

Dentists' Knowledge of HIV Infection

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Summary

A survey, which consisted of 21 questions, was conducted during 1999/2000 on 135 dentists in Croatia. Our aim was to objectify dentists' knowledge of HIV infection. A questionnaire was divided into four groups, as following: general knowledge of HIV, protection and infection control, risks while treating HIV infected patients, and willingness to treat HIV infected patients. Only 40% of surveyed dentists know basic facts of HIV, oral manifestations and modes of transmission, and 50% of all surveyed dentists use protective masks, gloves and eyewear. More than 49% overestimate risks while treating HIV infected patients. More than 55% of all surveyed dentists are willing to treat HIV infected patients. Results of this survey show informational gaps in dentists' knowledge of HIV infection and highlights the need for additional lectures on HIV infection.

Key words: *HIV infection, dentists' compliance*

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Introduction

The oral cavity is a body area where as many as 40 conditions or lesions associated with infection by the Human Immunodeficiency Virus (HIV) can occur and it is known that most HIV infected patients have head and neck manifestations. Some oral manifestations are an early sign of HIV infection and thus a useful prognostic indicator. Dentists therefore play a major role in initial detection of HIV infection (1,2,3).

Worldwide prejudices exist towards dental treatment of HIV infected patients, although data avail-

able from the literature show increased need for dental treatment of HIV positive patients. In Croatia, legal regulations determine that every dentist is obliged to treat HIV infected patients. Providing optimal care for HIV infected patients is conditioned by recent information on HIV, modes and risks of transmission as well as protection and infection control procedures. The importance of accepting new information on HIV is underlined by the fact that dentists are the first who are in a position to see early signs of HIV infection, which include unexplained appearance of oral candidiasis, herpes simplex, hairy leukoplakia, Kaposi sarcoma, and other symptoms

of HIV manifestations. It must be also be stated that with the introduction of new therapies for AIDS, manifestations of HIV are changing, as well as the disease itself. "Dentists are the only health care workers who routinely place ungloved hands into the body cavity", a sentence reported in one study (4), in 1986, but which is more than accurate today worldwide, with regard to infectious disease transmission during dental treatment. The aim of our survey was to objectify dentists' knowledge of HIV infection, as well as to underline the need for additional lectures on HIV and other blood-borne infections.

Materials and methods

One hundred and thirty-five dentists participated in the survey, of whom 88 were from the Zagreb area, and 47 were from the Split area. They were aged 26-59 years average age 37 years. Strict confidentiality of participants was assured. A questionnaire, consisting of 21 questions was given to all the dentists participating after lectures on education and in primary and specialized dental institutions. The questionnaire was divided into four groups of questions as follows: general knowledge of HIV infection, risks while treating such patients, protection and infection control procedures and willingness of dentists to treat HIV infected patients. Data have been analyzed using relative statistical values.

Questionnaire

- 1) AIDS is caused by HIV: **Yes (40%)**
- 2) High risk population for HIV represent: haemophiliacs, homo- and bisexual men, intravenous needle sharing drug abusers. **Yes (40%)**
- 3) Numer of sexual partners reduces the risk of HIV infecton. **Yes (40.5%)**
- 4) HIV transmited with sperm. **Yes (36.6%)**
- 5) HIV transmited with saliva. **Yes (48.8%)**
- 6) A positive anti-HIV antibody finding indicates that a patient had contact with the HIV. **Yes (39.5%)**
- 7) White lesion on the lateral parts of the tongue with fissured or hairy surface is HIV manifestation: **Yes (39.5%)**
- 8) Reddish, bluish and violet nodules and plaques found intraorally represent HIV infection: **Yes (39.5%)**
- 9) I use protectine gloves
 - a) **on every patient (50%)**
 - b) only on selected patients (42.9%)
 - c) never
- 10) I wear a protectine mask
 - a) **on every patient (50%)**
 - b) only on selected patients (42.9%)
 - c) never (7.1%)
- 11) I wear eye protection
 - a) **on every patient (43.2%)**
 - b) only on selected patients (33.3%)
 - c) never (23.5%)
- 12) I recap the needle after use
Yes (85%) No (15%)
- 13) I use hard containers for disposing used sharps (needles, scalpels...)
Yes (0%) No (100%)
- 14) For instrument disinfection, I use
 - a) **glutaraldehyde (59.3%)**
 - b) sodium hypochlorite (0%)
 - c) quaternary ammonium agents (1.3%)
 - d) other (13.2%)
 - e) I am not sure (26.3%)
- 15) For working area disinfection, I use
 - a) **glutaraldehyde (88.4%)**
 - b) sodium hypochlorit (8.7%)
 - c) iodine preparatives (2.9%)
- 16) I am willing to treat HIV infected patients in my surgery
Yes (56.63%) No (43.37%)
- 17) Dentist in my surgery obligated to treat HIV infected patients
Yes (43.42%) No (26.58%)
- 18) There is a greater risk of hepatitis B than HIV infection after a needle stick injury.
Yes (93.8%) No (6.25%)
- 19) There is a greater risk of hepatitis C than HIV infection after a needle stick injury.
Yes (76.3%) No(23.8%)
- 20) I consider the risk of HIV infection after only one injury with the needle previously used on infected material to be

- a) < **0.5%** (19%)
- b) 0.5-1,0% (15.2%)
- c) 2.0-5,0% (16.5 %)
- d) >5.0% (49.4%)

- 21) I consider the risk of HIV infection after needle stick injury used on an infected patient to be
- a) **very low** (35.4%) b) low (12.7%)
 - c) moderate (16.5%) d) very high (13.9%)
 - e) high (21.5%)

Correct answers are marked in bold letters.

Discussion

Surprisingly, a large percentage of the surveyed dentists (60%) do not know that HIV causes AIDS, and that risk-groups for HIV infection are hemophiliacs, homosexuals and i.v.drug addicts, as well as reducing the number of sexual partners reduces the risk of HIV infection. Only 37% of the surveyed dentists know that HIV is transmitted through sperm and that positive HIV-antibody finding indicates previous contact with HIV. Positive answer to the question the whether HIV is transmitted via saliva was given by 49% of examined dentists. Our results are in concordance with Gerbert (1) who found that 47% of American dentists think that HIV is transmitted through saliva. Another study reports (5) that one out of three surveyed dentists assume that contact with HIV infected saliva represents high risk for the dentist. Numerous reports suggest that although every contact with HIV positive fluids can be a mode of HIV transmission, for HIV infection that mode of transmission was never established and saliva has an inhibitory effect on HIV (6,7). Answers obtained in our survey are probably a consequence of the fact that numerous dental treatments are accompanied by bleeding. Knowledge of oral HIV manifestations shows informational gaps. 40% of the surveyed dentists are aware that hairy leukoplakia is a whitish lesion localized on the lateral parts of the tongue caused by Epstein-Barr virus, and an almost pathognostic sign of HIV infection, which has to be confirmed with histopathologic verification. The fact that bluish, reddish, and violet nodules and plaques are oral HIV manifestation, named Kaposi sarcoma is familiar to approximately 40% of the surveyed dentists.

Atchinson et al.(8) reported that Los Angeles dentists have insufficient knowledge of oral HIV manifestations. It has to be stated that approximately 50-95% of HIV infected patients have oral candidiasis, as a first sign of HIV infection.

40% of the surveyed dentists think that the risk of HIV infection through needle stick injury is greater than 5% after previously used on a HIV infected patient. The result shows an incorrect attitude because the real risk is lower than 0.5%, as suggested by Taylor et al. (9). On the other hand, 25% of American dentists think that the risk is greater than 50% (10). 21.5% of the examined dentists think that the risk while treating HIV infected patients is very high, and this data shows a need for additional training, because dentists overestimate the risk of HIV infection, a fact seen throughout the world.

The surveyed dentists wear protective gloves and masks for 50% of their treatments. One study (1) reported that dentists think that very few, if any, patients with HIV come to their surgery. The same could be said for dentists in Croatia, moreover that HIV prevalence is not high. Other studies (10,11) suggest that dentist who are used to working without gloves, have difficulties in adapting to latex gloves, because of losing tactile sense and also because of decreased perception of professional risks. The use of gloves highly correlates with the age of the dentist, as suggested by Verrusio et al. (11). Results obtained from a survey in Rumania showed that 50% of dentists wear protective gloves, and protective masks are worn by one in three private dentists (12). On the other hand, it is possible that surveyed dentists think that they are able to recognize HIV carriers, a prejudice because HIV carriers do not typically. 43.3% dentists wear protective eyewear, whereas in the USA, 62% of dentists wear protective eyewear (5).

85% of surveyed dentists recap needles after use. A study (11) conducted in the USA, showed that more than half of the examined dentists do the same. The importance of not recapping used needles is underlined in the study of Klein et al. (13) who found that 94% of dentists were injured with instruments used in dental treatments. For instrument disinfection, 26.3% of examined dentists do not know what substances are to be used, and approximately

half of those who know, would use glutaraldehyde. The results show insufficient knowledge of surveyed dentists with regard to the protection and infection control upon HIV infection and other blood borne infections. However, the majority of today's dentists were not in a position to obtain formal lectures upon infection control procedures and during their working time they had to learn by themselves upon this subject, and also have to deal with introduction of new substances (10). On the other hand, in Croatia, it is widely accepted that dental assistants take care of disinfection and sterilisation procedures. A study (14) reported also that high cost of these substances and procedures as well as lack of habit lead to misuse of disinfection and sterilisation procedures. Another survey (14) conducted in the USA showed that 42% of dentists use quaternary ammonium agents, which are not approved by ADA and are not tuberculoidal, 91% use glutaraldehyde and 75% sodium hypochlorate. Only 45.4% of surveyed dentists know that infection control for hepatitis B is sufficient in preventing HIV disease.

In the USA, results obtained from recent studies (15,16) indicate increased willingness of dentists to treat HIV infected patients. Sadowsky (17) found that 60% of dentists are willing to treat HIV infected patients. However there is still prevailing ambivalence or negative attitude towards those patients (18). In Croatia, 57% of surveyed dentists are willing to treat HIV infected, and 86% think that they are obliged to do so. McCarthy, Koval and MacDonald (19) reported that one out of six dentists is capable of refusing HIV infected patient. Gerbert (1) suggested that 70% of dental staff are aware that

they should treat HIV infected, but 74% stated that they would prefer to refer them to other colleagues.

Conclusion

With respect to recent information upon HIV infection, it is essential to implement educational measures and control over knowledge of dentists and nurses upon HIV. Lack of knowledge highlights possibility of infectious disease transmission.

The level of education should be obtained and monitored by Ministry of Health, through School of Dentistry to the private and social dental settings, whereas every dentist would be able to control knowledge of team in order to prevent infectious diseases transmission to the dental staff and other patients.

Controlled educational interventions do not exist in Croatia, as well as sanctions towards individuals who do not respect legal regulations. When HIV infection is concerned, all the dentists together with dental nurses should have access to recent information upon every-day behaviour in dental settings.

In Croatia, also a declaration of World Bank from the meeting in Riga in 1993 was accepted: "We shall support and protect human rights and dignity in all our preventive actions towards HIV and AIDS. Our aim is to protect every individual or group to be discriminated or stigmatized when HIV or AIDS is concerned. We accept the principles of concordance with principles of reliance, and we underline the importance of voluntary testing".