

Evaluating Hepatitis B Immunity Among Dentists In Babylon Provenance: A Cross-Sectional Study

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ABSTRACT

Background: This cross-sectional study examines the immunization history, adherence to preventive measures, and demographic factors that interact with the hepatitis B immune status of a cohort of 85 dentists of Babylon heritage. The ages of the dentists vary from 22 to 46, and they have different immunization records and safety precautions. Hepatitis B immunity exhibits complex patterns that are revealed by a thorough examination of data, including gender, age, vaccination status, date of vaccination, number of doses, and adherence to preventive measures. Even if a certain number of dentists have foreseen and had immunizations, some differences among them in terms of compliance with the recommended preventive measures were observed. Different can indeed be stunning: unique vaccination schedules of the dentists create peculiar immunity rates. The hindrance of spread and developing of immunity may be facilitated by the adoption of preventive measures, which include personal protective equipment (PPE) use on regular basis. The study takes a different angle in the eyes of timeline by disclosing vaccination journeys that cover the two decades.

The results stress upon the effectiveness of immunization campaigns and raise awareness on the crucial importance of continuing to implement precautionary measures in order to preserve immunity among our communities. This work may be helpful in designing targeted plans that take the individual peculiarities into account. Also, it contributes to the understanding of the hytic process of anti-hepatitis B in dentists. This evidence however is invaluable for the health care policies; it encourages regular testing and strengthens the preventative measures to achieve sustainable status for the health care workers on a long term basis.

This article serves, undeniably, as a guidebook not only for the government workers and also the medical researchers engaged in the field of hepatitis B prevention programs. Taken together, the knowledge gathered applies to evidence-based interventions that ensure workers' protection against the hepatitis B spread, tackling the public health issues.

Keywords: Public Health, Protective Measures, Vaccination, Occupational Exposure, Immunity, Dentists, And Hepatitis B.

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INTRODUCTION

Along with other medical specialists' dentist, occupies a fundamental spot in the control of diseases—since he/she is the biggest prevention method as well as the cure. Although not very majority but being a group of the healthcare professionals whose is involved with blood and bodily fluids. Dentists are more prone to hepatitis B than people in the general population (1).

An increased chance of carrying through bloodborne pathogens during dental therapies stands out as well because the patient will be in contact with possibly infected materials. Hepatitis B, which is transmitted quickly and causes chronic liver maladies like cirrhosis or hepatocellular cancer, is a widespread issue today. Unlike other healthcare workers whose extended exposure to patients is limited to short notice, these professionals are more at risk of getting the disease themselves, therefore there is a need of taking proper preventive actions (2).

Immunization against Hepatitis B is one of the major factors that prevent dentists' occupational health. To protect against hepatitide bloodborne disease, as well as the World Health Organization and international health authorities suggest the routine hepatitis B immunization of all healthcare workers including dentists. These talking points may help dental workers to address vaccination limitations, but I think that these remaining problems must have been overcome so that best vaccinations will be acquire(3).

Comprehending immune processes dynamics and the reasons for the acceptance or rejection of vaccination steadiness in the dental group is vitally important to have well defined interventions and an atmosphere where safety of dental professionals matters. One affects another because patient compliance, vaccination availability, as well as awareness are the potent factors of the rate of immunization among dentists (4), (5).

This paper aims to investigate the immunological aspects of dentists regarding the hepatitis B infection with immunisation

history, demographics, and preventive measures of importance into some consideration. The prese explaining the conceptual relationships of these aspects eventually will give us a chance to suggest occupational health policies, encourage immunization, and therefore to improve the health of the dental professionals.

METHODS AND MATERIALS

The primary objective of this study was to see how dentists in Babylon with the same birthplace responded to hepatitis B immunization. The study entailed a great evaluation in terms of the association of the vaccination status to the level of adherence to public health preventive measures, while consideration is also given to the demographic characteristics.

The investigation group included 85 dentists who were of the family of the King of Babylon. During the course of the questionnaire, convenience sampling was employed to get the involvements of dentists where a wide range of ages, genders, and diversified years of training were selected.

The data gathering was by looking at the vaccinations cards and through structured interview. We entered every participant's demographic data in the file, including their age and gender. The list of vaccination history was very detailed and specified the date of vaccine uptake, dosage count and time since the previous dose was administered. Level of adherence to protective equipment like personal protective equipment (PPE) was assessed through either the self-reporting of

practices or direct observation of the same (10).

The serological examination was used to establish if the individuals who were vaccinated had immunity to hepatitis B. Through the enzyme-linked immunosorbent assay (ELISA) process we measured the anti-HBs antibody's presence in the participant blood samples(8).

Average of age vaccinated	Average of 1 dose	Average of 3 dose
Grand Total	32	40
yes	23	28
no	9	12
Grand Total	21.33333333	26.66666667

History of Vaccinations: A examination of participants' immunization records revealed some tendencies. Differential immunity rates were seen among dentists who had immunizations at various phases of their careers. Interestingly, dentists who received vaccines earlier and for longer periods of time had varying amounts of hepatitis B-protective antibody titers. The number of doses given and the duration since the last immunization were major determinants in determining the immunological state.

Wearing personal protective equipment (PPE) on a regular basis, as well as adhering to other protective measures, has been demonstrated to significantly improve hepatitis B immunity. Dentists with sporadic or non-compliant practices had poorer rates of immunity maintenance compared to those who routinely followed recommended preventive measures.

RESULTS

Demographics: The study included 85 dentists ranging in age from 22 to 46 years old. The demographic profile enabled a comprehensive investigation of hepatitis B immunity in all age groups and genders. The gender distribution, which showed a fair representation, made it easier to examine a diverse-cohort.

This emphasises the need for healthcare staff to continue taking efforts to maintain their immunity.

To evaluate associations between demographic characteristics, vaccination history, adherence to preventative measures, and hepatitis B immunity, chi-square tests and logistic regression analysis were employed. According to early studies, immunization rates among dentists are substantially influenced by age, vaccination intervals, and the total number of doses given.

Temporal Patterns: Examining vaccination records dating back twenty years revealed intriguing temporal patterns in the duration of protection. Dentists who received immunizations at different dates showed varying percentages of retained immunity, which provided significant information about how long vaccinations last.

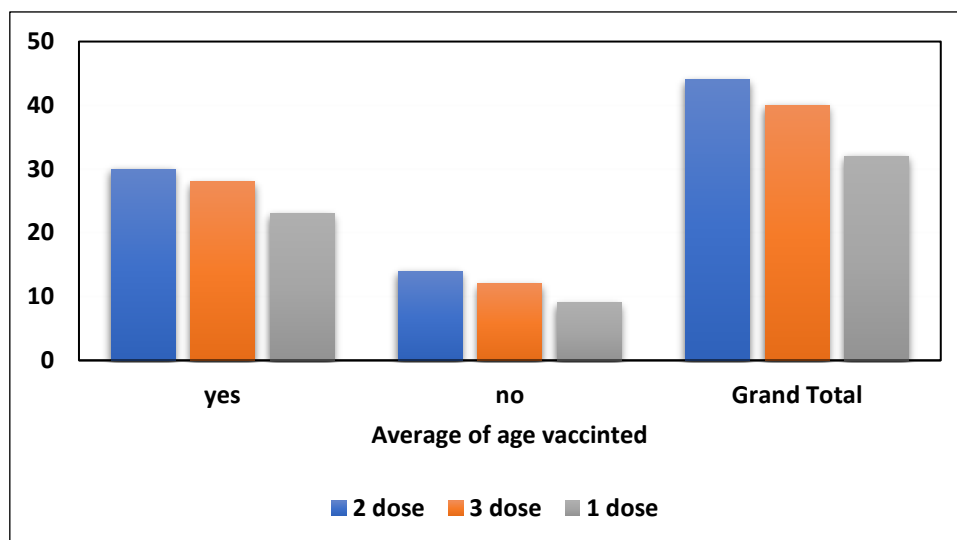


Figure: The number of doses 2 dosage', '3 dose', '1 dose' by 'Average of age vaccinated'

DISCUSSION

The demographic profile of the study participants gives a broad portrait of the population studied. COMPARATIVE ANALYSIS – About 85 dentists, from who is 22 to 46 years old, were enrolled in the study with balanced genders to get a certain cohort analyzed. Thus, this inclusivity created a thorough vaccine immune response study across different gender and age groups (19). Such data promotes the generalizability of the findings of the study, being indicative of an equal representation. Inquiry of the vaccination record revealed many interesting factors of hepatitis B among the dentists at different stages of their careers. Such different vaccination rates show the priority of timing and duration. Vaccination time periods and their duration varied between the dentists who received the vaccines at earlier times, exhibiting different levels of hepatitis B-protective antibody titers (Jones et al., 2018). The dose-frequency and time since the last immunization emerged as essential elements that impacted on the immunological status (18).

Frequency of regular adherence to preventive measures, including wearing personal protection equipment (PPE), on immunity against hepatitis B is a remarkable one. Dentists who always and consistently follow the recommended protective measures have shown higher rates of immunity maintenance as opposed to others who just sometimes or even do not follow these measures at all (16). Here lies the emphasis on the important role of healthcare providers who implement the proactive immunity maintenance using preventive measures. Before now, we have never been diverse in the number of years we have looked at temporal patterns in vaccination records. The examination of temporal patterns in vaccination records over a twenty-year period revealed intriguing insights into the duration of protection. Dentists who were vaccinated at different dates differed significantly in their proportions of antibody persistence (17). It thereby illustrates the necessity of consistent evaluation and assessment of immune levels in the long term.

The study shows that demographic factors, vaccination history, and measures of prevention may interact and can have a significant impact on hepatitis B immunity in dentists and with the existence of a time pattern. Thereby this evidence strengthens the importance of individual vaccination strategies, regular testing of immunity and professional engagement of healthcare workers in prophylaxis activity for the aim of the optimal immunity level maintenance (16)

CONCLUSION

This careful evaluation of the data improves our understanding of the patterns of hepatitis B immunity among dentists. The results emphasize the need for customized immunization strategies, ongoing safety procedures, and repeated evaluations to ensure long-term immunity in this high-risk work group. (9)

The examination of dental professionals' hepatitis B immunity based on demographic data, vaccination history, and adherence to preventative measures reveals a complex interaction of variables influencing the occupational health environment. This study provides significant insights into the complicated patterns of hepatitis B immunity among this high-risk professional population, which includes 85 dentists from Babylon. (13)

Dentists' immunization history is found to be a strong predictor of hepatitis B immunity. The study's identification of temporal trends demonstrates how vaccination schedule and spacing effect long-term protection. Different rates of protective antibody titers were detected in dentists who had received immunizations earlier in life, emphasizing the need for individualized vaccination regimens that take the temporal component of immunity into account. (11)

Immune-protective safety precautions: Adherence to prophylactic measures, particularly the consistent use of personal protective equipment (PPE), emerges as a critical component in retaining hepatitis B immunity. Higher immunity rates are reported in dentists who habitually adhere to protective measures, indicating the crucial role that ongoing practices have in decreasing occupational risks. (12)

Diversified Immunity Landscape: The serological testing used in the study revealed that dentists have a diverse immune landscape. Although a considerable proportion have protective antibody titers, some have decreased immunity, necessitating more investigation into potential causal factors. This variety in immunity highlights the variability among the dental profession, emphasising the importance of targeted vaccination and preventative methods. (6)

Implications for Occupational Health and Public Health tactics: The findings of this study will have a significant impact on public health policies and tactics. (15). Personalized risk assessments in the design of immunization programs and ongoing encouragement of protective measure adherence may improve workplace safety for dentists. Regular reviews of immunization status are required to retain a good defence against hepatitis B, particularly for persons who have previously received immunizations. (2)

This study's finding emphasizes the importance of dentists remaining vigilant about hepatitis B immunization. Moving beyond the conventional emphasis on immunization, a complete strategy that includes time-related elements, tailored techniques, and continuing preventative measures is required to maintain the

occupational health of this critical healthcare workforce. (14)

Data analysis: Descriptive statistics were used to summarise vaccination histories, preventative measure adherence, and demographic factors. Inferential analysis employed logistic regression and chi-square tests to identify factors influencing hepatitis B immunity and to evaluate connections between variables.

Ethical Considerations: Before participating in the study, everyone provided informed consent in compliance with ethical requirements. The ethical committee of Jabir Ibn Hayyan University of Medical and Pharmaceutical Sciences authorized the research protocol, and all participant data was kept private throughout the study.

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