



Awareness of Biomedical Waste Management among MBBS Students at a Tertiary Care Teaching Hospital in Mewat, Haryana

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ABSTRACT

Introduction: Biomedical waste is any waste, which is generated during the diagnosis, treatment or immunization of human beings or in research activities or in the production or testing of biological products. Biomedical waste can be categorized into non-hazardous and bio-hazardous. Approximately 75-90% of the biomedical waste are non hazardous and as harmless as any other municipal waste. The remaining 10-25% is hazardous and can be injurious to humans or animals and deleterious to environment. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well. Hospitals/health care services inevitably create waste that may itself be hazardous to health. The waste produced in the course of health care activities carries a higher potential for injury, infection and pollution due to open burning, than any other type of waste.

Objective: The objective was to assess awareness about biomedical waste management of MBBS student.

Materials and Methods: This was a cross-sectional study done in a medical college I. A total of 100 MBBS students were included in the study with their prior consent.

Results: 70% were boys and 30% were girl students. Among various questions asked in the questionnaire, the overall awareness of MBBS students was 63.45 %.

Conclusion: Lack of appropriate knowledge about biomedical waste management impacts practices of proper waste disposal. Hence, the importance of training regarding health care waste management needs emphasis.

Introduction

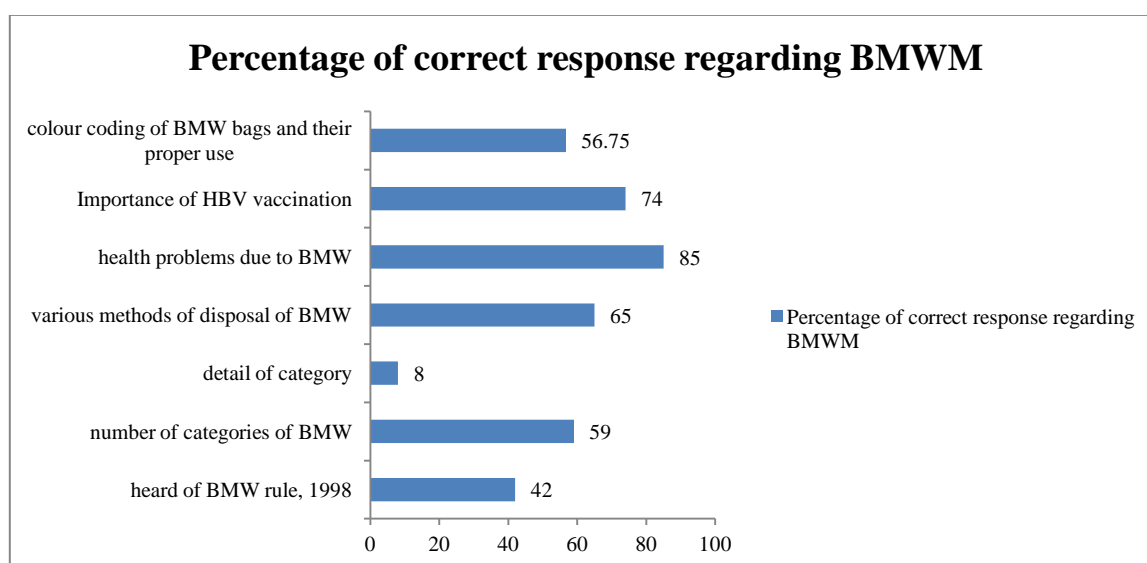
Waste generated during the diagnosis, treatment or production of biological products for humans or animals is called Biomedical waste (BMW). The main sources of biomedical waste are Hospitals, medical clinics and laboratories.¹ Various categories of BMW are mentioned in schedule 1 of biomedical waste management (BMWM) and handling rules, 1998.² waste generation rate ranges from 0.5 to 2.0 kg per bed per day. Every year, 0.33 million tonnes of BMW is generated in India. Safe and reliable method of handling of Biomedical waste is essential at point of generation of waste.³ since the implementation of Bio-medical waste rules (1998), every health care personnel is expected to have a proper knowledge about collection, handling and disposal of biomedical waste for proper management of the same.⁴ The lack of awareness has led to hospitals becoming hub of spreading disease rather than working towards eradicating them. Biomedical waste management (BMW) is a team work. A conscious, cooperative and coordinated effort is required from doctors to ward boys and for efficient working of biomedical waste management team.⁵ This study was conducted among MBBS students studying in SHKM, GMC, Mewat to assess awareness about various aspects of biomedical waste management (BMW) among them, so that an effective strategy can be developed for improving situation in future.

Materials and Methods

This study was conducted at Shaheed Hasan Khan Mewati, Govt. Medical College and hospital, Mewat, Haryana. Study design was cross sectional in nature. A self distributed, pre-tested questionnaire was distributed among MBBS students (first year till final year). It comprised of questions to test awareness regarding BMWM. Percentage method was used in the current study.

Results

A total of 100 students participated in this study. 70 (70%) were boys and rest were girl students (30%). Our study showed that only 42% of students had heard about BMW (Management and Handling) rule,1998. While only 58% of students knew about number of categories of biomedical waste only 8% could recall details of these categories. 65% of participants knew about various methods of disposal of biomedical waste.85% of MBBS students knew about diseases caused due to improper handling and management of biomedical waste. 74% of them knew about importance of HBV vaccination among staff handling BMW. 56.75% of students could answer correctly use of colour coded biomedical waste bags and bins depending upon nature of waste generated.



Discussion

In this study, MBBS students were assessed about their knowledge of biomedical waste management. Interestingly, study revealed that their awareness was moderately satisfactory indicating lack of required knowledge of biomedical waste management.

42% of MBBS students had knowledge about BMW rule, 1998 in our study. In a study by Saini et al⁶, 99.1% of study participants knew about this law. This difference in knowledge may be due to difference of experience and exposure among MBBS (undergraduate students), junior residents and senior consultants. A study by Deo et al⁷, revealed 47.58% of doctors were aware about legislation on BMW similar to that of our study. There were ten categories of BMW which was known by 59% of study participants. A study at Andhra Pradesh showed that only 1.6% of their study population knew about these categories, which may be due to the fact that their study population consisted of paramedical staff.⁸ 28% of MBBS students knew exact number of categories of biomedical waste in a study by Bhardwaj M. et al⁹. This difference may be due to quality of training imparted to students to improve their current knowledge.

Details of category

65% of participants knew about various methods of disposal of biomedical waste in the present study. Our results match with study conducted by Nema S. Et al¹⁰. While, in a study by Bhardwaj et al⁹; only 20.9% of students could accurately determine various methods of disposal of biomedical waste. This difference may be due to less number of repeated training imparted to students.

Awareness regarding health hazards related to improper BMW among study participants was found to be 85% in contrast to study by Narang et al¹¹ (100%). Whereas, only 63.46% of doctors were aware on same issue in study at New Delhi by Bhagwati et al¹².

74% of the undergraduate students knew about importance of HBV vaccination among staff handling BMW in present study. 94% of MBBS students knew about the same in the study by Bhardwaj et al⁹ whereas in a study by Makadia J S et al¹² 58% students were aware about HBV vaccination. This difference may be due to difference in training intervals at the various institutes.

Different color coding bags for segregation is one of the most important steps of biomedical waste management. Only 56.75% of our study participants displayed their casual approach regarding use of color coding bags/bins which is in contrast to study by Selvaraj et al.¹³ Deo et al showed only 20.23% of doctors knew the same whereas only 26% of participants knew correctly regarding the same in a study by Joe et al.¹⁴

Conclusion

Based on the observation, regular and effective training of the medical students is important regarding bio medical waste management. Regular and periodic assessment of level of Awareness regarding biomedical waste management (BMW) management should to be conducted among the medical students.

It is recommended that it should be made mandatory for medical and paramedical institute to train their students before they start their clinical posting in hospital by lectures as well as by demonstration. These training sessions be one-time activity but rather a continuous process according to the patient input in different healthcare facilities. This will increase effectiveness of BMW management among future doctors.

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