Original Article

Patients' Fear of Contracting the Blood-Borne Infections from Dentists

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ABSTRACT

Introduction: There has been no recent assessment of public attitudes and opinions concerning risk of blood-borne pathogen transmission during health care. To assess public attitudes and opinions towards dentists infected with blood-borne viruses, this study was carried out.

Materials and Methods: Six items in this cross-sectional survey were used to assess current attitudes and opinions about dentists infected with Human Immunodeficiency Virus (HIV), Hepatitis B and C Viruses, and the risk of blood-borne virus transmission during health care in a sample of 500 cases, in Yazd. Data were analyzed by SPSS (version 13) and chi-square tests were used, when appropriate.

Results: Of 500 respondents, 94% agreed that they want to know whether their dentist is infected with HIV, HBV or HCV; 93.8% agreed that disclosure of HIV, HBV or HCV infection in a provider should be mandatory. However, 15.8% did not believe that HIV-infected dentists were more likely to infect patients than those dentists infected with HBV or HCV. Opinions were divided on whether HIV-infected providers should be able to care for patients as long as they use good infection control: only 41.6% thought that infected providers should be allowed to provide patient care.

Conclusion: These findings suggest that improved public education and risk communication on health care-associated blood-borne infections is needed.

Keywords: Acute immunodeficiency syndrome, Dentist, Fear, Hepatitis B virus, Hepatitis C virus, Human immunodeficiency virus.

Received: *August 2007*
Accepted: *November 2007*

Dent Res J 2007; 4(2): 69-73

Introduction

The risks for dentists to occupationally acquire Hepatitis B virus (HBV), Human Immunodeficiency Virus (HIV) and, to a lesser extent, Hepatitis C Virus (HCV) have been reasonably well-quantified [1-3]. It has also been recognized in the early 1970s that patients were at risk of acquiring hepatitis B infection by iatrogenic transmission from an infected health care worker [4]. Infection may be transmitted through either a chronic carrier of hepatitis B or an asymptomatic health care worker who is incubating the disease. Procedures such as injections, dental surgery and general and gynecological surgery have all been implicated [5-7]. There have been at least 12 clusters of hepatitis B infections associated with infected health care workers in England, Wales and Northern Ireland and at least 20 published reports of the transmission of hepatitis B from infected health care workers to their patients worldwide [8]. Despite immunization and screening of health workers, the transmission of hepatitis B from health care workers to patients has been recently reported [9,10]. There have been only two reports of transmission of HIV from infected health care workers to their patients [11,12]. This is consistent with HIV having both a lower seroprevalence and a lower infectivity than hepatitis B. The risk of transmission of HIV from a clinical care worker is approximately 100 times less than that of hepatitis B. However, the two infections pose a similar overall risk to patients because HIV carries a risk of death approximately 100 times greater than hepatitis B [13]. Nine clusters of hepatitis B transmission from health care workers involved a total of ten dentists or oral surgeons,

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all of them practiced in the United States (table 1). One episode of transmission was detected after an episode of acute hepatitis B in a dentist, following which surveillance of his patients proved that transmission had occurred [14]. The others were discovered in the course of the investigation of a cluster of clinical cases of hepatitis B. Most of these clusters were discovered through routine surveillance operations. One of the dentist-associated clusters had an unexpectedly high case-fatality rate (22%). There were no deaths in the other reported dental clusters [15]. When the dentist's HBeAg status was determined, it was positive. Table 1 shows that patients of dentists who are infectious for hepatitis B may be at risk of infection. The wide range in risk estimates probably arises from varying methods of case ascertainment in these investigations. It has been suggested that there may have been other clusters, which were not detected for two reasons. First, in approximately 70% of cases, hepatitis B infection is not clinically evident, which reduces the probability of cluster identification through routine surveillance. Second, the long incubation period of hepatitis B may make the identification of a common source difficult [14,16]. However, data accumulated before and since 1991 have shown that the overall risk of blood-borne virus transmission from infected health care workers (HCW) to patients is very low and that the risk for transmission from HIV or hepatitis C virus infected providers, specifically is extremely low [17]. Data on HIV come from national surveillance of HIV/ADIS in the United States [18]. No cases of HIV infection have been linked to receipt of care from infected health care personnel since 1990 investigation when the cases linked to dental care were reported. Furthermore, the investigations of 66 health care providers infected with HIV (excluding a series of reports concerning the investigation of an episode of HIV transmission from an infected dentist to 6 patients cared for in the dental practice) found no HIV infections among their patients that could be linked to the infected care provider [19-21].

This information should ease public fears and concerns, especially about HIV transmission risks during health care. Nevertheless, there has been no

Table 1. Published reports of dental iatrogenic HBV infection.

Year (Reference)	Place	Dental HCW(s) status	Clinical infections cases (n)	Procedures undertaken	Comments
1972 [8]	Baltimore USA	Acute illness, HBsAg +, HBeAg n.k.	13	General dentistry	No gloves, cut hands once or twice per month.
1976 [22]	Los Angeles USA	Chronic carrier, HBsAg+, HBeAg+.	3	General dentistry	Resumed practice wearing gloves. One further case. Barred from practice thereafter.
1977 [23]	Pennsylvania, USA	Chronic carrier HBsAg+, HBeAg+	55	Extractions	Probable transmission from cuts on fingers. Resumed practice after HBcAb developed, wearing gloves. No further cases identified
1978 [24]	Baltimore USA	Acute illness, HBsAg+, HBeAg+	3	Extractions and Dental surgery	Resumed practice while HBeAg positive, wearing gloves. No further cases identified
1979 [25]	Connecticut USA.	Acute illness, HBsAg+, HBeAg+	12	>80% extractions	Dentist had eczema of hands and did not wear gloves. Attack rates varied with time. Left practice.
1980 [26]	Atlanta, USA	Chronic carrier, HbsAg+, HBeAg+	3	Not stated	Resumed practice wearing gloves.
1983 [27]	Washington state, USA	Chronic carrier, HbsAg+, HBeAg+	4	General dentistry	Resumed practice while a carrier, wearing gloves. No further cases identified.
1985 [15]	Indiana, USA	Chronic carrier, HbsAg+, HBeAg+	9 (2 died)	General dentistry	"Obsessive hand scrubber", no gloves used. Dentist had had HBV vaccination
1986 [28]	New Hampshire, USA	Chronic carrier, HbsAg+, HBeAg+	4	Multiple extractions	Did not wear gloves but scrubbed hands between cases.

assessment of public attitudes and opinions regarding the risk of blood-borne virus transmission in dental care settings in Yazd. Therefore, in this study, we assessed current public attitudes and opinions about dental care providers with HIV and the perceived risk of blood-borne virus transmission during dental care.

Materials and Methods

The present cross-sectional study was carried out to determine attitudes and opinions about dentists infected with HIV, HBV and HCV, and the risk of blood-borne virus transmission during health care in a sample of 500 individuals aged 20 years and older who came to Infectious and Tropical Diseases clinic for any purpose. They were given questionnaire with 6 items. A 5-point Likert scale was used for all items to ascertain level of agreement from 1, strongly disagree to 5, strongly agree. Data were analyzed by SPSS (version 13) and chi-square tests were used, when appropriate.

Results

There were 500 (93.98%) respondents to the 6 items among the 532 persons surveyed. As shown in Table 2, 52.2% of the respondents were male, 47.2% had ≥40 years of age, and 43.6% were high school graduates.

Overall, 94% of respondents wanted to know whether their dentist is infected with HIV or not (Table 3). When asked whether it should be mandatory for dentists who are infected with blood-borne to tell their patients before they provide medical care, 93.8% agreed that the disclosure of HIV, HBV or HCV infections should be mandatory. 15.8 percent of the respondents did not believe the HIV-infected dentists were more likely to infect patients than dentists with HBV or HCV; 37.4% did not have any opinion. However, opinions on whether HIV-infected providers should be able to care for patients as long as they use good infection control were divided: 15.6% disagreed, 42.8% were undecided, and 41.6% agreed. All respondents reported that they would tell their dentist to stop if they started to use an instrument that appeared to be contaminated with blood or saliva.

Table 2. Demographic characteristics of respondents.

Sex	**N (%)**
Male	261 (52.2)
Female	239 (47.8)
Age groups	
20-29 years	130 (26.0)
30-39 years	134 (26.8)
40-49 years	121 (24.2)
50-59 years	115 (23.0)
Education	
<High School	137 (27.4)
High School Graduate	218 (43.6)
Attended College	42 (8.4)
College Graduate	103 (20.6)

Table 3. Responses to 6 items regarding attitudes and opinions towards dentists infected with blood-borne viruses during health care.

Items	**Strongly agree**	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
	(%)	**(%)**	**(%)**	**(%)**	**(%)**
I would like to know if my dentist is infected with HIV, HBV or HCV	80.2	13.8	4.6	0.8	0.6
It should be mandatory for dentists who are infected with HIV, HBV or HCV to tell their patients before they provide medical care	79.8	14	3.8	1.4	1
A dentists who has HIV is more likely to infect patients than a dentist who has either HBV or HCV	22.6	24.2	37.4	8.2	7.6
Dentists who are infected with HIV should be allowed to take care of patients as long as they use good infection control	29.4	12.2	42.8	9.4	6.2
If my dentist started to use an instrument that appeared contaminated by blood or saliva, I would tell him/her to stop	99.8	0.2	0	0	0
Dentists should be allowed to make their own choices about whether to treat patients with AIDS	32.2	28.8	14.6	20.2	4.2

Opinions were divided on whether dentists should be able to choose care for patients with AIDS. Next, differences in respondent demographics were examined overall and by demographic strata. Respondents ≥40 years of age were more likely to agree that they would like to know if their dentist is infected with HIV and that the infected dentists should disclose their infected status before providing medical care. Persons who were ≤40 years of age and educated above the high school level were more likely to agree that dentists infected with HIV should be allowed to take care of patients as long as they use good infection control. Respondents who were ≤40 years and educated above the high school level, were more likely to disagree that a dentist who has HIV is more likely to infect patients than a dentist who has either HBV or HCV.

Discussion

This is the first survey undertaken in our city and probably in Iran, to determine overall public perceptions of blood-borne virus transmission risks during health care, especially current views about dentists infected with HIV, HBV, or HCV. Public knowledge, attitudes, and opinions concerning risk of blood-borne virus transmission during health care, including from infected dentists, are important to understand. Such information can help identify gaps between science and understanding that can be targeted for public health education and communication interventions, the outcome of which can affect patient choices in health care and acceptance of public health policy. The accumulated science clearly demonstrates that the risk of provider to patient transmission of blood-borne viruses is extremely low and can be kept low through appropriate prevention measures [29,30]. Nevertheless, it appears that public attitudes and opinions concerning dentists infected with HIV are no different today than they were a decade ago. The majority of respondents, 94% in this survey and 88% in a survey performed 10 year earlier in USA, wanted to know whether their health care provider is infected with HIV [31]. A large majority of respondents in our survey also believed that it should be mandatory for dentists who are infected with HBV or HCV to tell their patients before they provide medical care. The attitudes and opinions expressed during this survey have significant implications for patient care, infected health care providers, public health education and communication interventions, and public health policy. Although the probability of HIV transmission from an infected health care provider is extremely low, most individuals view it as a risk they want to avoid [32]. Patients may be more likely to respond negatively if they know that their health care provider is seropositive. Furthermore, dentists and other health care providers who are infected with HIV are unlikely to escape the effect of discriminatory attitudes [31]. Not only patients are likely to switch providers, they also are likely to have an exaggerated perception of risk if their health care provider is infected with a blood-borne virus [33,34]. Better education of the public and health care providers on the risks and prevention of blood-borne virus transmission during health care and using standard and sterilized instrument is a necessary step towards any change in public attitudes, opinions, and policy making. In conclusion, this study indicated that the risks for transmission of blood-borne infections from dentist to the patients are minimal in a setting in which universal precautions are strictly observed. Programs to ensure compliance with universal precautions would appear preferable to programs of widespread testing of dentists [35]. Universal precautions should be reinforced to prevent the risk for blood-borne transmission and should be evaluated in further prevention programs.

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