

Knowledge and Awareness of Biomedical Waste Disposal at Dental Clinics in Rajasthan, India

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Article History

Received: 14 Aug 2015

Revised: 02 Sept 2015

Accepted: 23 Sept 2015

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ABSTRACT

Introduction: The concern for biomedical waste management has been felt globally with the rise in deadly infections and it should be segregated at source into color coded bags or containers and its collection and proper disposal should be a significant concern for both medical personnel and general community. With this background, this study was conducted with the main objective of assessing knowledge, attitude, and practices among dentists regarding biomedical waste management.

Materials and Methods: The present study was conducted among 100 dentists who were private practitioners in Rajasthan using a telephonic survey questionnaire. The sample were chosen using a random sampling technique. The percentage response for each question from all the participants was obtained and the data was calculated.

Results: In the present study about 95% subjects correctly disposed category number 1 biomedical waste. 91% were correctly disposing gloves in red plastic bag, solid waste contaminated with blood and body fluids including cotton dressings was disposed by 63% in yellow and by 37% in red bags and 100% discarded medicines and cytotoxic drugs in black bag.

Conclusion: In this study, dentists had reported adequate understanding and awareness of biological waste disposal into color coded bags.

KEYWORDS: Biomedical Waste Disposal; Color Coded Bags; Dentists.

INTRODUCTION

Any waste that is generated during diagnosis, treatment or immunisation of human beings or animals, or in the research activities pertaining to or in the production or testing of biologicals and includes categories mentioned in schedule I of the Government of India's Biomedical Waste (Management and Handling) Rules 1998 is termed as biomedical waste.^{1,2} The concern for biomedical waste management has been felt globally with the rise in deadly infections such as AIDS, Hepatitis-B due to indiscriminate disposal of health-care waste.³ Among all health problems, there is a particular concern with HIV/AIDS, Hepatitis B and C, for which there is a strong evidence of transmission through healthcare waste. The BMW rule applies to all those who generate, collect, receive, store, transport, treat, dispose or handle BMW in any manner and also to every institution that generate BMW. The bio medical waste should be segregated at source into color coded bags or containers and its collection and proper disposal should

be a significant concern for both medical personnel and general community.⁴ With this background, this study was conducted with the main objective of assessing knowledge, attitude, and practices among dentists regarding biomedical waste management.

MATERIALS AND METHODS

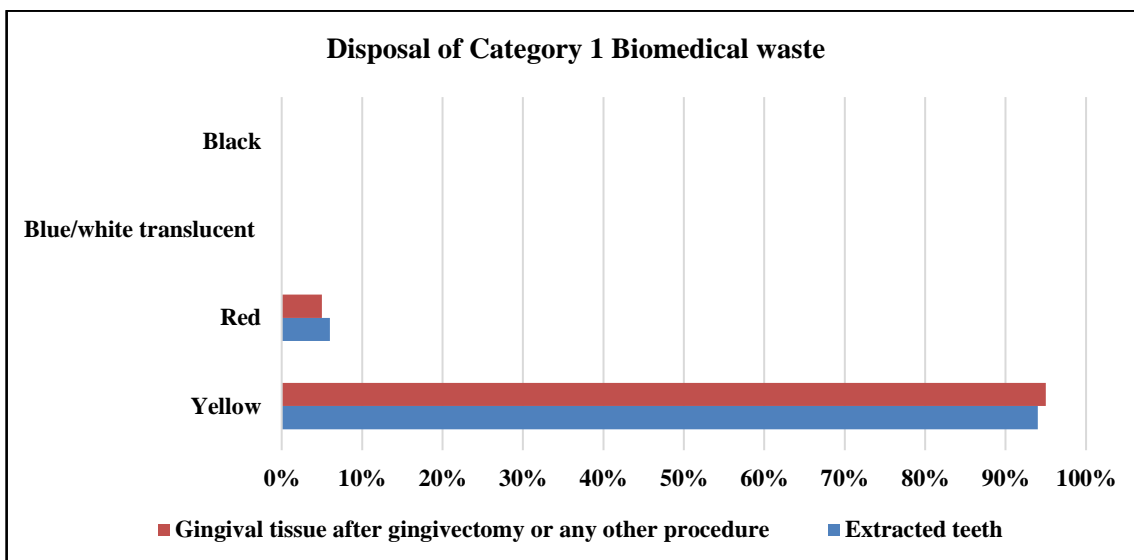
The present study was conducted among 100 dentists who were private practitioners in Rajasthan using a telephonic survey questionnaire. The sample were chosen using a random sampling technique. The survey form was composed of questions framed based on knowledge, awareness regarding disposal of biomedical waste generated at dental clinics into color coding plastic bags.

All the study participants were assured about their confidentiality and anonymity. The percentage response for each question from all the participants was obtained and the data was calculated.

RESULTS

In the present study about 95% subjects correctly disposed category number 1 biomedical waste (graph1). 91% were correctly disposing gloves in red plastic bag. In the present study about 95% subjects correctly disposed category number 1 biomedical waste. About 98% subjects were correctly disposing waste sharps, solid waste contaminated with blood and body fluids

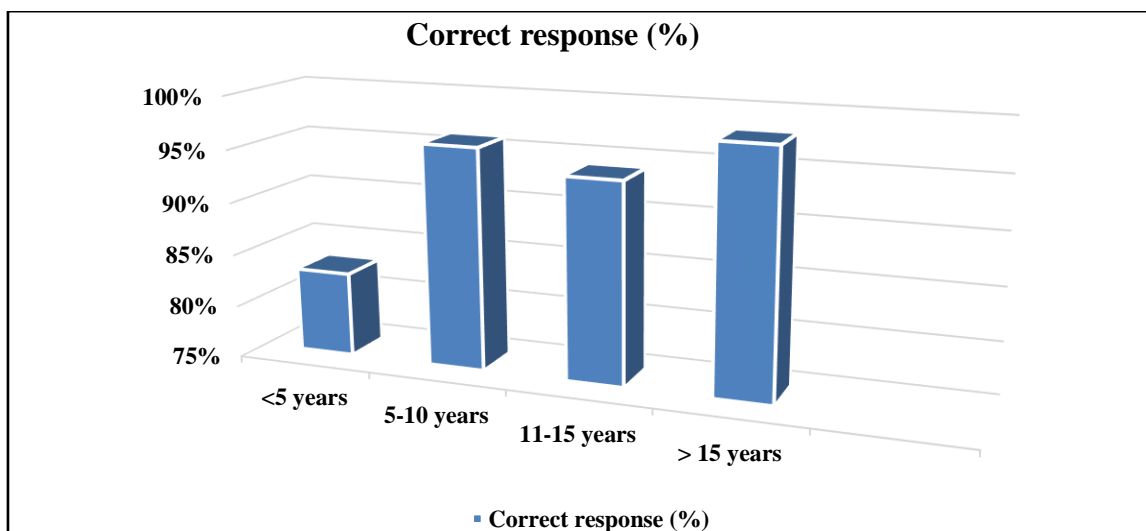
including cotton dressings was disposed by 63% in yellow and by 37% in red bags and 100% discarded medicines and cytotoxic drugs in black bag (table 1). Graph 2 shows correct response of dentists in relation to years of experience in dentistry and the knowledge of the dentists on disposable wastes in color coded bags. Dentists having <5 years of experience were more aware of biomedical waste segregation.



Graph 1: Response of study subjects regarding disposal of Category 1

Table 1: Response of study subjects regarding disposal of biomedical waste

Biomedical waste	Color coded plastic bags			
	Yellow	Red	Blue/white translucent	Black
Gloves	4%	91%	-	5%
Scalpels, blades, glass	-	-	98%	2%
Needles	-	-	99%	1%
Syringes without needles	-	66%	44%	9%
Solid waste contaminated with blood and body fluids including cotton, dressings	63%	37%	-	-
Discarded medicines and cytotoxic drugs	-	-	-	100%



Graph 2: Correlation with years of experience

DISCUSSION

Category No. 1 consisted of Human Anatomical Waste (human tissues, organs, body parts) and are disposed into yellow plastic bags.⁵ In the present study about 95% subjects correctly disposed category number 1 biomedical waste. Category No. 4 comprises of waste sharps (needles, syringes, scalpels, blades, glass, etc. that may cause puncture and cuts. This includes both used and unused sharps) and are disposed in Blue/White translucent bags.⁵

About 98% subjects were correctly disposing waste sharps in the present study. Category 6 comprises of Solid Waste (Items contaminated with blood and body fluids including cotton, dressings, soiled plaster casts, lines, beddings, other material contaminated with blood) can go into yellow or red plastic bag.⁵ The present study found that solid waste contaminated with blood and body fluids including cotton dressings was disposed by 63% in yellow and by 37% in red bags. Category No. 4 comprises of Discarded Medicines and Cytotoxic drugs (wastes comprising of outdated, contaminated and discarded medicines and drugs).⁵ The present study found that 100% discarded medicines and cytotoxic drugs in black bag.

Similar to our study, Narang RS et al⁶ found that the dentists were significantly more aware of the method of waste collection in the hospital and the disposal of various items into different colour-coded bags, as for employee education/awareness, there was a significant difference between the dentists and the auxiliaries on the question regarding records of BMW maintained in the hospital and the other responses to questions on these topics had a highly significant difference between the two groups in favour of the dentists.

In a similar study by Sharma A et al,⁷ attitude towards biomedical waste management was studied among dentists, nurses, laboratory technicians and Class IV employees and only 15 (30%) dentists had excellent knowledge about biomedical waste generation and legislation while 18 (36%) of nurses had extremely poor knowledge about it.

In another study by Sood AG et al,³ it was found that many dentists have knowledge about the waste management, but they lack in the attitude and practice, however, there is need for education regarding hazards associated with improper waste disposal at all levels of dental personnel. It is imperative that waste should be segregated and disposed off in a safe manner to protect the environment as well as human health. Another survey conducted by Kishore J et al⁸ in a teaching hospital of New Delhi reported that not all dentists were aware of the risks they were exposed to and only half of them observed infection control practices. In addition to this, majority of them were not aware of proper hospital waste management. The dentists need to be educated on

Biomedical Waste (Management & Handling) Rules, 1998 through extensive training programme.⁸

Treatment Options as per Schedule I are incineration/deep burial for biomedical waste in yellow bag, autoclaving/microwaving/ chemical treatment for biomedical waste in red bag, autoclaving/microwaving/ chemical treatment and destruction/shredding for biomedical waste in blue/white translucent bag and disposal in secured landfill for biomedical waste in black bag.⁵ Adequate knowledge about the health hazard of hospital waste, proper technique and methods of handling the waste, and practice of safety measures can go a long way toward the safe disposal of hazardous hospital waste and protect the community from various adverse effects of the hazardous waste.⁹

CONCLUSION

In this study, dentists had reported adequate understanding and awareness of biological waste disposal into color coded bags.

REFERENCES

1. Government of India, Ministry of Health and Family Welfare (MoHFW). National Guidelines on Hospital Waste Management Based upon the Bio-Medical Waste (Management and Handling) Rules, 1998. New Delhi: MoHFW; 2002.
2. Government of India, Ministry of Environment and Forests. Bio-Medical Waste (Management and Handling) Rules. Gazette of India. 1998. Available from: <http://envfor.nic.in/legis/hsm/biomed.html> 2.
3. Sood AG, Sood A. Dental perspective on biomedical waste and mercury management: a knowledge, attitude, and practice survey. *Indian Journal of Dental Research*. 2011 May 1;22(3):371.
4. Chudasama RK, Rangoonwala M, Sheth A, Misra SK, Kadri AM, Patel UV. Biomedical Waste Management: A study of knowledge, attitude and practice among health care personnel at tertiary care hospital in Rajkot. *Journal of Research in Medical and Dental Science*. 2013 Jul;1(1):17-22.
5. Biomedical Waste Disposal. Available at: <https://www.ida.org.in/Membership/Details/BiomedicalWasteDisposal>
6. Narang RS, Manchanda A, Singh S, Verma N, Padda S. Awareness of biomedical waste management among dental professionals and auxiliary staff in Amritsar, India. *Oral Health and Dental Management*. 2012 Dec 1;11(4):162-8.
7. Sharma A, Sharma V, Sharma S, Singh P. Awareness of biomedical waste management among health care personnel in Jaipur, India. *Oral Health Dent Manag*. 2013 Mar 1;12(1):32-40.
8. Kishore J, Goel P, Sagar B, Joshi TK. Awareness about biomedical waste management and infection

control among dentists of a teaching hospital in New Delhi, India. Indian journal of dental research: official publication of Indian Society for Dental Research. 2000 Oct 1;11(4):157-61.

9. Mathur V, Dwivedi S, Hassan MA, Misra RP. Knowledge, attitude, and practices about biomedical waste management among healthcare personnel: A cross-sectional study. Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine. 2011 Apr;36(2):143.

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How to cite the article: Nishesh Batra. Knowledge and Awareness of Biomedical Waste Disposal at Dental Clinics in Rajasthan, India. Int J Med Res Prof. 2015, 1(2); 92-95.