

Short Communication

Knowledge and Awareness regarding Biomedical Waste Management among Employees of a Tertiary Care Hospital

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Abstract

Background: A hospital is an establishment where the persons suffering with the variety of communicable and non communicable diseases are visiting to take medical care facilities. Hospitals and other healthcare establishments in India produce a significant quantity of waste, posing serious problems for its disposal, an issue that has received scant attention.

Objective: To assess the level of knowledge regarding biomedical waste and its management among hospital personnel.

Material and Methods: The present study was a cross sectional study carried out in a tertiary care hospital of Gwalior in year 2008. Medical, para-medical and non-medical personnel working at their current position for at least 6 months were included as study participants. Self made scoring system was used to categorize the participants as having Good, Average and Poor knowledge.

Statistical Analysis: Percentage and Proportion were applied to interpret the result.

Results: The score was highest for medical and least for non-medical staff.

Conclusion: The present study concludes that regular training programs should be organized about the guidelines and rules of biomedical waste management at all level.

Key Words: Biomedical Waste, Knowledge, Tertiary care hospital

Introduction:

A hospital is an establishment where the persons suffering with the variety of communicable and non communicable diseases are visiting to take medical care facilities. Hospitals and other healthcare establishments in India produce a significant quantity of waste, posing serious problems for its disposal, an issue that has received scant attention^{1,2}. The major problem arises when the hospital refuse is dumped in the open and is mingled with domestic waste leading to various types of hazards³. The exposure to infectious and hazardous hospital waste can cause serious health problems to those who handle it, particularly to waste collectors or rag pickers and the environment⁴. This can also become a source of many communicable diseases.

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 waste⁵. However, if the infectious component gets mixed with the general non-infectious waste, the entire bulk of hospital waste potentially becomes infectious⁶. Improper disposal

practices of hospital waste affects the people who come in direct contact with it. Waste piles also attract a variety of disease vectors, including mosquitoes and flies. Thus, improper waste management practices are a serious problem that involve not only to the hospital administration but society at large.

The present study was conducted to assess the knowledge and awareness regarding the biomedical waste management among the employees of a tertiary level hospital of Gwalior because correct knowledge is essential to prevent these hazards.

Material & Methods:

The present study was a cross-sectional study carried out for the period of 4 months from Jan-Apr 2008 at a tertiary level hospital of Gwalior district. Medical (doctors), para-medical (nurses and lab. technicians) and non-medical (waste handlers and sweepers) personnel working since last six months or more, were included as study participants by using purposive sampling method.

A pre-designed, pre-tested, structured proforma was used for data collection from all the study participants. Study proforma contains a total of ten multiple choice

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questions regarding the hazards associated with biomedical waste, methods for the prevention of hazards, colour coding, waste segregation, storage and transportation. Each correct question scores one mark. Self made scoring system was used to categorize the participants as having Good, Average and Poor knowledge regarding the subject. Participants scored more than 7 marks were categorized as good, between 4 to 7 average and those who scored less than 4 were categorized as having poor knowledge. Maximum score was ten and minimum was zero.

Study tool was pre-tested and necessary modifications were made before using tool to conduct interviews. Interviews of the study participants were conducted after informed consent and confidentiality were assured. Data collected were compiled and analyzed manually. Percentage and proportion were applied for the interpretation of the findings.

Results:

A total of 158 study participants were interviewed, of these 70 participants (44.30%) were medical, 47 (29.74%) para-medical and 41 (25.95%) were non-medical. The present study shows that the overall knowledge among medical professionals was higher than para-medical workers while it was least among non-medical workers. On the basis of scoring system the medical professionals having good knowledge (scores more than 7) were about 58.57% and very few of them (1.42%) having poor knowledge regarding the biomedical waste management. Among para-medical personnel just more than half categorized as having average knowledge and about one third shows good knowledge but majority of non-medical workers (70.73%) were poorly aware about the biomedical waste and its management. (Table-1)

Table 1: Knowledge among employees of tertiary care hospital regarding Biomedical Waste Management and Handling

Score	Level of knowledge	Medical	Para-medical	Non-Medical
		(n=70) No. (%)	(n=47) No. (%)	(n=41) No. (%)
> 7	Good	41 (58.57)	15 (31.91)	02 (4.87)
4 - 7	Average	28 (40.00)	25 (53.19)	10 (24.39)
< 4	Poor	01 (1.42)	07 (14.89)	29 (70.73)

Discussion:

Knowledge and awareness among health care personnel is essential for the adequate management of biomedical waste. In our study medical and para-medical staff was quite aware about the hazards associated with the biomedical waste, methods of prevention and segregation but awareness about transportation and storage was less among para-medical staff than medical staff. The awareness on hazards and methods of prevention of hazards among medical and paramedical staff is crucial to protect health personnel from sharp, infectious and chemical waste and awareness about segregation is important to prevent the mixing of hazardous and non-hazardous or domestic waste which has to be disposed off with municipal waste, therefore minimize the total quantity of hazardous waste, which is ultimately beneficial for general community as well. Qureshi et al found in his study that overall doctors were found to be well aware of the hazards whereas paramedical staff has poor knowledge regarding the adverse consequences of biomedical waste⁷. On the other hand, small proportion of non-medical workers gave correct response on hazards and methods of prevention. Findings of Pandit et al in his study revealed that doctors were aware of risk of HIV and Hepatitis B and C, whereas auxiliary staff (ward boys, ayabens, sweepers) had very poor knowledge about it⁸. Similar findings were observed by Deo et al who found that knowledge was highest in medical staff and least in non medical staff⁹. Most of para-medical and non-medical workers were not having correct knowledge regarding the percentage of hazardous waste out of total hospital waste. Majority of the non-medical workers were unaware about proper way of segregation, transportation and storage of biomedical waste. This may be because of there low level of education. Saini et al found that person with higher education level were more aware regarding the issue¹⁰.

Conclusion:

On the basis of findings we conclude that knowledge and awareness on the waste management is not good among most of the para-medical and non-medical staff which forms the essential part in the process of waste management in any hospital. Therefore, orientation and reorientation trainings should be given to all the functionaries involved in the process of waste management right from waste production to final disposal.

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