Original article

Sharps and Needle-Stick Injuries among Students in Benghazi Dental faculty

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ABSTRACT

Needle stick injuries (NSi) is occupational hazard of concern in medical community; as they pose a hidden threat of transmitting blood-borne infections such as HBV, HCV and HIV in the clinic.
Aims were to determine the current status of NSIs among dental students in Benghazi dental faculty.
Methods: 183 clinical years students were asked to complete a specifically designed questionnaire about their experience and opinions regarding NSi. Questions included incident reporting, sources of information and seriousness of NSi.
Results: Forty-five students (24.5%) had at least one NSi incident throughout their years of study in this faculty, more than (25%) of them had it more than once. About 80% of such incidents occurred in the first clinical year (3rd year BDS), particularly during injecting local anesthetic (18 students), when attempting to recap a needle (16 students), or when they were handling sharps (7 students). The student's knowledge about NSIs was principally gained from classroom lectures alone (155 students), or from other local advertizing media (15 students), or through instructions from clinical staff (13 students). Only Four students looked for further information from other sources such as scientific journals, textbooks, or libraries, (132) students are aware of clinic post exposure protocols, for 42 of them it was easy to understand and follow, 140 students think that an extra-precautions are necessary in dealing with patients of high risk, while 145 students believe that the needle stick injury is serious risk for infection transmission in clinic. **Conclusion**s: many factors such as availability of digital media, good classroom lecture coverage of NSi issue, and local educational events had raised the level of awareness among students about NSi in this faculty; nonetheless, NSi do occur in a considerable number of students. More efforts are needed to closely monitor new trainee students at their clinical sessions with a compulsory use of safety needles.

Keywords Needle Stick Injury, Dental Students, Libya, Clinical Study.

INTRODUCTION

Needle stick injuries (NSi) and sharps injury are percutaneous piercing wound typically set by a needle point, but possibly also caused by other sharp instruments or objects that commonly encountered by people handling needles in the medical setting.[1] Eighty percent of blood contacts occur through needle sticks [2]

NSI is a well known occupational hazard in dentistry and medicine and their prevention has become a subject of regulations and amendments in an effort to reduce and eliminate this preventable event [3-5]. Despite their seriousness as a medical event, NSIs have been neglected or mostly unreported, while post-exposure protocols are not available in many cases. [6]

NSI may pose a risk for the patient if the injured health professional carries HBV, HCV or HIV. It had further been noticed that (37.6%) of Hepatitis B, (39%) of Hepatitis C and (4.4%) of HIV/AIDS in Health-Care Workers around the world are due to NSIs,[7] HBV in particular is the most common infectious disease transmitted through work-related exposure to blood o blood products. [2] therefore, all patients should be considered as potentially high risk of infection and precautionary measures should be followed at all times. [8]

Previous studies proved that raising the knowledge of DHCW and students about NSIs can minimize the chances of transmission of infection to the working staff [9, 10,11]. The local post exposure infection control protocols should be assessed and updated periodically and their effectiveness in preventing cross infection are reassured. It is hoped that this study will shed light on the status of NSIs among dental students in Libya.

MATERIAL AND METHODS

This cross sectional study was carried out in the dental faculty of Benghazi University, where a total of 183 students (in their clinical undergraduate years) had been interviewed at the end of the academic year to ensure that they gained enough clinical experience of dealing with sharps and needles, They have been asked

to fill a specially constructed questionnaire which was designed to update information about the incidence of NSIs among dental students in this faculty, and their understanding of the clinic post exposure protocol, and the percentage of reporting such incidents to the authorized persons. The questionnaire included some questions regarding the student's sources of knowledge and their awareness about NSi problem and the risks of transmitting infection in the clinic b such injuries.

RESULTS

Forty five students (24.5%) had NSIs during their clinical sessions, 80% of these incidents occurred when the student was at first clinical year (3rd year BDS), 60 % of these NSIs had never been reported to superiors.

About 25% of the students who had needle stick injury reported having more than one incident of NSIs. 18 students had a NSi while they were attempting to inject a local anesthetic, while 16 students injured during recapping of the needle and 7 of them had the injury while they were handling other sharps in the clinic. NSIs incidents were documented in only 13 cases of them.

Fortunately, all students in this group were vaccinated against HBV through the compulsory program of vaccinating all clinical dental health care workers (DHCW).

The main source of information for 155 students about NSIs was gained from classroom lectures, while 15 students get their knowledge from local written protocols and 13 from instructions from dental staff. [24] students looked for further information from other sources such as journals, books or local libraries after they became aware of the problem. 132 students are aware about the protocols of clinic post exposure and only 42 of them found these protocols easy to follow. 160 students believe that an extra-precautions are necessary when managing high risk patients and 145 students think that needle stick injury is serious risk for infection transmission.

DISCUSSION

Needle stick injuries are common event in healthcare environment, mainly take place when drawing blood, administering an intramuscular or intravenous drug, or performing other procedures involving sharps. The needle can slip and injure the healthcare worker. This sets a platform to transmit viruses and other microorganisms from the source person to the recipient.[6, 12]

Many studies showed that most injuries commonly occur during needle recapping or as a result of failure to place the used needles in the approved sharps containers 13. During surgery, a surgical needle may inadvertently penetrate the glove and skin of the surgeon or assistant. Generally needle stick injuries cause only minor bleeding or visible trauma, however, even in the absence of bleeding the risk of viral infection remains high [14] Many authorities have long been adapting the use of syringes with safeguard mechanisms as standard to minimize accidents. [15]

According to WHO reports, out of the practicing 35 million health-care workers globally, about 2 million experience percutaneous exposure to infectious diseases each year.6 Most of these injuries occur during recapping the needle after use and disposal of used needle [16,17]. The frequency of NSIs has been estimated to be 600,000 to 800,000 cases annually in the USA alone.18 In China one study showed that about 77.1% of a hospital personnel had been experienced needle stick injury [17]. Another study from India similarly demonstrated high incidences of NSIs among interns and nurses 75.6% and 24.4%, respectively.19 the NSIs ranged between 55-57% in two studies from Uganda.[20,21]

Students in this study were chosen randomly to verify their opinions and practice in regard to NSIs. Current data demonstrated that as much as 79% of them are aware of the seriousness of NSIs and its risk of transmitting infection in medical field, this finding is in consistence with the findings of many studies from different parts of the world 19-20-21. Likewise, many previous studies involving dental students; show high awareness of students about NSIs (89.23% of the students had correct knowledge about NSi and 91.55% of the students had adequate level of awareness regarding its management in one study).[9]

Almost 76% of the students considered that an extra-precautions are necessary when managing high risk patients, but they are not sure about the measures to be considered if the NSi happened with them. This attitude depended largely on the source of information they had got until the moment of interview, as classroom lectures was the lonely source of information regarding NSIs.4 It seems that the education plays vital role in better effectiveness preventing cross infection in clinic, particularly, the full understanding of clinic postexposure protocols. Effective implementation of these protocols along with the use of most recent tools such as change to syringes with safeguard mechanisms coupled with appropriate training would decrease the chances of cross infection.[10]

Some studies claimed that the students with poor mark scores in their studies or those who are left handed were more prone to NSIs than others. 5,10 the same applies to healthcare workers, with better practice scores, had suffered fewer NSIs according to another study.[11]

Interestingly, a well planned clinic protocols are effective in this regard. The implementation of the EU Council directive 2010/32/EU, about elimination of NSIs in clinic has resulted in an almost 50% reduction in NSIs over 1 year.22 Another possible method of reducing the incidence of needle-stick injury is to use needles with safeguard mechanisms. [15]

Although the level of knowledge about the risk of cross-infection from NSIs was high among the interviewed students, there was decreased awareness on the means of prevention and protocol. Although there is a high degree of awareness about NSi among dental students attained from the ease of access to internet and local educational events, some incidents of NSI do occur especially among the newly introduced students which provoke the need for taking extra-precautionary measures and instruction.

The high prevalence of non-reporting of NSIs among students in this study actually reflects a worldwide problem, reported from different parts of the world. [4-5] Underreporting seemingly a worldwide problem as only (35.5%) reported any of their exposures in a study from Bosnia as well.12

The availability of educational media through the internet and local educational events has enormously raised the level of knowledge among the dental students in this faculty about infection control and particularly needle stick injury.

Conclusions needle stick injury is as common among dental students in this faculty as in other parts of the world, and despite the availability of post exposure protocols they are not fully implemented. More efforts are needed to address this problem properly at different levels according to the international standards through the improvement of the knowledge and awareness of the new dental trainee students, the use of syringes with safeguard mechanisms, as well as revising the way of reporting NSIs and monitoring the strict adherence to post exposure protocols.

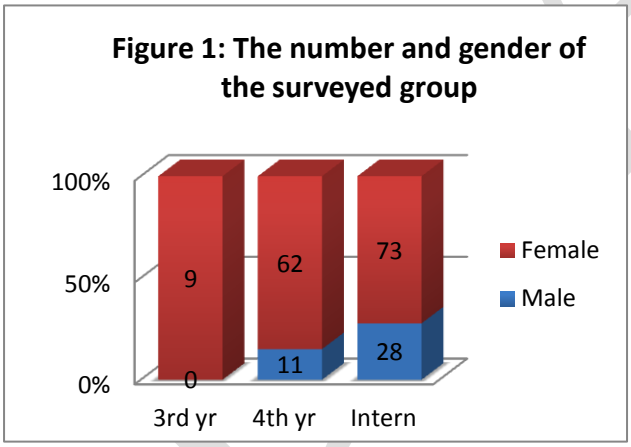
Conflict of interests: none.
Source of funding: None.

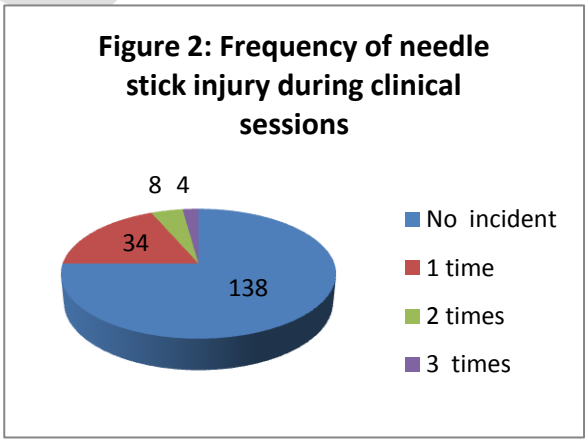
Table 1: source of information about needle stick injuries

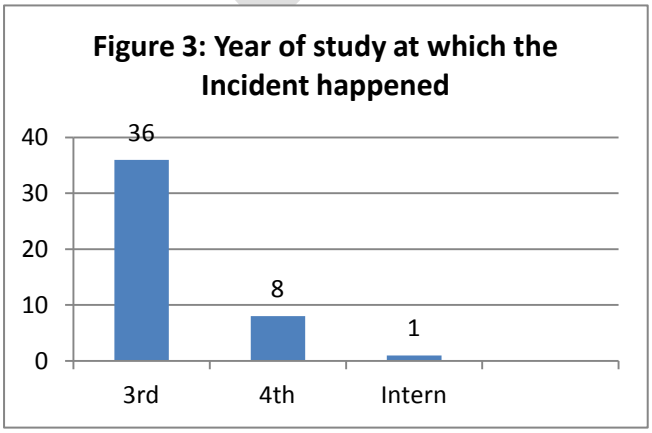
Media	No. of students	Percent
1. Classroom lectures	155	
2. Continuous Medical education	8	
3. Local written protocol and staff instructions	25	
4. Books, leaflets and journals	16	
5. Internet web sites	13	
6. Told by a colleague or friend	14	
7. Others	4	

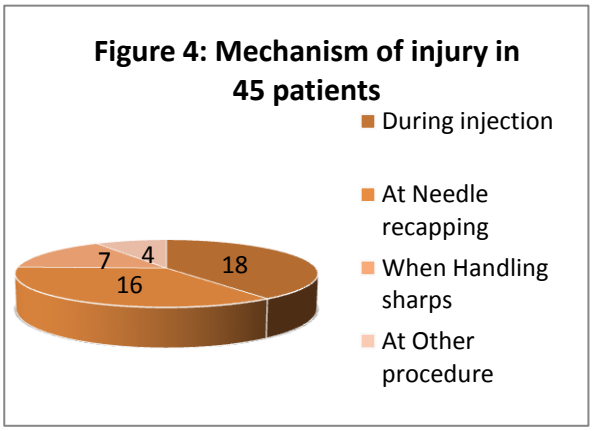
Table 2: Accessibility to post exposure protocols

Subject	Yes	No	Don't know
1. Are you aware of the clinic post-exposure protocols at your work area?	132	51	0
2. Were the clinic post-exposure protocols easy to follow in the clinic?	42	17	124
3. Do you think extra steps/precautions necessary when managing high risk patients?	140	43	0
4. Do you think the risk of transmitting serious infectious disease via needle stick injuries is high?	145	17	21









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الإصابات الناتجة عن ,وخز الإبر و الادوات الحادة عند طلبة كلية طب أسنان بنغازي

أسماء نجيب محمد العمامي و محمد صالح حماد انقافو

الخلفية: الإصابة بوخز الإبـرة عبارة عن جرح خارق للجلد عادةً ما يتم إستحداثه عند نقطة دخول الابرة للجلد، وقد تنتج الاصابة عن طريق الجروح الناتجة عن الاصابة بأدوات حادة أو اجسام أخرى قد يصادفها عادةً الأشخاص الذين يتعاملون مع الإبر في البيئة الطبية. تعد مثل هذه الإصابات في الوسط الطبي من ضمن الأخطار المهنية، فهي تشكل مصدر خطر دائم بسبب مقدرتها الخفية على احداث عدوى بالأمراض المنقولة عن طريق الدم مثل فيروس التهاب الكبد الوبائي ب وفيروس التهاب الكبد الوبائي ج وفيروس نقص المناعة البشرية (الايـدز).

الأهداف والغايات: تقييم حوادث وخز الابر عند عدد كبير من طلاب المرحلة السريرية في كلية طب الأسنان ببنغازي.

الطريقة: أجريت هذه الدراسة المقطعية بكلية طب الأسنان بجامعة بنغازي مستهدفة عدد 183 طالبًا بالمرحلة الجامعية السريرية عند نهاية عامهم الدراسي حيث تم اجراء مقابلات معهم وطُلب منهم تعبئة بيانات استبيان مصمم خصيصًا لهذه الدراسة.

النتـائج: يعتقد 145 طالبًا أن الإصابة بوخز الإبر يشكل خطورة كبيرة لانتقال العدوى. كان 132 طالبًا على دراية تامة بوجود بروتوكولات عيادية تتبع عادة بعد الاصابة بوخز الابرة بالعيادة. وجد عدد 42 طالبا فقط أن تلك البروتوكولات سهلة الفهم والتطبيق. اعتبر 140 طالبًا أنه يجب اتخاذ احتياطات اضافية كوسيلة ضرورية عند التعامل مع المرضى مرتفعي مخاطر نقل العدوى.

من بين 183 طالبا مستهدفا بهذه الدراسة أصيب عدد خمسة وأربعون طالبًا (24.5٪) بوخز أبر على مدى سنوات دراستهم ، وحدثت 80٪ من هذه إصابات في عامهم السريري الأول (سنة ثالثة بكالوريوس). و تكررت حوادث وخز الابر لحوالي 25 ٪ منهم لأكثر من مرة واحدة. وحدث

وخز الابر لعدد 18 طالبًا أثناء محاولتهم حقن المخدر موضعي للمريض، بينما أصيب 16 شخصًا آخرين خلال إعادة تغطية الإبرة وأصيب 7 آخرون بوخز الابر عندما كانوا يتعاملون مع أدوات حادة اخرى بالعيادة.
عند الاستفسار عن مصدر معلومات الطلبة حول وخز الابر, أفاد 155 طالباً بأنهم تحصلوا على معظم تلك المعلومات من المحاضرات الدراسية, و 25 طالبًا آخر تحصلوا عليها من وسائل اعلام محلية مختلفة أو من خلال توجيهات أعضاء فرق طب الأسنان المختلفة. سعى عدد قليل من الطلاب للحصول على مزيد من المعرفة حول هذا الموضوع من وسائل اعلام أخرى مثل المجلات و الكتب و المكتبات.
الخـلاصة: الإصابة بوخز الإبر شائعة بين طلاب طب الأسنان في هذه الكلية الذين تبين ان لديهم ادراك عالي لوجود مثل هذه المخاطر تحصلوا عليه من المناهج الدراسية التي تغطي هذه المسألة بشكل واف أو من وسائل الاعلام و الانترنت المتاحة. فبينما تتوفر بروتوكولات معدة للتعامل مع حالات ما بعد الوخز بالابر الا انها غير مطبقة بصرامة كافية. لذلك يلزم مزيد من العمل لمعالجة هذه المشكلة بشكل صحيح وفقا للمعايير الدولية.