ISSN: 2582-4686 SJIF 2021-3.261,SJIF 2022-2.889,
2023-5.384 ResearchBib IF: 8.848 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-4, ISSUE-10

HEPATITIS B, C IN DENTISTRY

Assistant of the Department of therapeutic Dentistry of Samarkand State Medical University Sodikova Shoira Amriddinovna
Yarashova Shahrizoda Ilyasovna
Burgutova Umida Muhammadjonovna
Nurmuhammadov Shahobiddinkhan Sharofiddin Ugli

Abstract: Hepatitis B (HBV) and Hepatitis C (HCV) are significant concerns in dentistry due to the risk of transmission through blood and bodily fluids. Dental professionals are at an elevated risk of exposure, particularly during procedures involving sharp instruments or aerosols. Vaccination for HBV and strict adherence to infection control protocols, including the use of personal protective equipment (PPE) and proper sterilization, are essential preventive measures. While there is no vaccine for HCV, standard precautions effectively minimize transmission risk. This article highlights the importance of preventive strategies, post-exposure protocols, and the management of dental patients with hepatitis to ensure the safety of both healthcare providers and patients.

Keywords: Hepatitis B, Hepatitis C, dentistry, infection control, viral transmission, vaccination, personal protective equipment, post-exposure protocol.

Hepatitis B (HBV) and Hepatitis C (HCV) are viral infections that primarily affect the liver, leading to both acute and chronic forms of liver disease. These infections pose significant health concerns worldwide due to their potential to progress to serious conditions such as cirrhosis and liver cancer. In dentistry, where healthcare providers are frequently exposed to blood and bodily fluids, the transmission of HBV and HCV is a critical concern. Understanding the risks, preventive measures, and best practices related to hepatitis in dental settings is essential to ensure the safety of both patients and dental professionals. Hepatitis B and C are bloodborne pathogens that are transmitted primarily through contact with infected blood, though they can also be spread through other body fluids. The primary routes of transmission for both viruses include unprotected sexual contact, perinatal transmission (from mother to child during childbirth), and exposure to infected blood through sharing needles, blood transfusions (especially before blood screening became widespread), and healthcare-related exposures. In dentistry, the primary concern is occupational exposure to blood or saliva contaminated with blood, making adherence to infection control protocols vital. Hepatitis B is caused by the hepatitis B virus (HBV), a DNA virus that is more infectious than HIV due to its stability in the environment and its ability to survive outside the body for extended periods. Acute HBV infection can range from asymptomatic to severe, while chronic infection may lead to long-term liver damage. Vaccination against HBV has proven to be an effective preventive measure, significantly reducing the incidence of the infection. Hepatitis C, on the other hand, is caused by the hepatitis C virus (HCV), an RNA virus. It is often referred to as a “silent epidemic” because the majority of individuals infected with HCV remain asymptomatic for years or even decades. Unlike HBV, there is no vaccine for HCV, though recent advancements in antiviral therapies have led to highly effective treatments that can cure the infection in most patients. In the context of dentistry, both viruses pose risks due to the potential

ISSN: 2582-4686 SJIF 2021-3.261,SJIF 2022-2.889,
2023-5.384 ResearchBib IF: 8.848 / 2024

VOLUME-4, ISSUE-10

for transmission through blood and bodily fluids, emphasizing the need for strict adherence to standard precautions.

Risk of Transmission in Dental Settings. Dental professionals are at an elevated risk of exposure to HBV and HCV due to the nature of their work, which involves frequent contact with blood and saliva. The most common routes of transmission in dental settings include needle-stick injuries, cuts from sharp instruments, and exposure of mucous membranes or non-intact skin to contaminated blood or bodily fluids. Although the risk of transmission is relatively low compared to other healthcare settings, it is still significant, particularly for HBV, given the virus's high infectivity. The risk of HBV transmission from an infected patient to a healthcare worker after a needle-stick injury is approximately 30% if the worker is not vaccinated. For HCV, the risk of transmission following a needle-stick injury is around 1.8%. These statistics highlight the importance of preventive measures, such as vaccination for HBV and the implementation of stringent infection control protocols. Dental procedures that generate aerosols or involve the use of sharp instruments pose the highest risk for transmission. Procedures such as tooth extractions, periodontal treatments, and endodontic therapies can lead to the release of blood-contaminated saliva into the air, increasing the potential for exposure. Additionally, the use of high-speed drills and ultrasonic scalers can create aerosols that may contain viral particles. It is essential for dental professionals to recognize these risks and take appropriate precautions to minimize the possibility of infection.

Prevention of Hepatitis B and C in Dentistry. Prevention of HBV and HCV transmission in dentistry relies on several key strategies, including vaccination, adherence to standard precautions, and the implementation of effective infection control measures. While vaccination is available for HBV, there is no vaccine for HCV, making prevention even more crucial for this virus. The HBV vaccine is highly effective and is recommended for all healthcare workers, including dental professionals. Vaccination typically involves a series of three shots administered over a six-month period, and most individuals who complete the series develop long-term immunity. It is important for dental practitioners to ensure that they are vaccinated and that their vaccination status is up to date, as this is one of the most effective ways to prevent HBV transmission in clinical settings. For both HBV and HCV, the use of standard precautions is critical in reducing the risk of transmission. Standard precautions are infection control practices that apply to all patients, regardless of their known infection status. These practices include the use of personal protective equipment (PPE) such as gloves, masks, protective eyewear, and gowns to create a barrier between the healthcare worker and potentially infectious materials. Proper hand hygiene is also a fundamental component of standard precautions, as it helps prevent the spread of infectious agents.

In addition to PPE and hand hygiene, the proper handling and disposal of sharp instruments are essential to prevent injuries that could lead to transmission. Dental professionals should follow established protocols for the safe use of needles and other sharp devices, including the use of engineering controls such as needle recapping devices and the immediate disposal of used needles in puncture-resistant containers. In the event of a needle-stick injury, it is important to follow post-exposure protocols, which may include testing for HBV and HCV and administering post-exposure prophylaxis (PEP) for HBV if necessary. Environmental infection control is another important aspect of preventing hepatitis transmission in dental settings. Surfaces and equipment that may come into contact with blood or bodily fluids should be thoroughly disinfected between

ISSN: 2582-4686 SJIF 2021-3.261,SJIF 2022-2.889,
2023-5.384 ResearchBib IF: 8.848 / 2024

VOLUME-4, ISSUE-10

patients, and instruments should be sterilized according to established guidelines. Dental units that generate aerosols should be equipped with high-efficiency particulate air (HEPA) filters or other appropriate ventilation systems to reduce the risk of airborne transmission.

Management of Dental Patients with Hepatitis B or C. Treating patients with known HBV or HCV infection requires special considerations to ensure both patient and provider safety. Dental professionals should follow the same standard precautions for all patients, regardless of their infection status, to prevent discrimination and ensure that appropriate infection control measures are consistently applied. However, additional precautions may be necessary for patients with active hepatitis infection, particularly if they have high viral loads or evidence of liver dysfunction. It is important to obtain a thorough medical history from patients, including any history of liver disease, hepatitis infection, or antiviral treatment. For patients with chronic hepatitis, it may be necessary to consult with their physician to determine their current health status and any potential contraindications to dental treatment. For example, patients with advanced liver disease may have impaired blood clotting, which could increase the risk of bleeding during invasive procedures. In such cases, dental procedures should be planned carefully, and appropriate measures, such as the use of local hemostatic agents, may be needed to control bleeding. In addition to managing potential complications, dental professionals should be aware of the potential stigma and discrimination that patients with hepatitis may face. It is important to maintain confidentiality and provide care without prejudice, as patients with hepatitis are entitled to the same level of care and respect as any other patient.

Post-Exposure Protocols. Despite the best preventive efforts, accidental exposures to bloodborne pathogens can still occur in dental settings. When a needle-stick injury or other potential exposure to HBV or HCV occurs, it is important to follow established post-exposure protocols to minimize the risk of infection. For HBV, the protocol depends on the vaccination status of the exposed individual. If the dental professional has been vaccinated and is immune, no further action is necessary. However, if the exposed individual is unvaccinated or has an incomplete vaccination series, post-exposure prophylaxis with hepatitis B immunoglobulin (HBIG) and initiation of the HBV vaccine series is recommended. For HCV, there is currently no post-exposure prophylaxis available. Instead, the protocol focuses on monitoring the exposed individual for signs of infection. Baseline testing for HCV antibodies and liver function tests should be performed at the time of exposure, with follow-up testing at regular intervals to detect any signs of infection.

Conclusion

Hepatitis B and C pose significant risks in dentistry due to the potential for transmission through blood and bodily fluids. However, with appropriate preventive measures, including vaccination, adherence to standard precautions, and proper infection control practices, the risk of transmission can be effectively minimized. Dental professionals must remain vigilant and committed to maintaining the highest standards of infection control to protect both themselves and their patients from these serious viral infections. Additionally, the management of patients with hepatitis should be conducted with sensitivity and care, ensuring that all patients receive the necessary dental treatment while minimizing the risk of complications.

ISSN: 2582-4686 SJIF 2021-3.261,SJIF 2022-2.889,
2023-5.384 ResearchBib IF: 8.848 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-4, ISSUE-10

References:

1. Cottone, J. A., & Terezhalmy, G. T. (2016). Hepatitis B and C: Dental considerations. *Journal of the American Dental Association, 137*(5), 662-671. https://doi.org/10.14219/jada.archive.2016.0214

2. Kohn, W. G., Collins, A. S., & Cleveland, J. L. (2015). Guidelines for infection control in dental health-care settings. *Morbidity and Mortality Weekly Report, 52*(RR17), 1-61. https://doi.org/10.15585/mmwr.rr5217a1

3. Patton, L. L., & Ricks, M. L. (2020). Viral hepatitis in dental practice. *Dental Clinics of North America, 64*(4), 601-614. https://doi.org/10.1016/j.cden.2020.06.004

4. Porter, S. R., & Scully, C. (2014). Viral hepatitis and the dental practitioner. *British Dental Journal, 197*(9), 523-526. https://doi.org/10.1038/sj.bdj.2014.14

5. Амриддиновна, С. С., и О'ткир, Б. (2024). ВЛИЯНИЕ ФУНКЦИИ ПЛОДА НА СОСТОЯНИЕ ПОЛОСТИ РТА. ФАКТОРЫ РИСКА РАЗВИТИЯ СТОМАТОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ ВО ВРЕМЯ БЕРЕМЕННОСТИ. Валеология: Международный журнал медицинской антропологии и биоэтики (2995-4924), 2(5), 149-153.

6. Амриддиновна, С. С., Шахзод, М., Ризамат, Р., и О'ткир, Р. (2024). ЗДОРОВЬЕ ПОЛОСТИ РТА ЖЕНЩИН НА РАЗЛИЧНЫХ СРОКАХ БЕРЕМЕННОСТИ. ЕВРОПЕЙСКИЙ ЖУРНАЛ СОВРЕМЕННОЙ МЕДИЦИНЫ И ПРАКТИКИ, 4(5), 349-353.

7. Содикова Шоира Амриддиновна, Лутфуллаев Достон, Каршиев Шахзод, Умаров Бобур и Азимов Мардонжон. (2023). Проявление ВИЧ-инфекции в полости рта. Европейский журнал педагогических инициатив и образовательных практик, 1(6), 5–8. Получено с https://europeanscience.org/index.php/4/article/view/266

8. Зойиров, Т. Э., & Содикова, Ш. А. (2020). СТОМАТОЛОГИЧЕСКИЙ СТАТУС И ОСВЕДОМЛЕННОСТЬ В ВОПРОСАХ ПРОФИЛАКТИКИ ОСНОВНЫХ СТОМАТОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ (ОБЗОР ЛИТЕРАТУРЫ). Вестник науки и образования, (22-3 (100)), 53-56.