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Original Research Article

A study on assessment of safe injection practices among internees in government general hospital, Kakinada, Andhra Pradesh, India

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ABSTRACT

Background: Injections are commonly used in healthcare settings for the prevention, diagnosis, and treatment of various illnesses. Unsafe injection practices put patients and healthcare providers at risk of infectious and non-infectious adverse events. Safe injection practices are part of standard precautions and are aimed at maintaining basic levels of patient safety and provider protections. Objectives of this study were to assess the knowledge and observe safety practices while giving the injections.
Methods: A cross-sectional study conducted among 200 internees in Government General Hospital, Kakinada, Andhra Pradesh in the months of January and February 2010. Data was obtained by semi- structured questionnaire; analyzed by using SPSS software version16.0 at $p<0.05$ significance level.
Results: In the present study, knowledge of internees was enquired into and practices were also observed in various aspects of injection safety. Knowledge on washing hands before giving injection was 64% but when it comes to practice, it was only 29%; knowledge on use of hub-cutter after giving injection was found to be 48% but in practice hub-cutter use was observed to be very less (5.5%); knowledge on safe disposal of used syringes was 42% but only 9.0% were practicing safe disposal. Similarly knowledge on use of color coded bags according to guidelines was 40.5% and in practice it was observed to be 14%.
Conclusions: In the present study knowledge and practices on injection safety was found to be poor; dissemination of IEC, behavior change campaigns and continuing education on universal precautions and proper disposal of injection related waste was recommended.

Keywords: Safe injection practices, Internees, Knowledge, Practice, Injection related waste

INTRODUCTION

Injections are one among the most frequently used medical procedure. A large majority of them are administered for curative purpose and rest for immunization. According to WHO estimates nearly 12-16 billions of injections are given annually across the world. Majority of these injections are not warranted but given by providers indiscriminately.[1] An injection is considered to be safe when it does no harm to the recipient, does not expose the health care worker to any risk and does not result in waste that is dangerous to the community.[2] This is achieved by administering an injection using a sterile device (syringe, needle, etc), adopting sterile technique by a qualified and well trained person and discarding the used devices in a puncture proof container specially designed for appropriate disposal. Any breach in the process makes the injection unsafe.[3]

Unsafe injections cause a substantial proportion of infections with blood borne pathogens. Global estimates have suggested that unsafe injections account for 32% new hepatitis B virus (HBV) infection, 40% of new hepatitis C (HCV) virus infection and 5% of new HIV infections.[4] Nearly 2/3rd of injections given are unsafe according to 'Assessment of Injection Practices in India' (AIPI)- a study conducted by IPEN (India CLEN Programme Evaluation Network) in 2002-2003.[5] As a result of this study, Model Injection Centers were started in some selected medical colleges in our country and these centers have started giving training in safe injection practices to various paramedical professionals and also doctors both in private and public sector. The Rangaraya Medical College, Kakinada, Andhra Pradesh was also a Model Injection Centre and participated in injection practices study conducted in India by INCLEN, New Delhi.

The knowledge regarding injection safety among injection prescribers, providers and consumers is often subnormal.[6,7] Internees are the future health professionals and their knowledge regarding injection safety is very much essential for good patient care, prevention and transmission of disease. Hence this study was conducted to assess the knowledge and practice about safe injection practices among internees in a tertiary care hospital.

METHODS

It's a cross-sectional study conducted among 200 internees in Government General Hospital, Kakinada, Andhra Pradesh in the months of January and February 2010. Regarding injection practice and disposal of injection wastes, data was collected by observation whereas knowledge regarding injection safety practices was assessed by self-administered semi-structured questionnaire. Analysis was done by using SPSS software version16.0 at $p<0.05$ significance level.

Working definitions of safe injection practice

1. Practice of washing hands before giving injection – Injection provider should wash their hands with soap and running water thoroughly before giving injections.
2. Usage of gloves during injection procedure – Injection provider advised to wear gloves before the start of an injection session and change them when in contact with dirt or blood or any other body fluid
3. Steps in giving injection – Injection provider should clean the injection site, not touching the needle, use correct site and route of administration and not recapping the needle after giving injection.
4. Procedure of disposal of syringe and needle – Injection provider should use of hub cutter after giving injection, segregate and send for disinfection before disposal of injection related waste.

RESULTS

In the present study results are expressed in terms of knowledge and practices of internees in injection safety. In the present study, 89% of the internees were found to have received training in safe injection practices. Knowledge on washing hands, wearing gloves and shoes was found to be 64%, 39% and 47.5% respectively. Knowledge on steps in giving injection was 30.5% and use of multi-dose vials was cited by 66% (Table 1). Knowledge on various steps of injection preparation among internees ranged from 30.5-66%.

Knowledge on disposal of used needles by hub cutting was found to be 48% and disposal of used syringes by disinfection was 42% whereas the knowledge on segregation of injection related waste according to color coded bags was 40.5%. Nearly 2/3rd (74%) of internees have knowledge on complications (local reactions, abscess and blood borne diseases) due to unsafe injections (Table 2). Correct disposal of injection related waste is known only by 40.5-48%.

Table 1: Knowledge on preparing for giving injection.

Knowledge	Present (%)	Absent (%)	Total
About training in safe injection practices	178 (89.0)	22 (11.0)	200
Hand washing	128 (64.0)	72 (36.0)	200
Wearing gloves	78 (39.0)	122 (61.0)	200
Wearing shoes	95 (47.5)	105 (52.5)	200
Steps in giving injection	61 (30.5)	139 (69.5)	200
Use of multi-dose vials	132 (66.0)	68 (34.0)	200

Table 2: Knowledge on disposal of injection related waste.

Knowledge	Present (%)	Absent (%)	Total
Disposal of used needles	96 (48.0)	104 (52.0)	200
Disposal of used syringes	84 (42.0)	116 (58.0)	200
On colour coded bins	81 (40.5)	119 (59.5)	200
Complications due to unsafe injections	148 (74.0)	52 (26.0)	200

Table 3: Practices observed while preparing for giving injections.

Practice	Yes (%)	No (%)	Total
Washing hands	58 (29.0)	142 (71.0)	200
Wearing gloves	36 (18.0)	164 (82.0)	200
Wearing shoes	42 (21.0)	158 (79.0)	200
Following steps in giving injection	16 (8.0)	184 (92.0)	200
Leaving the needle in multi-dose vials	20 (10.0)	180 (90.0)	200

Table 4: Practices observed while disposing the injection related waste.

Practice	Present (%)	Absent (%)	Total
Hub-cutting	11 (5.5)	189 (94.5)	200
Correct disposal of used syringes	18 (9.0)	182 (91.0)	200
Using colour coded bins	28 (14.0)	172 (86.0)	200

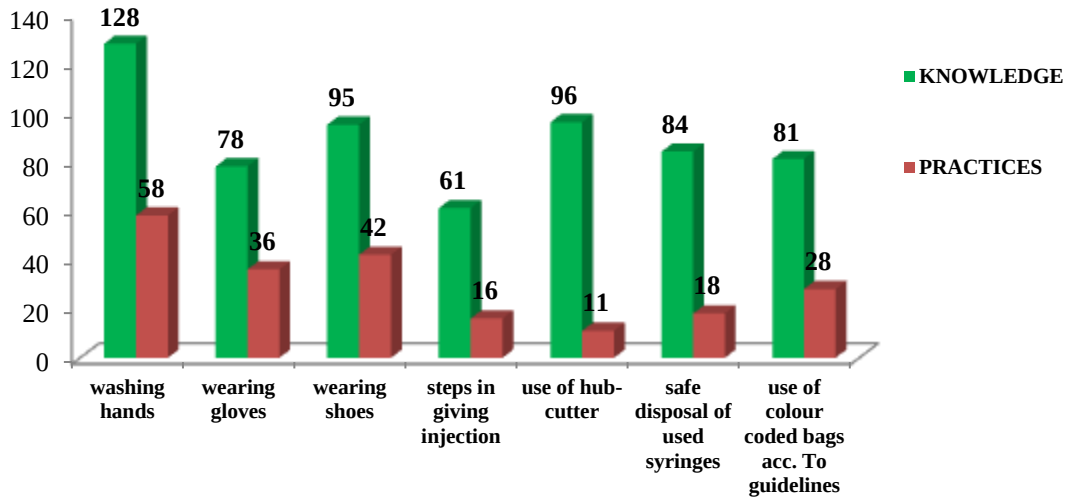

Figure 1: Knowledge versus practice of safe injection.

All internees (100%) were using disposable syringes; Practice of hand washing, wearing gloves and shoes was observed to be 29%, 18% and 21% respectively. Practice of correct steps in giving injections was poor (8%). It was also observed that multi-dose vials were left with needle to draw additional doses at 10.0% of injection sites (Table 3).

In the present study 13.5% of internees have at least one needle stick injury in the past 6 months. Hepatitis B immunization was received by 72.5% of internees.

Practice of use of hub-cutter immediately after giving injection and correct disposal of used syringes was observed to be very less (5.5-9%). Disposal of injection related waste according to color coded guidelines was also less 14% (Table 4).

In the present study practices were observed only for those having knowledge. Knowledge on washing hands before giving injection was found to be good (64%) but in practice it was only 29%. Knowledge on wearing gloves and shoes was 39.0-47.5% and in practice it was 18-21%. Knowledge on correct steps in giving injections was 30.5% but practice was very less (8%).

Knowledge on safe disposal of used syringe and needle after giving injection was 40.5-48%, but when practices were observed, they were found to be very less (5.5-14%). All these differences are statistically significant, Chi-square value (χ^2)=24.74; df=6; $p<0.05$.

DISCUSSION

In the present study 89% of internees were trained in safe injection practices, similar finding was reported from Sahu et al study (93.5% of them were trained).[8] Nearly half (48%) of the internees knew about the correct disposal of sharps, but this is less when compared with the study done in Pakistan.[9] knowledge on usage of color coded bags was 40.5% which is far less than that reported by Deo et al.[10] Knowledge on complications due to unsafe injections was found to be 74%. Similar findings are observed in the studies done Vong et al and Lt Col

Rao.[11,12] Kotwal et al in their study in New Delhi found that the knowledge regarding disease transmission was 77.5% for HIV, 52.5% for HBV and 50% for HCV.[13]

In the present study all internees (100%) were using disposable syringes and it is consistent with other studies done by Daly et al, Sachedeva et al, Riaz et al.[11,12,14-16] Washing hands and wearing gloves before giving injections was found to be 29% and 18% respectively which was less, similar to studies done by Paul et al and Bhattacharya et al.[17,18] Among the providers who were using multi-dose vials 10.0% were leaving the needle to draw additional doses of medicine or vaccine. Similar findings were observed in other studies.[8,12] In the present study 13.5% of internees have at least one needle stick injury in the past 6 months. Whereas the prevalence of needle stick injuries (NSI) among service providers was 52.2 percent according to Pandit et al and the annual incidence of NSI was 19%.[19] Hepatitis B immunization was received by 72.5% of internees. According to IPEN study 52.5% respondents received hepatitis B vaccination.[5] Regarding disposal of used syringes and needles, in the present study hub cutting was very less (5.5%) similar to Sahu et al.[8] Disinfection and disposal of used syringes was also observed to be less (9.0%). Statistically significant ($p<0.05$) difference was observed between knowledge (30.5-64%) and practices (5.5-29%) of injection safety.

CONCLUSION

Based on above observations it was concluded that Knowledge of internees about universal precautions, use of needle destroyer and final disposal of sharps was low. Knowledge on complications of unsafe injections, diseases transmitted through needle stick injuries was good. It is good to see all of them using disposable syringes. Unsafe practices like not washing hands, not wearing gloves and shoes, not following the correct steps in giving injection were observed among many. Even though color coded bags were seen at majority of injection sites, disposal of injection related waste was not according to guidelines. Disinfection and proper disposal of used syringes and needles were not in practice by most of them.

Recommendations

Ensure dissemination of information, education and communication materials on safe injection practices at the site of injection. Promote behavior change communication and continuing education on universal precautions, steps in following correct technique while giving injections. Emphasis should be done about re-orientation training/sensitization of health personnel about injection safety at periodic intervals. Strict monitoring to be carried out by the ward in-charge for hub-cutting, disinfection of used syringes and needles, use of color coded bags and final disposal of injection related waste. Prior training for all the medical students about safe administration of injection should be included in the curriculum.

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REFERENCES

1. World Health Organization. Safety of Injections. Fact sheet no. 232. Geneva: WHO October; 1999.
2. Hutin Y, Hauri A, Chiarello L, Catlin M, Stilwel B, Ghebrehiwet T, et al. Best infection control practices for intradermal, subcutaneous and intramuscular needle injections. Bull WHO. 2003;81:491-500.
3. Geneva: World Health Organization (WHO), "Safety of Injections Question and Answers," Publication No. WHO/EHT/04.06, Secretariat of the Safe Injection Global Network, Department of Essential Health Technologies, 2011. Available at http://who.int/injection_safety/resources/en/index.html last. Accessed on 08 August 2015.
4. Hauri AM, Armstrong GL, Hutin YJF. The global burden of disease attributable to contaminated injections given in health care settings. Int J STD AIDS. 2004;15:7-16.
5. Assessment of Injection Practices in India (AIPI) study conducted by India CLEN Program Evaluation Network (IPEN) during 2002-03.
6. Anand K, Pandav CS, Kapoor SK. Injection use in a vil-lage in north India. Natl Med J India. 2001;14:143-4.
7. Kotwal A, Priya R, Thakur R, Gupta V, Kotwal J, Seth T. Injection practices in a metropolis of north India: percep-tions, determinants and issues of safety. Indian J of Med Sci. 2004;58:334-44.
8. Sahu D, Gandhi N. Assessment of Safe Injection Practices in a Tertiary Care Hospital: A Cross-Sectional Study from Chhattisgarh. Ntl J of Community Med. 2015;6(4):500-3.
9. Janjua NZ, Injection practices and sharp waste disposal by general practitioners of Murree, Pakistan. J Pakistan Med Assoc. 2003;53:1-7.
10. Deo DS, Tak SB and Munde S. A study of knowledge regarding hospital waste management among employees of a teaching hospital in rural area. J Indian Soc hosp Waste Manag. 2006;5:12-5.
11. Vong S, Perz JF, Sok S, Som S, Goldstein S, Hutin Y, et al. Rapid assessment of injection practices in Combodia, 2002. BMC Public Health. 2005;5:56.

12. Rao SKM. Need for safe injection practices and safe management of sharp waste disposal. Health care management – India's first newspaper for health care business; Issue dated 16-30th June 2004.
13. Kotwal A, Priya R, Thakur R, Gupta V, Kotwal J, Seth T. Injection practices in a metropolis of North India: perceptions, determinants and issues of safety. Indian J Med Sci. 2004;58:334-44.
14. Daly AD, Nxumalo MP, Beillik RJ. An assessment of safe injection practices in health facilities in Swaziland. South African Med J. 2004;94(3):194-7.
15. Sachedeva S, Datta U. Sharp disposal practices in urban dispensaries. Indian J Comm Med. 2010;35(2):365-6.
16. Riaz R, Sultana A, Tehseen I. Malpractices in syringe disposal by paramedical staff. Rawal Med J. 2009;34:21-5.
17. Paul B, Roy S, Chattopadhyay D, Bisoi S, Misra R, Bhattacharya N, et al. A Study on Safe Injection Practices of Nursing Personnel in a Tertiary Care Hospital of Kolkata, West Bengal, India. TAF Prev Med Bull. 2011;10(6):681-6.
18. Kulkarni RS, Giri PA, Gangwal PR. Injection Safety: Knowledge and Practices among Nursing Personnel in Tertiary Care Teaching Hospital of Marathwada Region of Maharashtra, India. Arch Community Med Public Health. 2016;2(1):18-21.
19. Pandit NB, Choudhary SK. Unsafe injection practices in Gujarat, India. Singapore Med J. 2008;49(11):936.

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