

REVIEW ARTICLE

Review on the diseases caused due to improper handling of Biomedical Waste

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Manuscript Details	ABSTRACT
<p>Received : 17.04.2016 Revised : 29.07.2016 Accepted: 26.10.2016 Published: 28.10.2016</p> <p>ISSN: 2322-0015</p> <p>Editor: Dr. Arvind Chavhan</p> <p>Cite this article as: Dhote Jayashree Dipak. Review on the diseases caused due to improper handling of Biomedical Waste. <i>Int. Res. Journal of Science & Engineering</i>, 2016,4 (5): 98-100.</p> <p>Copyright: © Author(s), This is an open access article under the terms of the Creative Commons Attribution Non-Commercial No Derivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p>	<p>The dangerous dimensions with the dumping of biomedical waste, has a hazardous effect enough to cause an epidemics resulting as Hepatitis B and D, Dengue, AIDS, Japanese encephalitis,tick fever etc. among the people. Improper management of biomedical waste results into serious environmental problems in terms of air, water and land pollution and thereby resulting to cause severe diseases. The paper reviews the diseases caused due to the improper disposal of biomedical wastes studied by respective authors in their respective work on biomedical waste management. There had been several instances of biomedical being dumped not only in rural as well as urban areas in the research work studied by respective authors.The aim of the review is to create awareness towards the biomedical waste handling that results into severe health problems as diseases, environmental, residential etc. and protect the normal survival and environment getting harm due to it.</p> <p>Keywords: Biomedical wastes, solid wastes, Nosocomial infections, environment, Sharps.</p>
	<p>INTRODUCTION</p> <p>Nosocomial infections in patients from poor infections control practices and poor waste management. Improper management of waste generated in health care wastes causes a direct impact on the community [1]. Biomedical wastes emits three types of pollutants generated in the air as biological, chemical and Radioactive. Indoor air pollutants as the pathogens in the air cause poor ventilation [2]. The pollution due to biomedical wastes depends on account of the air , soil, water. The radioactive emissions and radioactive wastes through research and radio-immunoassay activities generate small quantities of radioactive gas in the medium of air [3]. Pollutants causes the contamination of air as the source being emitted at an open surface where biomedical wastes breed vermin and pests, mosquitoes, etc transmit insect borne diseases like Malaria and filarial ,common house flies transmit infections mechanically [4]. The Soil is the medium where sharps and other wastes are disposed by the land burials etc rich in tetanus spores or blood borne pathogens have gained the significant</p>

attack of HIV, HBV, HCV which leads to AIDS and Hepatitis B,C and other viral and bacterial infections [5]. There are four basic ways that a person can be exposed to infections through the skin, through mucous, membranes in the eyes, nose and mouth; by inhaling infectious agents and by swallowing them [6]. For Example Specific risks to landfill workers from medical wastes that has caused most public health concerns of contracting hepatitis B, AIDS from needle stick or from infected blood or blood staining fluids being splashed or rubbed into open wounds, non- intact skin, or mucous membranes [7]. Hospital waste is a potential health hazard to the health care workers, public and flora and fauna of the area [8]. The problems of the waste disposal in the hospitals and other health care institutions have become issues of increasing concern [2].

RESULTS AND DISCUSSION

Hepatitis B is a viral infection that causes acute and chronic hepatitis, cirrhosis and liver cancer. Symptoms include combination of Anorexia, nausea, vomiting, abdominal pain and jaundice. Hepatitis B Virus (HBV) is transmissible in the same way as the AIDS Virus. The greatest risk is from being cut or stuck by a contaminated sharp [9]. As according to another author the Biomedical waste scattered in and around the hospitals invites flies, insects rodents, cats and dogs that are found to be responsible for the spread of diseases like Plague and Rabbits. Arboviruses cause the patient suffering through Dengue, Cold fever [10]. The nosocomial infection is transmitted through the viruses, parasites, pathogenic bacteria, pathogenic protozoans [12]. Author Salkin and other authors in their research work have come to know that the Parasite as *Giardia lamblia* causes the patient to suffer from Giardiasis, diarrhoea when in contact with blood and body fluids in poorly managed sewage system of hospitals, *Wuchereria bancrofti* causes Cutaneous leishmaniasis, Kala Azar which they have stated the same source for the infection to be transmitted in their research work. Similarly another author founded bacteria as *Salmonella typhi* causing Typhoid *Staphylococcus spp.* resulting in the infection of septicemia, rheumatic fever, endocarditis, skin and soft tissue infections. Likewise author have studied another pathogenic organism of *Borrelia spp.* That Causes Louse and tick borne fevers, when rodent infestations of poorly managed and fills and dumping grounds [2]. Similarly, author Imtiaz with the co -authors in their research work have concluded that the biomedical infectious diseases are transmissible also through

Pathogenic viruses as Echovirus resulting in the form of colds, Filovirus -Marburg causing Hemorrhagic fever, HTLV-II causing hairy cell leukemia, Human herpesvirus -6(HHV-6) causing the disease of Roseola Subitum. Pathogenic Orthomyxovirus -Influenza Resulting to cause Flu Paramyxovirus causing Flu, Parvovirus B₁₉ causing Fifth disease, anaemia. Rotavirus makes the patient suffer from infantile diarrhoea. Togavirus suffers the diseases from Rubella (German measles). Similarly bacteria as results to be pathogens in nature resulting the *Bacillus anthracis* to suffer from Anthrax, *Clostridium tetani* causing Non-respiratory airborne, *Mycoplasma pneumoniae* suffering through pneumonia, *Nocardia brasiliensis* causing Pulmonary mycetoma, pathogenic bacteria *Legionella parisiensis* causing pneumonia, Mycobacterium Tuberculosis causing Tuberculosis, *Francisella tularensis* causing the disease of Tularemia. Author also founded some pathogenic protozoans resulting in severe diseases due to biomedical wastes. *Isospora belli* results to cause Intestinal parasites, gastrointestinal infection. Another infectious protozoan causing diseases as *Isosporahominis* resulting into causing intestinal parasites, gastrointestinal infections, *Pneumocystis Carinii* results into Pneumocystosis [2].

CONCLUSION

The review studied on the respective authors research work have given A brief idea that there is a need to focus on the biomedical waste management and handling in the medical institutes as Govt. as well as private hospitals, small health care unit establishments. If the biomedical waste is not handled in a proper manner will definitely lead to cause severe diseases and many adverse and harmful effects to the environment including human beings which are caused by the Hospital waste generated during the patient care. The prescribed authority in the hospitals should give the tutorials to the doctors, nurses, even the other members in the hospitals and make aware about the biomedical waste handling.

REFERENCES

1. Anjali Acharya, Vasudha Ashutosh Gokhale, Deepa Joshi, *Journal of Applied Chemistry*, 2014; 6(6): 21-27.
2. Mathur P, Patan S, Shobhawat S. Need of Biomedical Waste management System in

- Hospitals An emerging review Curr World Environ 2012;7(1):117-124.
3. Dalal P, Management of Infectious Biomedical Waste of Ujjain City International Journal of Advanced Research (2013) Vol1, Issue 2, 52-58.
 4. Banerjee S, Mitra S. Radioactive and hospital waste management : A review International journal of Latest trends in Engineering and Technology (IJLTET) Vol3 Issue 1 Sept 2013
 5. Mathew SS, Benjamin AI, Paramita Sengupta. Assessment of biomedical waste management practices in a tertiary care teaching hospital in Ludhiana, Vol 2 Issue July - Dec 2011.
 6. Kundapur R, Bhat T, Badiger S, Ballal R. *Nitte university Journal of Health Sciences*, 2014; 4(4), Dec 2014.
 7. Sahoo RC, Sahoo D, Sahoo J and Pradhan SC. International Journal of Lifesciences & Pharma Research, Vol3 (3) July-Sept 2013.
 8. Narang RS, Manchanda A, Singh S, Verma N, Padda S. Awareness of biomedical waste management among Dental Professionals and Auxiliary staff in Amritsar, India OHDM-vol 11-no 4-Dec 2012.
 9. Salkin IF, Krisiunas E, Turnberg WL. Medical and infectious waste management Journal of the American Biological Safety Association, 5(2) pp 54-69 2000.
 10. Hussain M, Mushtaq MM. Awareness about hospital wastes and its effects on the health of Patients in Districts dera Ghazi Khan Asian Journal Of Applied Science and Engineering Aug 2014 Vol3 Issue 8.
 11. Imtiaz D, Gupta SB, Singh JP, Shrotriya VP, Malik S. Assessment of Knowledge of hospital staff regarding biomedical waste management in a tertiary care hospital in Uttar Pradesh, *Scholars Journal of Applied Medical Sciences (SJAMS)* 2014; 2(3c):1070-1074.