

FREQUENCY OF HEPATITIS B VIRUS AND HEPATITIS C VIRUS IN PATIENTS UNDERGOING VARIOUS DENTAL PROCEDURES

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Abstract

Objective: To determine the frequency of hepatitis B virus and hepatitis C virus in patients undergoing various dental procedures at Tokyo Yaesu Dental Clinic and Tokyo Dental College Japan.

Materials & Methods: In this descriptive study, we determined the frequency of HBV and HCV by screening the patients for HBs antigen and HCV antibody in blood serum before going for any dental procedures. Data were recorded from December 1999 to 2009 (9 years & 8 months) in the Tokyo Yaesu Dental Clinic whereas in Tokyo Dental College Japan from October 2006 up to May 2008 (1 year and 8 months).

Results: In this study, we assessed 2,181 patients for HBs, out of which 13 (0.60%) cases were found positive for HBs at Tokyo Yaesu Dental Clinic, and out of 3216 patients 33 (1.02%) patients were found positive for HBs antigen at Tokyo Dental College. On another hand 31 (1.42%) patients out of 2181 were found positive of HCV antibody at Tokyo Yaesu Dental Clinic and 45 numbers of cases (1.43%) were found positive for HCV antibody at Tokyo Dental College. Most of the patients were found to be in the 6th and 7th decade of life.

Conclusion: Screening for HBV and HCV should be mandatory for every patient going through any invasive and non-invasive dental procedures. Furthermore, sterilizations and standard precautionary protocols must also be observed at Dental clinics and hospitals.

Keywords: HBV, HCV, a positive rate, a standard precaution

INTRODUCTION

Viral hepatitis these days is very common all around the world, which may end up with liver cirrhosis or hepatocellular carcinoma. Dental clinics and hospitals can be a source of cross-infection of Hepatitis B and C viruses that can pass to another

individual through contaminated blood, saliva, droplet splatter, and aerosols.¹ Dentist are more prone to certain infections like T. B, Hepatitis-B, and C, streptococcal and staphylococcal infections, HSV, Human immunodeficiency virus and paramyxovirus, etc.² Hepatitis-B virus is actually DNA virus which is a common etiology of viral hepatitis while Hepatitis-C infection is a hot-tropic viral disease caused by hepatitis-C virus, which plays main etiological role in developing acute hepatitis and chronic liver diseases. Among all types of hepatitis, B and C often result in permanent liver damage and sometimes also cause the death of the patient.³

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Hepatitis B and C can be prevented by following standard precautionary practices like timely vaccinations against the viruses and using barriers to avoid skin and mucous membranes exposures while handling blood or other body fluids of patients.⁴ Various studies have been done in different population with different demographics on the prevalence of Hepatitis B and C and almost all studies recommend, patient education and awareness, prevention, infection control and screening of all patients for these infections prior to any dental procedures.^{1,4,5} The purpose of this study was to determine the frequency of hepatitis B virus and hepatitis C virus in patients undergoing various dental procedures at Tokyo Yaesu Dental Clinic and Tokyo Dental College.

MATERIALS AND METHODS

This study was conducted at Tokyo Dental College, Japan after approval from the Institutional Ethical and Research Board of Tokyo Dental College. After taking informed consent from all the patients, 5 ml of blood was taken from every patient and were then screened for HBs and HCV prior to the examination and any dental procedure. The result were analyzed by using SPSS version 20. The Data was arranged in the form of a Table.

RESULTS

In this study, we assessed 2,181 patients for HBs, out of which 13 (0.60%) cases were found positive for HBs at Tokyo Yaesu Dental Clinic (Table 1), and out of 3216 patients 33 (1.02%) patients were found positive for HBs antigen at Tokyo Dental College.

On another hand 31 (1.42%) patients out of 2181 were found positive of HCV antibody at Tokyo Yaesu Dental Clinics and 45 number of cases (1.43%) were found positive for HCV antibody at Tokyo Dental College. (Table 2).

Compare to Tokyo Dental University Chiba Hospital to Tokyo Yaesu Dental Clinic have the same frequency of HCV positive cases while less frequency of HBs positive cases.

The patient's age distribution of HBsAg positive individuals and HCV positive individuals in Yaesu Dental Clinic showed in Figure 1 and 2, respectively.

The patient's age distribution of HBsAg positive individuals and HCV positive individuals in Tokyo Dental College showed in Figures 3 and 4 respectively.

Table 1: Comparison of HBs screening results at Tokyo Yaesu Dental Clinic and Tokyo Dental College

Test Center	Time Period	Total number of patients	Patients with HBs positive	Positive rate (%)
Tokyo Yaesu Dental Clinic	1999 to 2019	2,181	13	0.60
Tokyo Dental College	2006 to 2008	3216	33	1.02

Table 2: Comparison HB antigen screening results at Tokyo Yaesu Dental Clinic and Tokyo Dental College.

Test Center	Time Period	Total number of patients	Patients with HCV	Positive rate (%)
Tokyo Yaesu Dental Clinic	1999 to 2019	2,181	31	1.42
Tokyo Dental College	2006 to 2008	3133	45	1.43

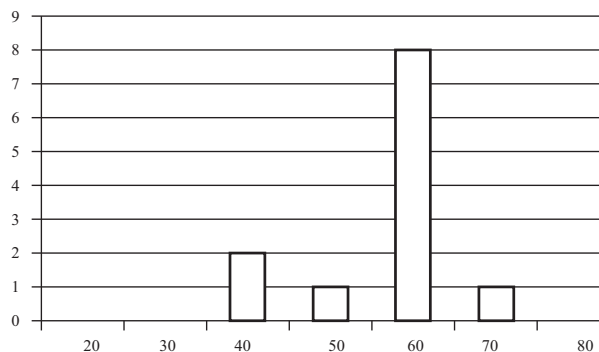


Fig 1: Age distribution of HBsAg positive individuals in Yaesu Dental Clinic

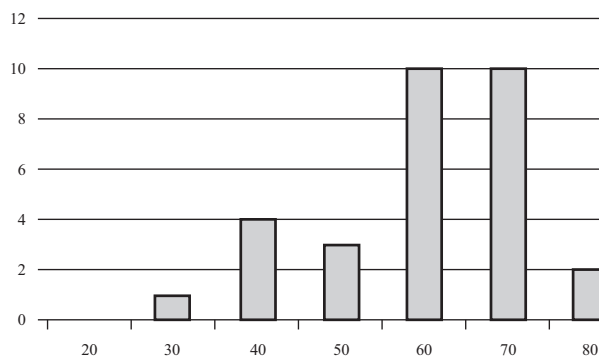


Fig 2: Age distribution of HCV positive individuals in Yaesu Dental Clinic

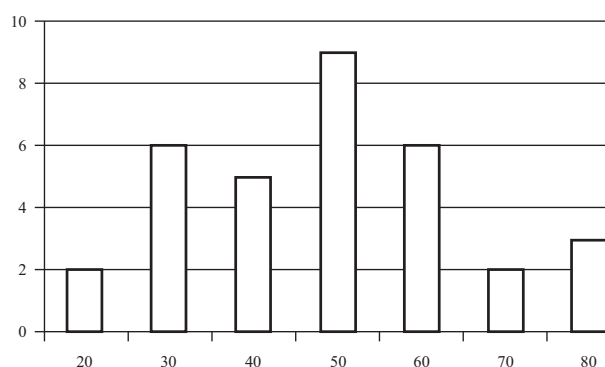


Fig 3: Age distribution of HBsAg positive individuals in Tokyo Dental College

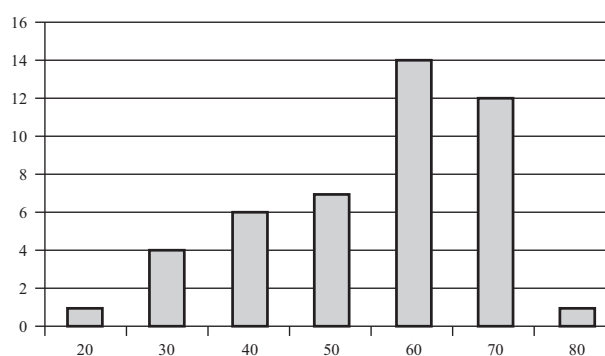


Fig 4: Age distribution of HCV positive individuals in Tokyo Dental College

DISCUSSION

The frequency of Hepatitis B is 0.60% and 1.02% in Tokyo Yaesu Dental Clinic and Tokyo Dental College respectively, while the frequency of Hepatitis C was 1.42% and 1.43% in Tokyo Yaesu Dental Clinic and Tokyo Dental College respectively. Villar et al. did the same study in a 433 military personnel in Rio de Janeiro during 2013 and they found 18 (4.1%) positive for total anti-HBc, and 3 (0.7%) were anti-HCV reactive.⁶ The difference in their results to our study could be due to the change in demographics and population.

A similar study was conducted in Istanbul Turkey from 1998 to 2001, in which the total number of 1157 patients were screened for HBs and HCV by Erden et al.⁷ Their results shows that 28.1% patients were positive for Hepatitis B and 2.4% were positive for hepatitis C, which is quite different from our study. The frequency of HCV was too high in their population and this difference could be due lacking in their standard precautionary and sterilization protocol.

CONCLUSION

Dental clinics and hospitals could be a source of cross infections especially hepatitis B and C, therefore, observing standard sterilization and precautionary protocols at dental clinics and hospitals are of utmost importance for the prevention of Hepatitis B and C infections. Furthermore, screening for Hepatitis B and C infection must also be considered before going for any dental procedures.

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