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KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING BIOMEDICAL WASTE MANAGEMENT AMONGST HEALTH CARE PERSONNEL IN A MEDICAL COLLEGE HOSPITAL IN TRIVANDRUM

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ABSTRACT

Introduction: Health-care establishments generate huge quantities of both hazardous and non-hazardous wastes. Correct knowledge, attitude and practice (KAP) for Biomedical Waste Management (BWM) by the health care personals therefore becomes imperative. This study was undertaken to assess KAP regarding Biomedical Waste and to determine the correlation between KAP and professional category.

Materials and Methods: A cross-sectional study was conducted amongst 320 Health care Personnels. A pre-designed and pretested structured questionnaire was used for data collection. A self made scoring system was devised to categorize KAP as good, average and poor. Data entry and analysis was done using SPSS version 20.

Results: Doctors had majority of those with good knowledge and attitude, nurses had the same in practice while cleaning staff had majority of those with poor KAP as compared to all other categories. An average level of KAP was most prevalent in each category. Knowledge and Practice were found to have significant positive correlation with professional category (p-value= 0.002 and p-value <0.001) respectively but not attitude (p-value=0.110).

Conclusion: Training needs to be intensified especially for cleaning staff as majority of those possessing poor KAP levels belonged to them and also for others as majority in each professional category possessed an average KAP level.

Keywords: KAP, Biomedical Waste Management, Healthcare personnel, Health Care Waste Management.

INTRODUCTION

Bio Medical Waste means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals, or in research activities pertaining thereto or in the production or testing of biologicals.[1]

Around 10-25% of the healthcare waste generated is hazardous & has the potential to cause serious health problems.[2]The waste generated in the hospital has considerable impact on the health of both the health care personnels as well as the general public.

It is asserted under the Bio-medical Waste Management Rules 1998 [1] that each and every health care personnel should have adequate knowledge and should follow correct practice of handling and disposal of biomedical waste. However extreme laxity in the implementation of rules coupled with inadequate training of health care personnel leads to indiscriminate disposal of bio-medical waste.

This Incorrect handling of waste exposes the community to the risk of infection by virulent strains of pathogens and has a significant detrimental impact on the environment due to air, water and soil pollution.[3-4]

There is considerable awareness world over regarding the hazards of biomedical waste. Not only that, internationally various expensive interventions for the BWM has also been applied. But India's performance on both of these fronts is extremely dismal and unsatisfactory.[5]

In order to examine the status of KAP levels of the heath care personals in our MCH regarding BWM and to initiate necessary changes if need be, this study was undertaken with the objectives to assess knowledge, attitude, and practices (KAP) of medical staff, nursing staff, laboratory technicians and cleaning staff regarding biomedical waste management (BWM); and to determine the correlation between KAP and the professional category.

MATERIALS AND METHODS

The study was of a Cross-sectional type. It was conducted in a private medical college, Sree Gokulam Medical College and Research Foundation (SGMC &RF) in Trivandrum, Kerala over a period of 4 months from December 2015 to March 2016. The Study sample was collected by Convenience sampling method and comprised of 320 health care personals of the Medical College Hospital including 94 from medical staff (doctors), 100 from nursing staff (nurses), 50 laboratory technicians (lab. technicians) and 76 from cleaning staff. Those health care personals who were freely willing to take part in the study were included while those who were either not willing to take part in the study and/or those who had worked in the hospital for less than a year were excluded from the study. Ethical clearance for the study was sought from the institutional ethics committee.

A predesigned and pretested structured questionnaire was used for data collection from the study participants by interview method. The questionnaire comprised of a total of 36 questions,12 questions each to assess the level of knowledge, attitude and practices respectively of the study participants. All the questions were prepared from standard textbooks and from BWM training manuals. Questions were devised such that knowledge questions assessed the awareness, amount of information or understanding about BWM, attitude questions assessed thoughts and feelings of the participants towards BWM and practice questions assessed actions or actual behaviour towards BWM in wards etc.

Questions to assess knowledge were of a multiple choice type where only one response was the correct one. Questions to assess attitude and practice were presented in the positive or negative response format (Yes/No). Each correct and incorrect response in the knowledge section and each yes and no for the attitude and practice question were given 1 and 0 mark respectively. Thus, maximum score for each section was 12 and minimum zero. KAP of each of the participants was measured by corresponding scores in each section of the structured questionnaire. It was assumed that individuals involved in the study would cooperate and give correct information. A self made scoring system was devised to categorize KAP of the study participants as good, average and poor. A score of < 5 was categorized as poor, 5-8 as average and > 8 as good. In order to ascertain the validity of the questionnaire the guidance of subject experts was sought and necessary modifications in the questionnaire as advised were made. A pilot study was conducted and the reliability coefficient of the questionnaire, Cronbach's alpha was found to be 0.863. Thus reliability of the questionnaire was also ensured.

Data analysis: The data entry and analysis was done using SPSS version 20. The levels of KAP of doctors, nurses, lab technicians, and cleaning staff regarding BWM were expressed in both frequency and percentages. To determine whether there was any correlation between KAP and professional category Spearman's rank correlation coefficient was computed. P value <0.05 was considered to be significant.

RESULTS

Table 1 shows the level of knowledge according to professional category. It can be seen that the medical staff, nursing staff and cleaning staff had the highest proportion of good, average and poor knowledge score respectively as compared to other categories.

To find out whether the knowledge level increases as the professional level increases, Spearman's rank correlation coefficient (r_s) was computed. r_s was obtained as 0.171 with a p-value of 0.002. Hence there is a significant positive correlation between knowledge level and professional category. This implies that there is a significant increase in knowledge level as the profession category level increases.

Table also shows the type of attitude of all the four groups. It can be seen that the medical staff, nursing staff and cleaning staff had the highest proportion of good, average and poor attitude respectively as compared to other categories.

Table 1- Distribution of Level of knowledge, attitude and practices according to Professional category

Score levels (Scores))	Medical Staff (n=94)	Nursing Staff (n=100)	Lab. Technicians (n=50)	Non-Medical Staff (n=76)#	Correlation coefficient (r_s)*	p-value
Level of Knowledge Regarding BWM						
Good (>8)	36 (38.3)	32 (32)	18 (36)	20 (26.3)	0.171	0.002
Average (5-8)	56 (59.6)	66 (66)	28 (56)	38 (50)		
Poor (<5)	2 (2.1)	2 (2)	4 (8)	18 (23.7)		
Attitude towards BWM						
Good (>8)	41 (43.6)	39 (39)	18 (36)	24 (31.6)	0.141	0.110
Average (5-8)	43 (45.7)	48 (48)	21 (42)	32 (42.1)		
Poor (<5)	10 (10.6)	13 (13)	11 (22)	20 (26.3)		
Practices concerning BWM						
Good (>8)	30 (31.9)	36 (36)	12 (24)	10 (13.2)	0.307	<0.001
Average (5-8)	62 (65.9)	59 (59)	34 (68)	36 (47.4)		
Poor (<5)	2 (2.1)	4 (4)	4 (8)	30 (39.5)		

*Spearman's rank correlation coefficient; #Cleaning Staff

The Spearman's rank correlation coefficient was observed to be non significant. (r_s = 0.141, p-value=0.110) which implies that there is no relation between type of attitude and professional category.

Table also shows the type of practice followed by the four groups. It can be seen that the nursing staff, lab. Technicians and cleaning staff had the highest proportion of those following good, average and poor practice respectively as compared to other categories.

Spearman's rank correlation coefficient was obtained as 0.307 with a p-value <0.001. This implies that there is a significant positive correlation between the type of practice followed and professional category. As professional level increases type of practice also becomes better.

DISCUSSION

In our study, doctors, nurses and cleaning staff had the highest proportion of those with good, average and poor knowledge respectively. These findings are similar to those of Saini S et al (2005) [6] who in their study amongst staff of tertiary level hospital in India reported that persons with higher education level were more aware regarding the issue of BWM, Deo et al (2006)[7] who in their study among employees of a teaching Hospital in a rural area reported that knowledge regarding BWM was highest in Medical staff and least in non-medical staff, Mathur et al (2011) [8] who in their study among Healthcare Personnel in Allahabad reported that on all counts, doctors, nurses, and laboratory technicians have better knowledge than sanitary staff regarding biomedical waste management, Vishal et al (2012) [9] who in their study in a tertiary care hospital in Bhopal reported that the overall awareness about BWM was highest among medical professionals, Tenglikar et al (2012) [10] who in their study amongst Staff of Nursing Homes of Gulbarga City noted that with respect to knowledge the average score was highest in doctors followed by nursing staff and least in housing staff, Bansal et al (2013) [11] who in their study among employees of a tertiary care hospital in Gwalior reported that the overall knowledge among medical professionals was higher than paramedical workers while it was least among non-medical workers, Sengodan et al (2013)[12] who in their study in a Tertiary Care Government Hospital in South India concluded that knowledge is more in the young doctors (interns and post-graduate students) followed by the nursing students , nurses and lab technicians and Malini A et al (2015) [13] who in their study in a tertiary care hospital in Puducherry found that the maximum knowledge regarding BWM was found in doctors followed by nursing staff , lab technicians and least in Class IV workers.

Majority of the participants in each professional category in our study possessed an average knowledge regarding BWM. This is different from the findings of Sharma S and Chauhan S V (2008) [14] who in their study on assessment of BWM in hospitals of Agra reported that there was lack of knowledge and awareness regarding legislations on bio-medical waste management even among qualified hospital personnel, Mostafa GMA et al (2008) [15] who in their study on waste management in Egypt reported that majority of the doctors, nurses, and housekeepers have unsatisfactory knowledge and Ismail et al(2013) [16] who in their study in Karnataka found that Knowledge regarding bio-medical waste management was inadequate across all the groups especially among class-IV bio-medical waste Hhandlers.

As for attitude, in our study, once again doctors, nurses and cleaning staff had the highest proportion of those having good, average and poor attitude respectively. This is similar to the findings of Tenglikar et al (2012) [10] who in their study reported that favourable attitude regarding Health Care Waste Management was highest in doctors followed by nursing staff and least in housing staff.

Majority of the participants in all the 4 professional categories possessed an average attitude towards BWM. This is different from the findings of Ismail et al (2013) [16] and Malini et al (2015) [13] who in their study reported that majority of the doctors, nursing staff, lab technicians and class IV employees possessed favourable attitude as regards BWM.

As regards practice, nursing staff, lab technicians and cleaning staff had the highest proportion of those following good, average and poor practices respectively. This is similar to the finding of Saini et al (2005)[6] who in their study found 100% of nurses practicing according to rules as compared to only 75% of residents and scientists. It is different from the findings of Malini et al (2015) [13] who in their study reported that majority of the doctors followed correct practices followed by nursing staff, lab technicians and lastly class IV employees.

Majority of the participants in each professional category in our study were following average practice regarding BWM. This is different from the findings of Mostafa GMA et al (2007) [15] who in their study found that majority of the doctors, nurses, and housekeepers have inadequate practice related to health care waste management and Ismail et al (2013)[16] who in their study concluded that practices regarding bio-medical waste management was poor across all the groups.

CONCLUSION

In our study, as compared to all other professional categories doctors were found to be better in their knowledge and attitude regarding Biomedical Waste, nursing staff were better in their practice and cleaning staff fared poorly in all three domains. Also as majority of participants in each professional category possessed only an average KAP, it is of utmost importance to provide adequate training regarding BWM to all health care professionals. It is recommended that there should be compulsory continuous education and training by experts (on the lines of CME for doctors) of all healthcare personnel regarding BWM so that they can maintain competence and learn about new developments in this field. This should be coupled with constant supportive supervision especially for the cleaning staff.

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