REVIEW ON INFECTION CONTROL OF COMMUNICABLE DISEASES

[*]Dr. Nagham Mahmood Aljamali , [**]Alaa Hamza Jaber Al-jelehawy , [***]Anaam Jawad Alabbasy , [***]Dr. Saher Mahmood Jawd

[*]Professor, Ph.D., Organic Chemistry, Synthetic Chemistry Field, Iraq.

[**]Altoosi University college, department of medical laboratories techniques, Iraq.

[***]Professor, Department of Biology, Faculty of Education for Girls, Kufa University,Iraq.

ABSTRACT

This review deals with Infection Control of Communicable Diseases., Health institutions, departments, schools, social roles, state institutions and society have realized the importance of infection control within their corridors, so they followed international standards in this regard, and showed great care to limit the spread of infection among patients in the rooms or inside the operating rooms, as it established sections dedicated to this purpose. It works daily and around the clock to monitor the general situation and put in place mechanisms that not only limit the spread of infection, but also prevent its emergence. The Ministry of Health estimates that more than 4 thousand patients die every year as a result of infection in hospitals, and most deaths occur as a result of infection with one of the types of bacteria that are resistant to antibiotics. These injuries can also cause disability, prolonged hospitalization and repeated hospitalization. Many of these conditions can be prevented by carefully cleaning your hands and maintaining a clean treatment environment.

***Keywords**: infection, diseases, pollution, toxic, contamination, environment, waste, hospital.*

I . INTRODUCTION

Hospital infection or infection associated with the provision of health care services. They are part of the healthcare infrastructure., Hence, the issue of infection control addresses the factors associated with the spread of infection within places of health care provision (whether from patient to patient, from patients to hospital staff, or vice versa from staff to patients, or among members of the same staff), including prevention (Whether through health measures for hand hygiene / hand washing, cleaning / disinfection / sterilization, vaccination, and monitoring), in addition to monitoring / investigation measures for the spread of suspected infection within a health care delivery area

II.CAUSES OF INFECTION

Health care-associated infections lead to serious illnesses and high mortality rates, and the cost of treating and caring for this type of disease is very expensive. The pathogens of infection in health care centers are characterized by their high virulence and their unusual ability to resist multiple and simultaneous antibiotics, meaning that one type of bacteria is resistant to a large group of antibiotics.

In some isolates it has reached to be resistant to all known antibiotics. This makes treating infections "that were previously considered simple" complicated or sometimes impossible. It must be noted that the nature of patients in health care centers is mostly from the category of immuno- compromised, either due to age or their infection with other diseases, which makes them easy to catch hospital infection.

III. SPREAD OF INFECTION

Medical waste is waste that is likely to be infectious or degradable. Medical waste may include waste from a medical or laboratory facility, and waste from research centers and laboratories that contain biomolecules or organic organisms that are not allowed to be released into the environment. As explained below, sharps are considered medical waste that must be disposed of, whether contaminated or not, due to the possibility of contamination with blood and causing wounds during improper and improper disposal. Medical waste is a type of biological waste

Diseases and bacteria are transmitted in health centers in various ways, such as air, water, food, insects, rodents and cats, patients themselves, medical personnel, cleaners, surfaces, tools and devices. Tools and surfaces are a major source of infection transmission. A recent study showed that a large percentage of the phones of health sector workers showed the presence of pathogenic bacteria on the surfaces of their phones (96%) and the percentage of resistance to methicillin, known as MRSA, was high, reaching 28.3%. Other studies indicate that physicians and health workers' pens also contain a high level of microbes. Medical keyboards, touchscreens and many more devices that cannot be disinfected easily are a great place for germs to stick and potentially multiply.

IV. CAUSES OF NOSOCOMIAL INFECTION:

1. Increasing the number of patients with the presence of friction between carriers of the infection and among those exposed to infection, such as (children-the elderly-diabetics- patients with malnutrition-burns- patients treated with antibiotics and who spend a long time in the hospital).
2. A prolonged course of antibiotic treatment, which weakens the immune system.
3. Inefficiency of sanitation facilities
4. Failure to follow procedures to ensure the quality of services provided to patients.
5. Failure to follow the proper and organized rules for disposing of waste in the proper way.
6. Contamination of machinery and tools and failure to follow the principles of proper sterilization.
7. Increase the movement of patients inside the hospital.
8. The use of some medicines that weaken the body’s immunity (after marrow transplantation).
9. Lack of adequate awareness of the health team about infection, how it is transmitted, and ways and methods of controlling it.

V. SYMPTOMS AND SIGNS OF INFECTION:

1. High body temperature.
2. Excess white blood cells from their normal rate.

3. Increase the number of heartbeats.
4. Difficulty breathing.
5. Body chills
6. Pain during urination - change in urine color (urinary tract infections).
7. Redness, swelling and pain in the wounds
8. Pus secretions from the wound or from the vagina or uterus, or pus cells and microbes appear in the urine.

VI. PREVENTION OF INFECTION:

There is no specific way to stop hospital infection and its spread, but using the necessary preventive measures and continuous epidemiological investigation may reduce up to 25% to 30% of this infection, and hand washing remains the most effective way to reduce the spread of infection among patients, followed by effective training and taking the necessary precautions In the field of hospital infection control and isolation of infected patients to limit the spread of infection among them are auxiliary factors. Experts emphasized that negligence in applying infection control methods within hospitals leads to prolonging the stay period, opening the way for the emergence of new types of bacterial infections that are resistant to antibiotics, and may raise death rates, and also significantly affect the quality of medical work, in addition to increasing the cost and occupancy Hospital beds.

VII.THE MOST COMMON TYPES OF BACTERIAL INFECTIONS:

The most common types of bacterial infections that infect patients while they are in hospitals are urinary and respiratory infections, blood poisoning and surgical wound infections, and the recommendations of global health authorities indicated that more than a third of these cases can be prevented by following health rules and adhering to infection prevention guidelines. Some global measures to control infection:

1. Washing hands in the correct way before and after dealing with patients and when taking a sample.
2. Treating any blood sample of any patient as a contaminated sample.
3. The necessity to wear gloves when dealing with blood or any liquid outside the body.
4. Take into account not to cover the needle tooth after its use, and dispose of the injection in the special box for that immediately after its use.
5. Wear eye protection to protect the eyes from contamination by blood splashes or any liquid outside the human body.
6. Wearing a jacket to protect clothes to avoid blood splashes or any liquid leaving the body.
7. Dealing with any sheets or mattresses containing blood or any liquid leaving the human body as being contaminated.
8. Necessary precautions are taken when taking samples, considering they are contaminated.
9. Wearing a mask when dealing with patients with chest diseases.
10. Take into account the maintenance of the work environment in a routine and organized manner, and this is done by sterilization

Risks of Transmission from Equipment:

There is a possibility of infection from medical equipment to patients and health care workers, including tools that touch healthy skin (such as: a stethoscope) or the surrounding environment (such as walls, floors, ceilings, furniture, basins, etc.) However, disinfection may be required if these items are used on immuno-compromised patients or patients with highly contagious disease or contaminated with blood or body fluids. Or tools that rub against mucous membranes, so they should be cleaned and then disinfected with a high level disinfectant. This equipment includes respirators, flexible endoscopes, laryngoscopes, endotracheal tubes, thermometers, and other similar tools and equipment. And instruments that penetrate the sterile tissues of the skin, including the body cavities and the circulatory system. These tools are considered to be of a high degree of risk because of the high risk of infection with them if they are contaminated with any microbes before they penetrate the tissue. Therefore it must be cleaned first and then sterilized. Examples of these tools are: surgical instruments, tools that enter the uterus, catheters that enter veins and tissues that are implanted ... etc). The installation and design of the device determines the type of sterilization or disinfection appropriate for the device or machine (chemical - thermal).

Cleaning, Disinfection and Sterilization:

The sterilization process aims to kill microorganisms, in addition to being the highest level of microbial killing process, making it possible. Hence sterilizers may be heat only, or steam, or liquid chemicals. The effectiveness of the sterilizer (such as the "closed" steam conductor) is determined in three ways. First, the mechanical indicators and measures on the machine itself indicate the proper operation of the machine. Second: The sensitive heat indicators or the strip on the sterilization bags that change color, may indicate appropriate levels of heat or steam. And third: (the most important) is the biological test and examination in which a micro-organism that is chemically resistant is selected or selected (and often the final parties in the bacteria

Disinfection refers to the use of liquid chemicals on surfaces and at room temperatures with the goal of killing microorganisms. Here we notice that the disinfection process is less effective than sterilization because it does not kill bacterial pathogens as it does not kill bacterial spores. And it should be used in the process of cleaning devices and equipment or medical gloves, mainly any type of medical tools that come into direct contact with sterile blood and tissues. There are four different ways in which such tools or devices can be sterilized: sterilization using an autoclave or autoclave (using high pressure water vapor), dry heating (in ovens), And through the use of chemical disinfectants, such as glutaraldehydes, or through radiation. They are the most common in sterilization, mainly due to their easy access and availability. Steam sterilization is also one of the most effective methods. Since tools are often sterilized using this method, the steam must interact and come into contact with all surfaces that are intended to be sterilized. One of the accepted sterilization methods is the dry heating method inside ovens, although it can only be used to sterilize and disinfect items made of metal or glass. As the very high temperatures for the sterilization process are able to melt non-glass items

Chemical Sterilization:

The term chemical sterilization, which refers to cold sterilization, can be used to sterilize tools and machines that cannot be naturally disinfected through both of the aforementioned processes. Here, we note that those sterile tools that are sterilized by cold sterilization are the tools that are exposed to damage if they are sterilized using the regular sterilization method. Glutaraldehydes and formaldehyde are used in this process, but they are used in different ways. Whereas, when using the first type of disinfectants, the tools to be sterilized are dipped in a 2-4% solution for at least ten hours, while they are dipped in an 8% formaldehyde solution, which disinfects the tools within 24 hours or more. This makes the chemical sterilization process more expensive than the steam sterilization process and therefore it is used with tools that cannot be sterilized by any other method. After the tools are dipped in chemical solutions, it is necessary and obligatory to rinse them with running water, which will in turn remove all residues from the disinfectants. This is the reason behind the fact that needles and syringes are not sterilized in the same way, as the residues left by the use of chemical disinfectant solutions cannot be removed after rinsing with running water, and then they may interfere with the treatment that is used to deliver it. Although formaldehyde is less expensive than glutaraldehyde, it is more irritating to the eyes, skin, and trachea, in addition to being classified as a possible carcinogen

Personal Protective Equipment:

Personal protective equipment(PPE) includes special clothing or equipment that a worker wears to protect against any hazards. The danger in health care facilities is exposure to blood, saliva, or other bodily fluids or aerosols, which may be laden with sources of infection, including hepatitis C, AIDS or other pathogens transmitted through blood or bodily fluids. Here, personal protection equipment prevents contact with infectious substances by creating a barrier or a barrier between the infectious substance (causing the infection) and the health care worker who is exposed to infection. Among the personal protective equipment are medical gloves, medical gowns, hoods, shoe covers, face masks (muzzles), respirator masks, protective glasses, surgical masks and a respirator mask. In addition to the method of using it inside the medical facility, which is questionable or suspicious. Noting that many of these tools are disposed of after only one use, in order to avoid carrying infectious pathogens from one patient to another, as well as to avoid high disinfection costs. Which prompted the Occupational Safety and Health Administration in the United States of America to demand the immediate disposal or disinfection of personal protective equipment prior to leaving the work area in which an outbreak of infection occurred or being exposed to it.

Vaccination of Health Care Workers:

Health care workers may be exposed to various infections during their work. This makes vaccinations or vaccinations available with the aim of providing some protection for workers in health care facilities. Whereas, based on regulations and legislation, recommendations, the worker's own job, or personal preferences, health care workers or first responders receive vaccinations or vaccinations for: hepatitis B, influenza, measles, mumps and rubella, tetanus, Diphtheria, whooping cough, and varicella vaccine. However, in general, vaccinations do not guarantee complete protection from

pathological infection, as there is a possibility of exposure to the various symptoms and effects of receiving that vaccine

Quarantine :

Quarantine in the context of health care refers to the various physical measures taken to thwart the spread of infections that are common in hospitals. Where there are different forms of quarantine that are applied depending on the type of infection and the factors involved in its spread, with the aim of countering the similarity in the spreading process through air particles or droplets, or through contact through the skin, or through contact through body fluids.

Disease Surveillance:

Infection monitoring is the process of investigating and investigating the phenomenon of the spread of infection, using the definitions and determinants of CDC. Identifying an infection requires an infection control practitioner to review the patient's map and see if the patient has symptoms and signs of infection. The definition of monitoring and surveillance covers blood and urethra infections, pneumonia, and surgical sites. The monitoring process usually included an evaluation of statistically significant data in addition to an entry for that, with the aim of evaluating preventive measures and measures, including isolating patients suffering from infectious diseases. Additionally, solutions provided in the form of integrated and integrated computer programs have become available that evaluate risk messages from biology and other electronic sources. Almost a third of the infections acquired as a result of working in health care can be prevented. About one third of infections acquired as a result of working in health care are preventable. Monitoring and prevention activities are an increasing priority for hospital workers. A study conducted by the Center for Disease Control and Prevention in the United States of America on the Efficacy of Nosocomial Infection Control Project found that hospitals reduce their infection rates by approximately 32% by focusing on monitoring prevention activities and efforts Made.

Infection Control Training:

The practitioners have varied educational experiences, as some of them start their careers as nurses, while others start their lives as medical technologists (especially in the field of medical microbiology), and some of them may be doctors (usually specialists in the field of infectious diseases). Then the following professional organizations provide the following by providing specialized training courses in the field of infection control and epidemic health care. Often physicians wishing to work in epidemic control are trained as infection control practitioners within the context of an Infectious Disease Fellowship.

Fig(1): Infection Control

Fig(2): Types of Face Masks

Fig(3): Face Mask N99

Fig(4): Personal Protective

VIII. CONCLUSIONS

Getting rid of these wastes is an environmental matter, as many medical wastes fall under the category of hazardous or contagious, which may lead to many infectious diseases. A 1990 USAID Toxic Substances and Disease Registry report concluded that the general population is unlikely to be negatively affected by medical waste from traditional healthcare. It was found, however, that medical wastes from this area may lead to injuries and exposure to risks for doctors, nurses and all workers in health care institutions through contact with medical waste resulting from professional activity. Moreover, there is an opportunity for the general public to be exposed to dangerous wastes such as exposure to illegally used needles outside health care institutions or in home health care situations.

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