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Hospital Acquired Infection Prevention and Control

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Abstract- Hospital Acquired Infections (HAI) are major burdens for patients, healthcare professionals and society. Another name of Hospital Acquired Infection is Nosocomial Infection. The most common nosocomial infections are Catheter Associated Urinary Tract Infection, Ventilator Associated Pneumonia, Central Line Blood Stream Infection, Surgical Site Infection. Each of these is associated with an invasive procedure or invasive medical devices. Highest prevalence of hospital acquired infections occur in Intensive Care Units. Infection rates are higher among the patients with low immunity, chronic and critical disease. To arrest infection rate in healthcare setting Infection Control Programme plays a crucial role. Good infection Control Programme can reduce the patients' mortality and morbidity rate and makes the hospital environment healthy for patients, visitors and healthcare personnel. The main aim of the Infection Control Programme is to minimize the risk of infection during the period of hospitalization.

Keywords- HAI, ICN, CAUTI, CLABSI, SSI, VAP, CSSD, NSI, HEPA filter.

Introduction:

Hospital Acquired Infection (HAI) also known as Nosocomial Infections/Healthcare-Associated Infections are the infections that patients get while receiving treatment at a healthcare setting or from a healthcare personnel such as doctor or nurse. Nosocomial Infections can get into patients' bloodstream, urinary tract, lungs that making patients very sick. These infections are also very tough to treat and can stay with patients for a long period of time. In the worst cases these kinds of infections can also be deadly. Nosocomial Infection is the single largest factor that adversely affects both the patient and hospital.

To reduce infection in healthcare setting "Infection Control Committee" should take major role and should conduct effective Infection Control Programme. The main aim of the Infection Control Programme is to minimize the risk of an infection during the period of hospitalization.

For a HAI, the infection must occur:

- Up to 48 hours after hospital admission
- Up to 3 days after discharge

- Up to 30days after an operation

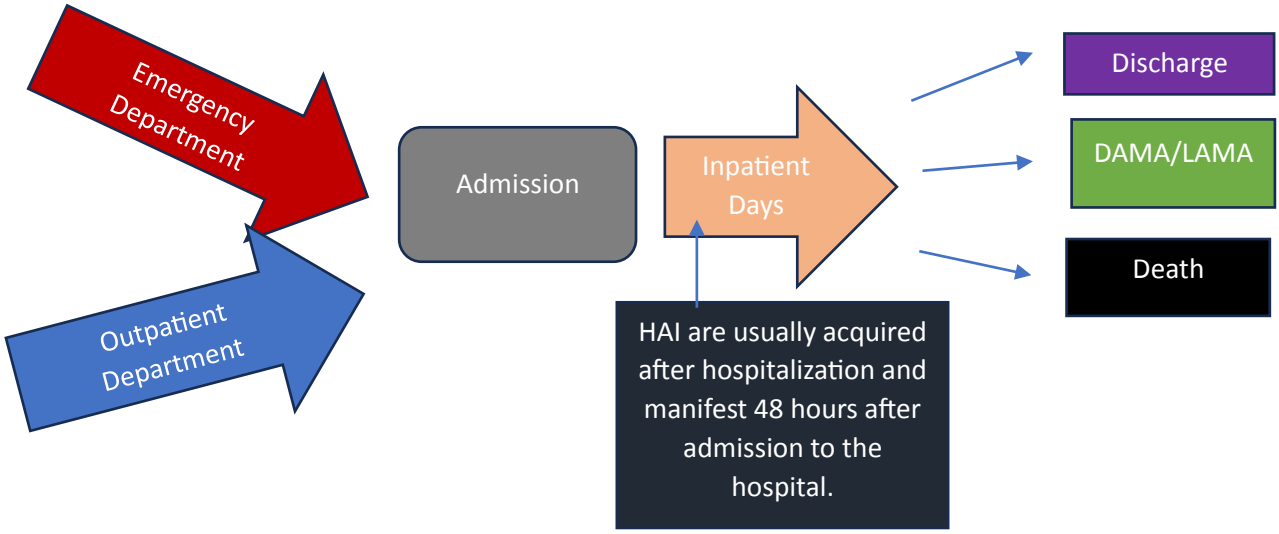

Figure:1

Common Symptoms of HAI:

Symptoms of Nosocomial Infection will vary by type. The most common types of Hospital Acquired Infections are CAUTI (Catheter Associated Urinary Tract Infection), SSI (Surgical Site Infection), CLABSI (Central Line Associated Blood Stream Infection), VAP (Ventilator Associated Pneumonia) etc. The symptoms for these HAI may include: fever, shortness of breathing, headache, burning sensation with urination, cough, diarrhoea, vomiting, nausea etc.

Route of spread of infection:

The sources of infection may divided into two parts----------i) Exogenous Infections- Exo means Outside ; Genous means Born from. In Exogenous Infection pathogen entering a patient's body from the environment. ii) Endogenous Infection means an infection caused by an infectious agent which is present in the host prior to the start of the infection.

There are some routes of spread of infection;

- Droplets route- One of the most common routes of spread of hospital infections is the droplets route where in the micro-organisms spread through coughing, sneezing, coughing etc.
- Environmental route- It includes contaminated instruments, water, food.
- Contact route- The micro-organisms transmit through patient to patient or nurse to patient direct contact and through indirect contact between patients. (Medium of instruments, dressings etc.)
- Intravenous route- This route one of the most widely used routes through which blood, fluids, drugs are pushed into the body.

Common types of Hospital Acquired Infection:

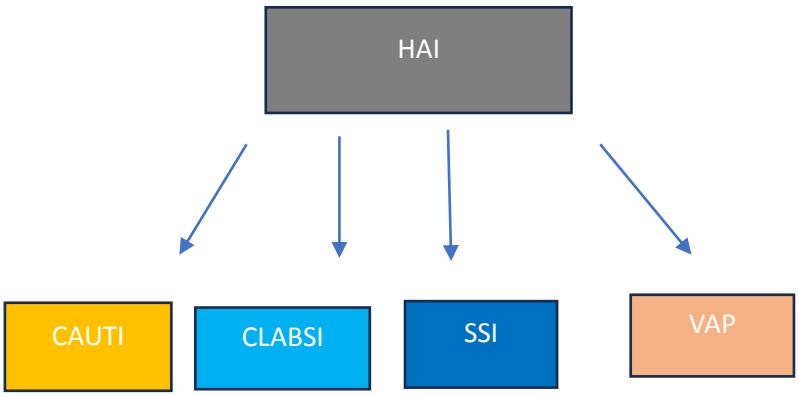

Figure: 2

CAUTI- The full form of CAUTI is Catheter Associated Urinary Tract Infection. It occurs when germs enter and infect the urinary tract through urinary catheter. ***CLABSI***- The full form of CLABSI is Central Line Blood Stream Infection, which is a serious infection that occurs when germs enter the blood stream through the central line. ***SSI***- The full form of SSI is Surgical Site Infection. This type of HAI in which a wound infection occurs after a surgical procedure. ***VAP***- The full form of VAP is Ventilator Associated Pneumonia. It occurs if germs enter through the ventilator tube and get into the patients lungs.

Hospital Acquired Infection prevention and control:

Infection control team, Healthcare professionals may follow the below mentioned steps to minimize the risk of an infection in any healthcare settings.

- ***Infection Control Committee***- Hospital infection control team should develop an Infection Control Committee. This Committee includes microbiologist, Medical Director, Medical Superintendent, Deputy Medial Superintendent, Nursing Superintendent, Deputy Nursing Superintendent, Assistant Nursing Superintendent, CSSD manager, Infection control nurse/brother, Quality manager etc. The main functions of this committee are establishing and maintaining infection prevention and control, its monitoring, surveillance, reporting, research and education.

- ***Hand Hygiene***- Follow 10 steps of handwashing according to WHO, keep the hands clean and micro-organisms free. Wet hands with water then apply adequate soap to cover the surface of hands, then rub the hands palm to palm, then right palm over left dorsum with interfaced fingers with vice versa, then palm to palm with fingers interlaced, then backs of fingers to opposing palms with fingers interlocked, then rotational rubbing of left thumb clasped in the right palm and vice versa, thereafter rotational rubbing, backwords and forwards with clasped fingers of right hand in left palm and vice versa, then rinse hands with water, then dry hands thoroughly with a single use towel and use the towel to turn off faucet.

- ***Isolation facility***- Isolation rooms along with negative air pressure are very essential for those patients who are suffering from communicable disease.

- ***Antibiotic Policy***- Antibiotic policy should be there to reduce the misuse of antibiotic and reduce the chances of antibiotic resistance.

- ***Dietary Service***- Kitchen staff should maintain proper hygiene during food preparation.

- ***Staff should be immunized***- All healthcare personnel should be immunized specially kitchen staff.

- ***Good housekeeping service***- housekeeping staff should perform their job according to the standard operating procedure.

- ***Air hygiene in OT***- There should be an arrangement of HEPA filter (High Efficiency Particulate Air Filter) which helps to maintain air hygiene in OT.

- ***Soiled linen handling***- Linen and laundry department should perform their job according to the SOP to reduce the spread of infection.

- ***Good CSSD service***- Good CSSD (Central Sterile Supply Department) service ensures micro-organisms free instruments.

- ***NSI policy***- Infection control committee should prepare a proper Needle Stick Injury policy-procedures to reduce the incident of NSI and communicate the relative procedures to all the staff members in case of NSI.

- ***Vigorous internal audit***- Infection control team specially ICN (Infection Control Nurse/brother) should conduct vigorous internal audit to reduce the rate of HAI.

Conclusion:

Infection control and prevention practices are essential in maintaining a safe and healthy environment for healthcare professionals, patients and visitors by reducing the risk of the potential spread of micro-organisms. These practices are designed to reduce the risk of hospital acquired infections and to ensure a safe hospital environment for patients, healthcare professionals and visitors.

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