODUCTION

HBV is a blood borne disease. It causes chronic viral inflammation of the liver and quietly devastates it without the victim realizing it. Hence it is also called as SILENT EPIDEMIC¹.

There are five types of viruses that are known to attack the liver and cause liver inflammation called hepatitis more commonly known as jaundice. The five types are hepatitis A, B, C, D and E. Hepatitis A and E spreads through faeco oral route. Hepatitis B and C spreads through blood borne route and Hepatitis D occurs as a super infection to hepatitis B infection. Of the five types hepatitis E is the mildest, hepatitis B is the widest spread, C is rare but the most dangerous.^{1,2,3}

In older days it was argued that orthodontic procedures are non intrusive and hence we can take the infection control protocol lightly. But in practice it is not so. Now with ever increasing spread of viral diseases like AIDS and hepatitis B the scenario is completely changed.⁴⁻⁹

The routes of transmission:³

1. Prenatal – from infected mother to new born.
2. Blood transfusions
3. Unprotected sex.
4. Contaminated I V needles and accidental needle pricks.
5. Micro lesions – contact with blood or other bodily fluids through micro cracks on skin surface.

INFECTION CONTROL PROTOCOLS

- A. VACCINATION
- B. HISTORY OF THE PATIENT.
- C. BARRIER TECHNIQUES
- D. STERILIZATION
 - instrument sterilization
 - sterilization of work area
 - impression sterilisation
 - disposal of wastes

Vaccination

Though an effective vaccine is available to protect ourselves from HBV it has met with indifference on the part of many¹⁰⁻¹². The course consists of three doses:

1. First dose at an elected date – injected in arm muscle during the first visit.
2. Second dose after one month
3. Third dose after six months of administering the first dose.

Booster dose should be given once in every five years. It is advisable to check for hepatitis B antibody titer one to two months after the third dose of vaccination. Antibody (HBs AG) response should be positive and at least 10 ml U / ml. In case the antibody response is less than 10 ml U/ml or negative then the third dose vaccine is given for second time.

History of the patient

Though patients suffering from communicable disease tend to hide their medical status it is mainly the fraternity to blame because many a times their dental treatment is rejected under some pretext or the other³. Sometimes the patient might be a carrier or be in a high risk situation but unaware of his medical status. Hence a thorough medical and family history is apparent. Equally important is to take the patient into confidence.

Other important aspect of a good medical history makes things much easier if in future anybody in the clinic has a accidental exposure to patients blood or saliva.

Barrier techniques^{4,5,7}

Barrier techniques such as apron, gloves, mouth mask, eye glasses can be used.

HBV is primarily transferred to the orthodontist and dental office staff through direct contact with blood or saliva through micro lesion in an ungloved hand or hand contaminated instruments.

Compulsory wearing of gloves, mask is always mandatory. Protective glasses are also must to prevent splutter into eyes.

Washing hands with antimicrobial soap is also mandatory. We can also wear apron to prevent contamination of dresses.

Sterilization^{3,5,8,9}

Instruments: Instruments can be sterilized chemically. Chemicals used are ethyl alcohol, Sulfuric acid with potassium dichromate. These are disinfectants used in ultra sonic cleaner. Disinfection of orthodontic instruments, bands, e chains, wires are done by soaking in these chemicals for 30 minutes and cannot be autoclaved as rusting of instruments will be caused.

Sterilization of working area: working field also causes contamination. So the work area is sterilized by 70 percent isopropylalcohol. Disposable tray sheets, suction tips, head rest cover, light handle cover, cover for switches and three way syringes must be used and changed for each patient⁵.

Impression sterilization: Impression sterilization is done by cleaning in running tap water and dipping it in glutaraldehyde or by spraying sodium hypochlorite and leaving for 10 minutes⁹.

Waste disposal: Care should be taken to prevent spread of infection outside the dental office. Clinical waste should be segregated. Waste is segregated in a colour coded plastic bags. Needles should be incirated and disposed. The colour coding for waste disposable cover are yellow, blue and black. Yellow covers are used for disposable of human and biological waste; blue covers are used to dispose the sharps and black cover to dispose the medical waste.

In case of accidental exposure, the exposed part is washed thoroughly with water and cleaned with soap and antiseptic solution. Immediately it is reported to a general physician.

CONCLUSION:

Hepatitis B is one of the most commopn killer liver diseases. It is not only common man is affected but also medical personals. Following proper vaccination protocols as a prophylaxis along with proper sterilization and sanitation can prevent maximum proliferation of hepatitis B cases.

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