protein. Thus, one can carefully select different residues from the protein to look for specific binding site. After getting docking result in form of dock energy, it can be easily concluded that adenosyl terta-phosphate is the best screened ligand for the desired protein conformation.

Conclusion. α-TIF, a herpes simplex virus type 1 (HSV-1) tegument protein, in association with cellular proteins, trans-activates viral immediate early genes. In order to examine the role of α-TIF during acute and latent infection, the structure of α-TIF protein is too important [20]. This structure can be used further for drug, vaccine or antibody designing. So predicted structure of α-TIF can be very useful in future in controlling infection of HSV-1. Docking energy accomplished in this work has many applications like ligands screened out here can be used for drug trials as they are already in use so they can be easily used against HSV-1.

Conflict of Interest.

This article does not implies consideration of any significant financial interest in a company (or its competitor) producing any of the software or server used in the article. Amit has the credit to collect the data initially.

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Original article

OCCUPATIONAL RISK OF HIV INFECTION AMONG DENTAL SURGEONS IN NIGERIAN

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РИСК ЗАРАЖЕНИЯ ВИЧ – ИНФЕКЦИЕЙ У ХИРУРГОВ-СТОМАТОЛОГОВ НИГЕРИИ В ПРОФЕССИОНАЛЬНОЙ СРЕДЕ

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C.Ch. Azodo. **Occupational risk of HIV infection among dental surgeons in Nigerian. Saratov Journal of Medical Scientific Research, 2010, vol. 6, iss. 2, p. 357-360.**

Background: Prevention of accidents and management of exposures in the work environment is an important occupation health issue. This study objective was to investigate the occupational risk of HIV among Nigerian dental surgeons. **Methods:** This descriptive cross sectional survey of 300 dental surgeons practicing in private and government owned dental centers in Nigeria was conducted from June 2006 to January 2007. **Results:** Percutaneous injury was recorded among 69.3% of respondents and only 1.2% had Post exposure prophylaxis. Those with abraded skin that will treat patient without additional barrier were 8.6%. Percutaneous injury was positively related to gender, position, additional qualifications ($p<0.05$). **Conclusion:** Percutaneous injury is significantly high and low preventive measure at such exposure. Policies, practices, and trainings geared towards protecting and reducing the prevalence of percutaneous injury among dental surgeons, and improving post exposure prophylaxis uptake in the event of exposure is a necessity

Keywords:, dentist, infection, HIV, occupational risk.

К.Ч. Азодо. **Риск заражения ВИЧ-инфекцией у хирургов-стоматологов Нигерии в профессиональной среде. Саратовский научно-медицинский журнал, 2010, том 6, № 2, с. 357-360.**

Сокращение количества инцидентов в профессиональной среде является важной проблемой современного здравоохранения. Целью исследования представляется изучение фактора риска заражения ВИЧ-инфекцией среди хирургов–стоматологов Нигерии. Данный дискриптивно-профильный анализ включал в исследование 300 хирургов-стоматологов, работающих в государственных и частных стоматологических клиниках Нигерии. Научная работа проводилась с июня 2006 года по январь 2007 года. Подкожные повреждения были выявлены у

респондентов в процентном соотношении 69,3% и только 1,2% респондентов проводили вторичную профилактику. 8,6% исследуемых с кожными ранами выполняли лечение без первичной профилактики. Непосредственное отношение к факторам риска подкожных повреждений имеют такие показатели как пол, должность и дополнительные квалификации ($p<0.05$). Количество кожных повреждений велико, а степень предпринимаемых профилактических мер – низкая. Различные практические и обучающие мероприятия направлены на снижение преобладающего количества кожных повреждений среди хирургов-стоматологов, их защиту и улучшение условий вторичной профилактики в случае повреждения в процессе лечения.

Ключевые слова: стоматолог, инфекция, ВИЧ-инфекция, риск заражения в профессиональной среде.

Introduction. Exposure to blood /body fluids is the second biggest cause of occupational injury among health workers [1]. Single percutaneous injury among health workers resulted in HIV transmission more three-quarters of cases especially if involved patient had AIDS but antibody-negative patients have also being incriminated [2]. Percutaneous exposures result from injuries by contaminated needles, burs, scalpels, broken glass, exposed ends of dental wires, or other sharps that penetrate or break skin [3]. The vulnerability of dental surgeons to percutaneous exposure may be due nature of most oral health procedures, instrumentation and dental patient-care settings. Dental surgeons are ranked second among health professional exposed to work accidents involving exposure to biological material [4]. On average, dental surgeons in Southern Nigerian report a mean annual percutaneous injury rate of 1.3 [5]. Percutaneous exposure incidents represent an important occupational health issue in dentistry and one that can incur severe consequences from blood-borne infections [6]. Percutaneous and mucocutaneous exposures to contaminated blood and body fluids are of a growing concern to dentists due increasing number of bloodborne infection particularly HIV infections in dental operatory globally [7].

Sharps injuries, highly prevalent among dentist, poses the single greatest risk to health care workers regarding occupational transmission of HIV. Prospective studies have estimated that the risk of HIV transmission following percutaneous exposure and mucous membrane exposure to infected blood as 0.3% [8] and 0.09% [9] respectively. The first example of a case of occupational exposure of a health care worker HIV and subsequent seroconversion following a needlestick injury was reported in the 1984. As at June, 1997, the Centers for Disease Control and Prevention reported 52 cases of occupational transmission of HIV-1 to health care workers [10]. Literature has also documented possible occupational acquisition of HIV by dentists [11]. HIV infection is not vaccine preventable and also causes significant morbidity or death which has characterized it as an occupational hazard of utmost concern among dental surgeons. Prevention of blood exposures is the primary means of preventing occupationally acquired HIV infection [12]. The prevention of percutaneous injuries is multifactorial and influenced by equipment design and technology as well as worker knowledge, training, skill, and awareness of the potential consequences associated with occupational percutaneous injuries [13]. Each incident of occupational exposure to potentially infectious blood or fluids should be treated as a medical emergency. Prompt initiation of interventions is considered effective in preventing occupational viral infection transmission. The necessary first aid in occupational exposure include wound cleansing and irrigation with soap and water and testing for antibodies to hepatitis B virus (HBV) or HIV in both the exposed worker and the source fluids to determine the possible need for the exposed worker to receive appropriate prophylaxis [14].

Knowledge of the proportions of HIV coming from specific blood exposures like medical injections and dental care is useful not only to advise people how to avoid HIV infection but also to develop more effective programmes and policy aimed at slowing the epidemic growth. Studies on occupational exposures of dentist and dental health workers have been conducted across the world but no national survey data on occupational exposure of Nigerian dental surgeons exist in the literature [5,6, 15-21].

The objective of this present study was to investigate the occupational risk of HIV infection among dental surgeons in Nigeria.

Methods. This descriptive cross sectional survey of 300 dental surgeons practicing in private and government owned dental centers in Nigeria was conducted from June 2006 to January 2007. The data collection tool utilized was a self-administered questionnaire. Data collection was done using a self-administered questionnaire which focused on the dental surgeons' demographic data, percutaneous and mucocutaneous injury, and action taking at sustained percutaneous injury. The distribution of questionnaire involved both hand and postal delivery. Informed consent was obtained from the participants. Data analysis was done with SPSS version 15.0. Test for significance was done with Chi square and p was set at ≤ 0.05.

Results. Percutaneous injury was recorded among 69.3% of respondents and only 1.2% had Post exposure prophylaxis (Table 1). Those with abraded skin that will treat patient with additional barrier were 8.6% (Table 2). Percutaneous injury was positively related to age, position, additional qualifications, location of practice and experience ($p<0.05$) (Table 3).

Discussion. Occupational injuries by contaminated sharps or projection of contaminated fluids to mucous membranes to blood and body fluids from dental patients which carries a definite risk of HIV transmission is highly prevalent among practicing dentists. In this study, percutaneous injury was recorded among 69.3% of respondents. This high prevalence of percutaneous injury is an indication that safe work practices in dental health facilitates in Nigeria should be considered as an emergency. The

Table 1

Action taken after percutaneous injury among respondents

Actions taken	Frequency	Percent
Rinse with water	77	30.0
Rinse with bleach	86	33.5
Went for HIV test	10	3.9
Took post-exposure prophylaxis	3	1.2
No response	25	9.7
Not applicable	56	21.8
Total	257	100

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Table 2

Action taken by respondents with abraded skin

Actions taken	Frequency	Percent
Leave abraded skin open	22	8.6
Apply plaster on the lesion	184	71.6
Avoid treating patient	32	12.5
Wear double gloves	3	1.2
Never had abrasion	5	1.9
No response	11	4.3
Total	257	100

Table 3

Predictors of percutaneous injury among respondents

Characteristics	Percutaneous injuries			
	Yes	No	No response	P-Value
Age group (years)				
<31	44	39	2	
31-40	102	30	3	
41-50	26	5	1	
>50	5	0	0	0.259
Gender				
Male	129	49	3	
Female	42	31	3	0.046*
Marital Status				
Single	69	40	1	
Married	108	33	5	
Separated	1	0	0	0.113
Qualification				
BDS	155	66	4	
MSc	4	1	2	
Fellowship	19	6	0	0.000*
Years of Experience				
1-5	75	52	2	
6-10	58	13	2	
11-15	21	3	1	
16 and above	24	5	1	0.005*
Location				
South	133	62	5	
North	45	11	1	0.398
Position				
House officer	31	31	1	
Junior resident	27	13	1	
Senior resident	18	5	2	
Consultant	20	6	0	
General Practitioner	82	18	2	0.002*
Type of Practice				
Private	23	8	1	
Public	155	65	5	0.727

prevalence reported in this study is comparable to 62% documented in a national survey among dentists in Canada [22] but lower than 72.9% documented among Nigerian doctors and nurses working in the Lagos University Teaching Hospital [23]. However it is higher than 27.7% documented among dentists in Queensland, Australia [6], 31.1% documented among public and private sector dentists in Sertãozinho city, Brazil [18], 50.7% percutaneous injuries documented among students recruited from three out of four Nigerian dental schools [17]. This level of percutaneous injury confirms the fact that dental surgeons in Nigeria work in conditions that favour the occurrence of occupational exposures to potentially infectious materials. Studies have shown that most accidents could be avoided with better working routines during dental procedures. Continuous education and training is thus critically needed to prevent occupational exposure to HIV among dental survey as previous survey on exposure incidents to potentially infectious material resulted from non-compliance with the relevant recommendations [24].

Protocol exists for managing and reporting occupational exposure in many hospitals today. Despite this many dentist do not follow specific protocol after percutaneous injury [15]. Suboptimal compliance with post-exposure protocol was reported among dentist in Canada [22]. Post-exposure prophylaxis, notifying the accident and requesting blood tests to patients have been documented to be the least remembered and taken measures by dentists and assistants in the event of occupational exposure [21]. In this study, the most common actions taken following percutaneous injuries were to rinse with bleach and rinse with water which was similar to the findings of Odeyemi et al [23]. Garcia et al also reported washing of the exposure site as the most common measure taken by dentists and assistants after sustaining a percutaneous injury in Southern Brazil [21].

High risky exposure especially at workplace is an indication for HIV testing. The test result would serve as a monitoring and evaluation tool and also veritable tool for workmen compensation in case of seroconversion. In this study a total of 3.9% of the respondents went for HIV testing after percutaneous injury.

The advent of antiretroviral treatment against HIV and their use as post-exposure prophylaxis, in health care workers after high-risk professional exposures, which is considered safe and effective in decreasing the risk of occupational HIV infection, is still increasing [25]. Post-exposure prophylaxis administration has become the standard of care for occupational exposures to HIV and an important element of workplace safety [12]. One study suggested that the use of an anti-HIV medication, zidovudine (ZDV), reduced the already low risk of healthcare workers becoming infected with HIV by about 81 percent [26]. This means that the number of people who are likely to become infected from a needlestick that contains HIV-infected blood can be reduced from 3 in 1000 to 0.5 in 1000 as a result of taking anti-HIV medication. In this study, only 1.2% had Post exposure prophylaxis after percutaneous exposure. This is lower than 4.7% documented among Nigerian doctors and nurses working in the Lagos University Teaching Hospital [23]. However, low post exposure prophylactic practice may be due to the fact that assessment of transmissibility risk, potential side effects and toxicity of the standard post-exposure drug regimen must outweigh the risk of transmission posed by the exposure because it post exposure-prophylaxis is commenced. Written protocols for preventing and managing occupational exposures to blood in dental practices would be crucial in improving compliance with

post-exposure prophylaxis, allaying anxiety and preventing unwarranted workmen's compensation claims.

In this study, the prevalence of percutaneous injury was significantly different in both male and females ($P < 0.05$). Gender difference in which male had more percutaneous injures during extraoral procedures has been documented in a study among dental surgeons in Southern Nigeria[5]. In this study, Percutaneous injury was positively related to age, gender, position, additional qualifications ($p<0.05$). The relationship between demography and percutaneous exposure in this present with exception of age and geographical location, contrasted the findings of Sofola et al on Nigerian clinical dental students [20].

Good infection control includes exempting of dentists with mucocutaneous injury on the hand especially if the lesion is weeping from treating patients. In this study only one-eight of the respondents would avoid treating patient. Those with abraded skin that will treat patient without additional barrier were 8.6%. This non compliance with standard precaution may be associated with infection transmissibility and thus need to be corrected. Training and enforcement of infection control policies would be necessary for achieving optimal occupational health and safety for dental surgeons in Nigerian dental practice

Conclusion

Dental surgeons and their employers need to work together to ensure that workplaces are safe as the social and economic costs of occupational contracting HIV is enormous. Attention should be geared towards protecting dental surgeons from percutaneous injury, reducing the prevalence and improving post exposure prophylaxis uptake in the event of exposure and these would involve policy, practice, and training.

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ИММУНОЛОГИЧЕСКИЕ И МОРФОЛОГИЧЕСКИЕ АСПЕКТЫ ДИАГНОСТИКИ ИНФЕКЦИИ HELICOBACTER PYLORI И ВИРУСОВ СЕМЕЙСТВА HERPESVIRIDAE

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IMMUNOLOGICAL AND MORPHOLOGICAL ASPECTS OF DIAGNOSTICS OF HELICOBACTER PYLORI INFECTION AND HERPESVIRIDAE VIRUSES

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