An Analytical Study on Biomedical Waste Management and Hazarous Effecte of It in Hospitals

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ABSTRACT:

Objective: To find out biomedical waste management and hazardous effect of it in hospital. Biomedical waste has a notable impact on health and environment. These are infective to humans and producemany toxic effects. Since it is hazardous in nature, its safe and proper disposal is extremely important. The management of biomedical waste is distinct from other house waste or industrial waste management. The amount of solid waste generated by hospitals has been increased rapidly in developing countries like India and its management can no longer be ignored. **Methodology:** Article is based on analytical study done in hospital by a structured questionnaire and the level of biomedical waste management was assessed.sample size: 10N. It also focuses on the type of biomedical waste and steps need to be followed for its management. **Result:** The hospitals which were following the conservation of biomedical waste are approximately 60% and these help in the prevention of spreading of infectious pathological conditions in the communities from hospital and following the parameters of standard guidelines in packing the waste and sending to incinerators for incineration. Incineration is a process where this involves the combustion of hospital wastes and organic wastes containing waste materials over high-temperature. **Conclusion:** This study clearly portrays that there is a need for awareness among the people or hospital management the hazards and influence on public health.

Keywords: biomedical waste, conservation, pathological conditions, incineration, hospital management.

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I. INTRODUCTION

Biomedical waste is a waste which is solid or liquid waste generated during the diagnosis, treatment, immunization of humans or animals. These arethe substance which are infective and toxic. The sources of biomedical waste are I)major sources: govt. hospital/private hospital/nursing homes/dispensaries, primary health care center, medical college, research center /paramedical and animal research center, veterinary college, blood banks, autopsy center/mortuaries, biotechnological institution& production unit. II) Minorsources: dentists 'clinics, animal houses or slaughterhouses, blood donating camps, vaccination center, funeral services, acupuncturists/psychiatric clinical/ cosmetical piercing, institution for disable person. the biomedical waste is classified in two types I) Non-hazardous waste II)hazardouswaste.Non-hazardous is major portion of biomedical waste and it is about 75-90%. It is not risky and it is similar to the domestic waste. The hazardous wasteincludes 10-25% of overall biomedical waste.so, we need to take care of the management of the hazardous for the public health care.

Types of hazardous waste:

- Infectivewaste: The waste which is suspected to contain pathogens; e.g. laboratorycultures, waste from isolated wards etc.
- Pharmaceutical waste: waste containing pharmaceutical e.g. pharmaceuticals
- That are expired or no longer needed, contaminated pharmaceuticals

- Pathological waste: It's the waste which comprises of human tissue or fluids e.g. Body parts, foetusGenotoxicwaste: waste containing cytostatic drug (often used in cancer therapy)
- Chemicalwaste: waste containing chemical substance e.g. Laboratory reagents, film developers, disinfectants and solvents that are expired or no longer needed.
- Waste with high content of heavy metals: batteries, broken thermometers, blood pressure gauges, aerosol cans, pressurized containers
- Radioactive waste from radiotherapy: waste containing radioactive substance e.g. Unused liquids from laboratory research, contaminated glassware, package or absorbent paper, urine and excreta from patient treated or isolated for test.

II. METHODOLOGY

An**Analytical study** done in the hospitals in Narasaraopetbya structured questionnaire was circulated among the hospital workers at hospitals in Narasaraopet. simple random sampling method is used in this study.

Study design: prospective observational study.

Study location: At Narasaraopet, Guntur, Andhra Pradesh.

Study duration: January to April.

Sample size:10N.

Inclusion criteria: The hospitals which have all facilities and which have accepted for serve.

Exclusion criteria: The primary health care centres' and nursing home were vomited for the study. and few other hospitals which had denied the serve.

Material used: A standard biomedical waste questionnaire was designed by consulting the physician and pharmacy practice department faculty. It also meets the standardsof biomedical waste questioner given by the government.

Method: The people who are involved in the hospital for management of biomedical waste were given the questionnaire by considering the above given criteriataking their decision to participate in the study. The level of biomedical waste management was analysed using questionnaire and level of management was assessed.

III. RESULTS

The hospitals which were following the conservation of biomedical waste are approximately 60% and these help in the prevention of spreading of infectious pathological conditions in the communities from hospital and following the parameters of standard guidelines in packing the waste and sending to incinerators for incineration. Incineration is a process where it involves the combustion of hospital wastes and organic wastes containing waste materials over high-temperature.

There is an immediate need of action or notification to the hospitals which are not following the standard parameters of conserving the waste materials.

Total number of sample size: N=10	
Hospital type	Number of hospitals
Biomedical waste conserving	6
Biomedical waste not conserving	4



IV. DISCUSSION

There is a need for proper management of this biomedical wastebecause of infectivity and toxicity, it induce various risk to human health and to the surrounding ecosystem. It leads to environmental hazards, occupational hazards and public hazards

Steps involved in the biomedical wastemanagement I) segregation ii) collection& storage iii) transportation iv) treatment & disposal

I)segregation: The separation of different categories of waste generated at source, the segregation waste should be set aside into colour coding bags at the point of generation. It is essential to reduce the risk and have better and safe management. They avoid illegal reuse of material like syringes, needles and other plastics. They also avoid the mixing of bio medical waste with municipal waste. Tt also offered to recycle plastic.

ii) collection &storage: The collection of biomedical waste involves the use of different types of containers for different sources of biomedical wastes. The container bins should be located in such a manner that 100% collection is achieved. The bins and bags should carry the biohazard symbol representing the nature of waste. The extent of storage should not go beyond 8-10 hours

iii)Transportation: The biomedical waste should be transported in trolleys or in enclosed wheel barrow, the manna load should be avoided as a far as possible. The bag/container must be tied / lidded before hauling.The special vehicles should be used so as to avoid contact and direct contact to the transportation operation, the scavengers and the public, the driver must be trained so that he can actin case of an accidental spillage

iv)Treatment &disposal: Before final disposal, the biomedical waste must be disinfected. Anatomical waste can be disposed by deep burial. Syringes to be cut and chemically disinfected with 1% bleaching powder at source of generation prior to final disposal into sharp pit, infected plastic to be chemically disinfected or autoclaved. The other method used in management of biomedical waste

The other method used in management of biomedical

a) Incineration

b) Autoclaving of biochemical waste

c) Microwave treatment

d) Deep burial

e) Inertization

V. CONCLUSION

This study clearly depicts there is still need of more awareness of biomedical waste management. We, the pharmacist should provide the necessary measure to manage the biomedical waste and also educate the people or hospital management about the hazards and influence of biomedical waste on the public health. The hospitals should come forward to support the pharmacist in aspect of creating the awareness.

REFERENCE

- [1]. Mandal S. K. and Dutta J., Integrated Biomedical Waste Management Plan for PatnaCity, Institute of Town Planners, India Journal6-2: 01-25 (2009).
- [2]. Singh V. P., Biswas G., and Sharma, J. J.,Biomedical Waste Management –AnEmerging Concern in Indian HospitalsIndian, Journal of Forensic Medicine &Toxicology, Vol. 1, No. 1. (2007-12).
- [3]. Hem Chandra, Hospital Waste an Environmental Hazard and Its Management, (1999).
- [4]. Govt. of India, Ministry of Environment andForests Gazette notification No 460 dated July 27, New Delhi: 1998: 10-20
- [5]. Glenn, Mr&Grewal, R. Clinical waste inDeveloping Countries. An analysis with a Case Study of India, and a Critique of theBasalt Guidelines (1999)
- [6]. CEET: Biomedical Waste Management Burgeoning issue (2008)
- [7]. Gravers PD. Management of HospitalWastes- An overview. Proceedings ofNational workshop on Management ofHospitalWaste,(1998)
- [8]. Thornton J., Tally MC, Orris P., Wentreg J. Hospitals and plastics Dioxin prevention and Medical Waste Incineration; Public Health Reports. 1996; 1:299- 313.Waste Characterization and Quantification "Parvesh" Newsletter on Hospital Waste. CPCB, Ministry of Environment and Forests, Govt. of India, New Delhi 1998; 4(IV): 3-4United Nations Environment Programme, (2000), "Minimizing Hazardous Wastes," A Simplified Guide to the Basel Convention, France, GE 04-03062.

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