Original Research Article

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Knowledge, attitude and practice of bio-medical waste management among private practitioners in Poonamallee taluk, Chennai

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ABSTRACT

Background: Inadequate and inappropriate knowledge regarding disposal of Bio-Medical Waste may have serious health consequences to those who handle it as well as can have a deleterious impact on the environment. The objective of the study was to assess the knowledge, attitude and practices about the various aspects of bio-medical waste (BMW) management among private practitioners of Poonamallee taluk, Chennai

Methods: A community based cross-sectional study was conducted to assess the Knowledge, Attitude and Practices about the various aspects of Bio-Medical Waste (BMW) management among private practitioners of Poonamallee taluk, Chennai. The sample size was calculated as 171. Data was collected using a structured interview schedule among all private practitioners including dentists. Data was entered and analyzed by using IBM SPSS software Version 21.

Results: 78.3% private practitioners were found to have adequate knowledge about the biomedical waste management rules. 76% private practitioners had knowledge regarding segregation of waste at source. 56.7% of practitioners segregated the BMW into different categories at source level and disposed in specified color coded containers.

Conclusions: The importance of training regarding biomedical waste management needs emphasis; lack of proper and complete knowledge about biomedical waste management impacts practices of appropriate waste disposal.

Keywords: KAP, Bio-Medical waste, Medical professionals

INTRODUCTION

Biomedical waste (BMW) is a global issue today. BMW is waste generated during diagnosis, treatment or immunization of human beings or animals, or in research activities pertaining thereto, or in the production and testing of biological and is contaminated with human fluids. It is important to note that not all hospital waste has the potential to transmit infection. It is estimated that 80-85% is non-infectious general waste, 10% is infectious and 5% is other hazardous waste. According to Bio-Medical waste (management and handling) rules 1998 of India, biomedical waste means any wastes solid,

fluid or liquid waste including its containers and any intermediate product which are generated during the diagnosis, treatment and immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological.³

Improper biomedical waste management has the potential to spread infections leading to development of resistant organisms and bringing these resistant hospital organisms to the doorstep of the community. But 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 health care wastes. Inadequate and

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inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well⁵.

Across all specialties, doctors need to have exemplary professional practice in managing biomedical wastes. However, awareness among them preconditions their attitude and understanding in this regard. The present study was carried out to assess the knowledge, attitude and practices about the various aspects of BMW management among private practitioners of Poonamallee taluk, Chennai.

METHODS

A community based cross-sectional study was conducted to assess the knowledge, attitude and practices about the various aspects of bio-medical waste (BMW) management among 171 private practitioners of Poonamallee taluk, Chennai, from April 2015 to July 2015. Based on the anticipated prevalence of the Knowledge of Bio-Medical waste (BMW) management among private practitioners as 50%, with an alpha error of 0.05, the limit of accuracy of 15%, the minimum sample size was calculated. Data was collected using a structured interview schedule among all private

practitioners including dentists by convenient sampling method in the study till we reached the required sample size

The study was initiated after obtaining clearance from both the Scientific Review Board and Institutional Ethics Committee of Saveetha Medical College. Information sheet with pertinent information was given to all the participants invited to participate in the study. Written informed consent was obtained from all participants prior to the conduct of the data collection. The data was collected from the private practitioners through interview with the help of a pre-designed, structured questionnaire. Data was entered, simple proportions and descriptive statistics were calculated by using IBM SPSS software Version 21.

RESULTS

The present study was conducted among 171 private practitioners of Poonamalle district, Chennai. All the private practitioners who participated in the study were completed MBBS/BDS. The age group of private practitioners varied from 28-59 yrs. The Background characteristics of the participants are described in Table 1.

Table 1: Background characteristics of the participants.

No.	Background characteristics	Total no of participant (N=171)	Percentage (%)
1.	Age of the participants		
	<40 years	31	18.13
	40-50 years	103	60.23
	>50 years	37	21.64
2.	Sex		
	Male	128	74.85
	Female	43	25.15
3.	Qualification		
	Under Graduate	117	68.42
	Post Graduate	54	31.58
4.	Duration of practice:		
	Less than 5 years	21	12.28
	5 to 10 years	87	50.88
	More than 10 years	63	36.84
5.	Type of practice:		
	Consultancy	102	59.65
	Consultancy, dispensaries and injections	44	25.73
	Consultancy, dispensaries, injections and minor procedures	25	14.62
6.	Average no of patients per day (no)		
	Less than 10	24	14.04
	10 to 30	110	64.33
	More than 30	37	21.63
7.	Approximate quantity of waste generated per day (kg)		
	<1	118	69.01
	1-4	22	12.86
	>4	31	18.13

Majority of the study population, (78.3%) private practitioners were found to have adequate knowledge about the biomedical waste management rules. Knowledge regarding segregation of waste at source was found to be (76%), knowledge on color coding for waste containers was 73%, for disinfection of hospital waste before disposal 71% and transmission of disease through biomedical waste 70.3%.

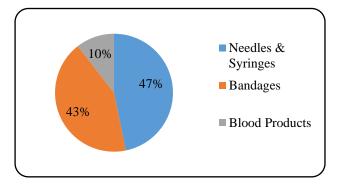


Figure 1: Nature of BMW.

The most common biomedical waste generated in clinical practice was found to be needles and syringes (47%) (Figure 1).

Average duration of storage of BMW in most (68.5%) of the clinics was found to be 24 hours. 56.7% of practitioners segregated BMW into different categories at source and disposed in specified color coded containers (Figure 2).

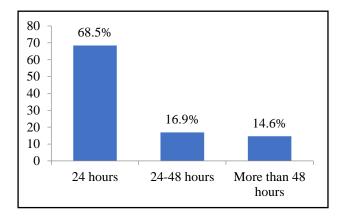


Figure 2: Storage of BMW in clinic.

DISCUSSION

A study was conducted to assess the knowledge, attitude and practice on biomedical waste management among private practitioners in Poonamalle district, Chennai.

In the present study private practitioners were found to have adequate knowledge (78.3%) about the biomedical waste management rules followed by knowledge regarding segregation of waste at source 76%, Color

coding for waste containers 73%, disinfection of hospital waste before disposal 71% and transmission of disease through biomedical waste 70.3%. A study done in Pondicherry by Malini results showed that knowledge about bio-medical waste generation and legislation to be 60%, health care waste is hazardous 63%, biomedical waste is segregated at source 62% and awareness of separate color coding containers 63% among the doctors which is comparable to our study results. A study done in Kolkata by Paria results showed that 66% of doctors had correct knowledge about the same.

A study done by Mohapatra showed that doctors who had either completed their post-graduation (MD/MS and equals) or pursuing it found that almost half of the respondents (49.7%) opined that they had forgotten more than 70% of what they knew about BMW management (categorized as "very poor") while 153 (42%) doctors claimed that they remembered at least 50%.⁵

Another study done by Mathur, 68% doctors had knowledge on biomedical waste management rules, color coding for waste containers among 69%, segregation of waste at source among 61%, disinfection of hospital waste before disposal among 66% and transmission of disease through biomedical waste among 70%.⁷

In this study, results showed that most (55%) of the practitioners are accepting that safe management of biomedical waste is an important step to prevent the spread of disease. A study done in Pondicherry by Malini showed that 63% of doctors are accepting safe management of bio-medical waste is an issue.⁶

Present study showed that 56.7% of practitioners segregate biomedical waste into different categories at source and disposal in specified color coded containers. Malini done a study in Pondicherry, results showed that disposal of sharps in puncture proof container was 63%, disposal of expired or contaminated drug in black colour bag 50%, disposal of used gauze piece in yellow colour bag 63% and discarding of used needles in needle destroyer 52%. Another study done in Lucknow results showed that Practices regarding biomedical waste disposal in specified color coded containers 58% and disposal of sharps in puncture proof containers as 49%.

CONCLUSION

Implementation of biomedical waste management rules is the need of the hour, it is imperative to implement these rules more effectively and to improve the collection, segregation, processing, treatment and disposal of these bio-medical wastes in an environmentally sound management thereby, reducing the bio- medical waste generation and its impact on the environment.

Improper management of waste generated in health care facilities causes a direct health impact on the community,

the health care workers and on the environment. Every day, relatively large amount of potentially infectious and hazardous waste are generated in the health care hospitals and facilities around the world. It should be made compulsory for healthcare facilities to get their healthcare personnel including the sanitary staff trained from accredited training centers. It should be a continuous process depending upon the patient input in different healthcare facilities. And all the healthcare personnel should participate in this and any injuries happening for the improper management of waste they should inform to pollution control board.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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