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 biomedical waste management.

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

Table 4:- Awareness among nursing personnel –BMW

<table>
<thead>
<tr>
<th>QUESTIONS</th>
<th>Correct responses</th>
<th>Incorrect responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1q) Do you think it is important to know about Biomedical waste generation and hazards?</td>
<td>128(100%)</td>
<td>0(-)</td>
</tr>
<tr>
<td>2q) Do you follow colour-coding for Biomedical waste?</td>
<td>128(100%)</td>
<td>0(-)</td>
</tr>
<tr>
<td>3q) Segregation is the key step in waste management?</td>
<td>128(100%)</td>
<td>0(-)</td>
</tr>
<tr>
<td>4q) Medical waste should be completely free of pathogenic bacteria before disposal?</td>
<td>126(64.2%)</td>
<td>48(35.7%)</td>
</tr>
<tr>
<td>5q) Labelling the container before filling it with waste is of any Clinical significance?</td>
<td>120(78.5%)</td>
<td>28(12.5%)</td>
</tr>
<tr>
<td>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?</td>
<td>120(93.7%)</td>
<td>8(6.3%)</td>
</tr>
<tr>
<td>7q) In the past, did you attend any training programme on Bio Medical Waste Management?</td>
<td>115(89.8%)</td>
<td>13(10.2%)</td>
</tr>
<tr>
<td>8q) Are you following any biosafety (preventive and protective) measures while handling biomedical waste?</td>
<td>127(99.2%)</td>
<td>3(0.8%)</td>
</tr>
<tr>
<td>9q) Proper Bio Medical Waste record maintenance done in your Hospital?</td>
<td>128(100%)</td>
<td>0(-)</td>
</tr>
<tr>
<td>10q) Do you need a separate permit to transport biomedical waste?</td>
<td>127(99.2%)</td>
<td>3(0.8%)</td>
</tr>
<tr>
<td>11q) Is the waste disposal practice correct in your hospital?</td>
<td>127(99.2%)</td>
<td>3(0.8%)</td>
</tr>
<tr>
<td>12q) Are there any guidelines laid down by Government of India for Bio Medical Waste Management?</td>
<td>124(96.8%)</td>
<td>4(3.1%)</td>
</tr>
<tr>
<td>13q) Do you think your knowledge regarding Bio Medical Waste Management is adequate?</td>
<td>112(87.5%)</td>
<td>16(12.5%)</td>
</tr>
</tbody>
</table>

Table 5: Knowledge among nursing personnel –BMW.

<table>
<thead>
<tr>
<th>QUESTIONS</th>
<th>Correct responses</th>
<th>Incorrect responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>14q) Biomedical Waste (Management &amp; Handling) Rules were first proposed in:</td>
<td>3(2.3%)</td>
<td>125(97.6%)</td>
</tr>
</tbody>
</table>
were passed in March 2016. Personnel in the study are not aware that recent amendments in biomedical waste management 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 35.9% 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 21.8% of them answered incorrectly. The 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 recommend that similar studies should be performed on entire personnel working in intensive care units. Therefore the authors conducted among small population i.e. only nursing care personnel in the Intensive Care Units who participated in this study.

**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 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.

**ACKNOWLEDGEMENTS:**

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**REFERENCES:**


