ORIGINAL RESEARCH PAPER

Hospital Administration

BIOMEDICAL WASTE MANAGEMENT KNOWLEDGE AND AWARENESS ASSESSMENT OF NURSING CARE PERSONNEL IN INTENSIVE CARE UNITS AT A MEDICAL COLLEGE HOSPITAL, SOUTH KARNATAKA, INDIA.

KEY WORDS: Bio medical waste, Nursing care personnel, Knowledge, Intensive care units

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ABSTRACT

Introduction:-The waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Intensive care units are areas from which biomedical waste generated is highly infectious and hazardous in nature since the staff is over burden with their routine work the issue of safe bio medical waste management is often neglected . It is highly desirable for a Hospital Administrator to know the weak points in the chain of waste management so that these could be addressed appropriately. Nursing Professionals form backbone of the hospitals as they spend maximum time with the patients than any other member of the health care team and also play a vital role in imparting health care services in all levels of protection, prevention, promotion and treatment. They need to be well equipped with latest information, skills and practices in managing biomedical waste. So this cross sectional study was conducted among the nursing care personnel working in intensive care units to assess their knowledge and awareness on bio medical waste management.

Methodology:-Data was collected using pre-designed and self-administered questionnaire.
Questionnaires were distributed to the nursing care personnel working in the intensive care units.

Results:- In this study performance of the nursing personnel working in intensive care units was investigated pertaining to various aspects of biomedical waste management. All the respondents also agreed that segregation is the key step in biomedical waste management .Only 35.9% knew that recent amendments to the biomedical waste (management & handling) rules were made in 2016. usage of coloured bags for disposal of biomedical waste this particular area needs a lot of training sessions and frequent monitoring as it leads to improvement in their knowledge about biomedical waste disposal methods.

Recommendations: -
There should be time to time informative session about newer methods of safe and scientific management of the bio medical waste
Regular monitoring and training required at all levels.

INTRODUCTION:-

Biomedical waste is defined as "any solid, fluid or liquid waste, including its container and any intermediate product, which is generated during the diagnosis, treatment or immunisation of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals and the animal waste from slaughter houses or any other like establishments". Intensive care units are areas from which biomedical waste generated is highly infectious and hazardous in nature since the staff is over burden with their routine work the issue of safe bio medical waste management is often neglected. Poor management of a biomedical waste poses a huge risk to the health of patients and doctors and nurses and housekeeping personnel and all those whose involves in patient care. If it is not handled or disposed with proper care, it could be potentially hazardous and have significant health consequences. Effective management of biomedical waste is not only a legal necessity but also a social responsibility. Most of the wastes generated in a hospital (around 85%) are non-hazardous, while 10% are infective including sharps and pathological waste and the remaining 5% are non-infectious but hazardous such as chemical, pharmaceutical or radioactive wastes. with a rapid increase in the number of hospitals and laboratories the generation of health care waste is considerably increasing. The Bio-medical waste (management and handling) Rules, 1998 lay down clear methods for disposal of biomedical waste. Pollution control boards of every state have been given the task of authorizing and implementing the rules. The main rules are only described pertaining to segregation, collection and transportation. Recent Amendments to the Biomedical Waste (Management & Handling) Rules were made on 28th march 2016.The present study conducted with a view to inform the recent amendments to the nursing personnel. There are primarily 4 broad functions for BMW management at source of generation, viz. placement of waste receptacles or bins lined with waste bags at source of generation, segregation of waste, mutilation of recyclable waste and disinfection of waste. Availability of equipment and supplies, supervision, budget and maintenance of equipment and facilities, register and daily report for waste management in hospital and availability of posters for safe handling in each department are considered the important factors affecting the implementation of waste management system (WHO 2012).Good healthcare waste management in a hospital depends on a dedicated waste management team, good administration, careful planning, sound organization, underpinning legislation, adequate financing and full participation by trained staff(WHO 2005). It is highly desirable for a Hospital Administrator to know the weak points in the chain of waste management so that these could be addressed appropriately. Nursing Professionals form backbone of the hospitals. They play a vital role in imparting health care services in all levels of protection, prevention, promotion and treatment. The nurses spend maximum time with patients than any other member of the Health care team, increases their exposure and risk to the hazards present in hospital environment mainly bio-medical waste. They need to be well equipped with latest information ,skills and practices in managing this waste besides reducing hospital acquired infections to protect their own health. So the current status of nursing employees knowledge and awareness about biomedical waste management will help the authorities to create strategy for improving their practices.

AIM and OBJECTIVE:

To assess the knowledge and awareness about Bio medical waste management among nursing personnel working in intensive care units in a medical college hospital.

METHODOLOGY:

Study areas

The study was conducted between September 2016 to November

2016.

Only nursing personnel working in the 13 intensive care units were included in study.

The study was carried out in a 1800 bedded medical college hospital in Mysuru, city in south Karnataka. The hospital is one of the biggest hospitals in the region.

Study tool:-
It is a Descriptive analytical study.
Pre-designed and self-administered questionnaire containing demographic details and 21 questions. related to biomedical waste management were distributed to nursing care personnel.
The questionnaire consisted two types of questions i.e. 'yes' or 'no' type and few multiple choice types.
The purpose of the study was explained to all the participants.
Verbal informed consent was taken from them.
The responses filled by nursing care personnel were filled in excel sheet and Data was analysed by using Microsoft excel.

RESULTS:-
Total 150 questionnaires distributed to the nursing care personnel working in the intensive care units out of which 128 responded.

Majority of the study population comprises of females i.e. about 79% and rest are males.

55% of the study population are aged between 21-30yrs and 32% of them in between 31-40yrs and remaining 11% are between 41-50yrs.

63% of the nursing care personnel in the study have an experience about 0-10yrs and 27% of the study population are experienced between 10-20yrs and remaining 10% have an experience about 20-30yrs.

Fig :1

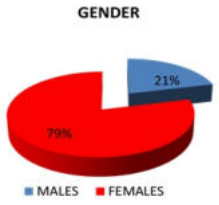


TABLE NO.1	
Gender	**n=128 (100%)**
Females	101 (79%)
males	27 (21%)

Fig: 2

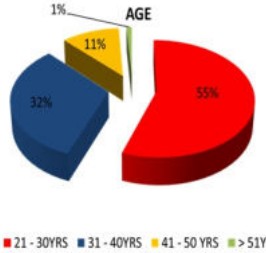


TABLE NO. 2	
Age	**n=128(100%)**
21 – 30 yrs.	70 (55 %)
31 – 40 yrs.	41 (32 %)
41– 50 yrs.	15 (11 %)
>51 yrs.	2 (1 %)

Fig :- 3

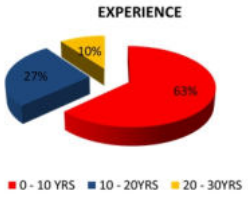


TABLE NO. 3	
Experience	**n=128**
0 -10 yrs.	81 (63 %)
10 – 20 yrs.	34 (27 %)
20 – 30 yrs.	13 (10 %)

Table 4:- Awareness among nursing personnel –BMW

QUESTIONS		Yes		No	
		NO.	%	NO.	%
1q)	Do you think it is important to know about Biomedical waste generation and hazards?	128	100 %	0	-
2q)	Do you follow colour-coding for Biomedical waste?	128	100 %	0	-
3q)	Segregation is the key step in waste management?	128	100 %	0	-
4q)	Medical waste should be completely free of pathogenic bacteria before disposal ?	80	62.5 %	48	37.5 %
5q)	Labelling the container before filling it with waste is of any Clinical significance?	112	87.5 %	16	12.5 %
6q)	Is it important to report to the Pollution Control Board of India about a particular institution if it is not complying with the guidelines for biomedical waste management?	120	93.75%	08	6.25 %
7q)	In the past, did you attend any training programme on Bio Medical Waste Management?	115	89.8 %	13	10.15%
8q)	Are you following any biosafety (preventive and protective) measures while handling biomedical waste ?	127	99.2 %	1	0.8 %
9q)	Proper Bio Medical Waste record maintenance done in your Hospital?	128	100 %	0	-
10q)	Do you need a separate permit to transport biomedical waste?	127	99.2 %	1	0.8 %
11q)	Is the waste disposal practice correct in your hospital?	127	99.2 %	1	0.8 %
12q)	Are there any guidelines laid down by Government of India for Bio Medical Waste Management ?	124	96.8 %	4	3.1 %
13q)	Do you think your knowledge regarding Bio Medical Waste Management is adequate?	112	87.5 %	16	12.5 %

Fig:-4

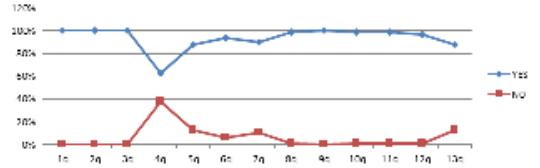
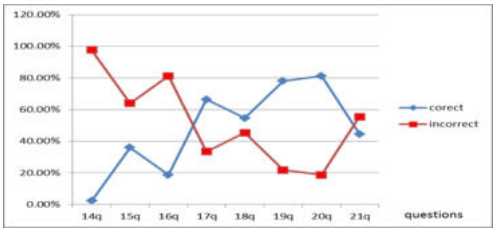


Table 5: Knowledge among nursing personnel – BMW.

QUESTIONS		Correct responses		Incorrect responses	
		NO.	%	NO.	%
14q)	Biomedical Waste (Management & Handling) Rules were first proposed in:	3	2.3 %	125	97.6 %

15q)	Recent Amendments to the Biomedical Waste (Management & Handling) Rules were made in:	46	35.9%	82	64.06%
16q)	According to the Biomedical Waste (Management & Handling) Rules, waste should not be stored beyond	24	18.75%	104	81.25%
17q)	Bag used to discard human anatomical waste (Human organs, body parts) ?	85	66.4%	43	33.5%
18q)	Bag used for discarded medicines and cytotoxic drugs ?	70	54.6%	58	45.3%
19q)	Disposal of cotton, gauze pieces and other items contaminated by blood done in which bag ?	100	78.1%	28	21.8%
20q)	The colour code for the BM waste to be autoclaved, disinfected is:	104	81.25%	24	18.75%
21q)	Disposal of excess mercury and mercury contaminated materials ?	57	44.5%	71	55.46%

Fig:-5



DISCUSSION:-

Intensive care units in this medical college hospital are centralised with 162 beds. In this study performance of the nursing personnel working in intensive care units was investigated pertaining to various aspects of biomedical waste management. 100% of the nursing care personnel who responded for the questionnaire working in the intensive care units knew about the importance of knowing hazards due to biomedical waste generation and also that they follow colour coding system for disposal. All the respondents also agreed that segregation is the key step in biomedical waste management. Similar results were shown in a study conducted by Dudi M et al. 89.8% of the participants received training for biomedical waste management in the past. 96.8% of the respondents knew that there are certain guidelines laid down by government of India for biomedical waste management. Only 35.9% knew that recent amendments to the biomedical waste (management & handling) rules were made in 2016.So it is very important to address them the changes that were suggested according to the recent amendments. Coming to the usage of coloured bags for disposal of biomedical waste this particular area needs a lot of training sessions and frequent monitoring as it leads to improvement in their knowledge about biomedical waste disposal methods. 65% of the respondents correctly answered about disposing of human anatomical wastes and rest 35% answered incorrectly. 78.1% of the respondents answered correctly to the question pertaining to the bag usage for disposing contaminated cotton and gauze pieces and the rest 21.85% of them answered incorrectly. The present study was conducted among small population i.e. only nursing care personnel working in Intensive care units. Therefore the authors recommend that similar studies should be performed on entire nursing care personnel of the medical college hospital and also other health care workers like paramedical staffs and doctors etc. The need for more research is to provide an evidence base for future decision making

CONCLUSION:

The present study found out that the nursing personnel working in Intensive care units had inadequate knowledge regarding colour coding but everyone agreed that they follow colour coding.100 % of the study population agreed that it is very important to know the hazards of bio medical waste.64% of the nursing care personnel in the study are not aware that recent amendment's were passed in march 2016.

So we can conclude that there is requirement of training programmes regarding biomedical waste management and types of bins / bags used for disposal of wastes.

RECOMMENDATIONS:

- There should be time to time informative session about newer way of scientific and safe management of the Bio medical waste and to sensitize them to the needs of BMW management in the hospital
- Nursing staff who are correctly practicing bio medical waste management should be involved as role models for others.
- There is a need for intensive training programs at regular time intervals to repeatedly train and retrain all the staff.
- Continuous assessment of nursing personnel knowledge and awareness towards biomedical waste management is essential to identify nurses training needs.
- Regular monitoring is required at all levels.
- In charges of each ICU must keep a check on bio medical waste management practices of the personnel.

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Conflict of interest:-

The authors declare that there is no conflict of interest associated with this study.

Ethical approval:-

The study was approved by the Institutional Ethical Committee.

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