



HEALTH EDUCATION AND COMMUNITY PHARMACY.

D. Pharm. 1st year, JCGP Compiled by Dr. Moitreyee Mandal. 28.04.2020

NOSOCOMIAL INFECTIONS

Nosocomial infection (N.I.) is a specific type of infection, that are not present or incubating, prior to the patient being admitted to the hospital , but occurring within 72 hours after admission to hospital. These infections are also known as HAI (Hospital acquired infections) .The origin of the word nosocomial is from Noso= disease, and Komion== to take care of.

People at risk--- Patients in ICU, Critical care patients, laboratory personnel, patients having organ transplant, patients with IV channels, cardiac catheterization patients, patients with urinary catheters, patients on ventilation, patients in gynae and obstetrics dept. It may be an endemic, or epidemic in a hospital.

Consequences of Nosocomial infections:

- 1) Increased duration of stay in hospitals.
- 2) Increased cost of therapy.
- 3) Lost mandays (working hours, work output)
- 4) Economic loss
- 5) High chance of transmission of MDR(multi drug resistant) organisms to hospitalized patients.
- 6) Longer time taken for cure with newer drug regimens.

One of the most dangerous outcomes of nosocomial infections is development of AMR strains of bacteria and virus, fungus .These resistant microbes are very difficult to treat, and patients often die for lack of proper treatment. The Two major outcomes of N.I. are social and medical. Social impact is increased morbid patient load, risk of unknown

carriers, loss of work force, wage loss, loss of jobs, death etc. There is also a loss of valuable antimicrobials due to random use, increased national investment on drugs, increased OOP(Out of pocket expenditure) .



MODES OF CONTROLLING N.I.

1. Hand washing frequently by doctor, nurse, caregivers at hospital, use of hand sanitizers.
2. Use of disposable gloves by hospital staff whenever possible
3. Avoiding hand contact with exposed membrane like conjunctiva.
4. Ventilator sterilization.
5. Wearing aprons ,(that are disposable or duly sterilized) during patient handling.

N.I. more than double the mortality and morbidity risk of any patients admitted to hospital. Nosocomial infections increase the patient loads of hospitals, which gets increasingly risky for immunocompromised patients. Additionally, without adequate air quality control and monitoring, newer resistant microbe loads increase in a hospital, with older microbes getting more resistant to the existing standard antimicrobials. The endemic burden of HAI is significantly higher in the lower income and middle income countries, than in the higher income ones, specially in ICU, CCU and Neonatal units.

STEPS TO CONTROL NOSOCOMIAL INFECTIONS :

1. Ensuring minimum requirements in terms of facilities of infection control and maintaining it.
2. Ensuring that the core components of healthcare are in place at state and national levels, at all the tiers --- 1ry, 2ry, 3ry .
3. Improving staff education and accountability.
4. Setting up an infection control program with a multidisciplinary approach and committees to monitor it. These committees should work together with the Antimicrobial policy committee and nosocomial infection control committee to monitor and control N.I.

5. Surveillance of AMR pattern, using standardized international methods to measure the disease burden.
6. To implement practical, evidence based low cost and simple preventive methods for infection control.



SOME RELEVANT POINTS ABOUT N.I.

1. N.I. are potentially caused by microorganisms that are Antimicrobial resistant. Making treatment very difficult.
2. Health care staff can spread the infection, as well as contaminated surfaces , and droplet infection spread, fomite transmission.
3. N.I. can result from identified or unidentified source also.
4. In some cases, microorganisms can originate from the patient's microbiota, becoming opportunistic after surgeries, that compromise protective barriers.

CAUSES OF NOSOCOMIAL INFECTIONS IN HOSPITALS:

1. Indwelling catheters.
2. Iv channels,
3. Procedures involving cardiac catheterization, pace maker implantation, orthopaedic and dental implantations etc.
4. Touching areas with dense biofilms
5. Transmission while using bedpans, urinals, commodes, taps, contaminated utensils etc.
6. Contact transmission from bed linen, during endoscopy, colonoscopy, USG, etc.
7. Droplet infection due to coughing. sneezing, talking, during bronchoscopy etc.
8. Airborne transmission can occur from microorganisms like Legionella, Mycobacterium tuberculosis, Rubeola, Varicella virus etc.
9. Transmission can also occur through contaminated food, water, medicine, medical and surgical devices.
10. Vector borne transmission can occur through flies, mosquitoes, rats, and other vermin

11. Contaminated and badly disposed syringe, needles, blood bags, urine bags, gloves, dressings, bandages can lead to massive N.I.

NAMES OF SOME N.I. CAUSING MICROBES

Clostridium difficile

Mycobacterium tuberculosis,

Salmonella species,

MRSA (Methicillin resistant Staph aureus, called GOLDEN STAPH.

VRSA (Vancomycin resistant Staph aureus)

Klebsiella pneumoniae

Acinobacter

Staph. Epidermidis

Micrococcus

Corynebacterium diphtheriae.



NOTE: Students plz note that this is an outline. Plz develop broader notes from Preventive medicine by PARK. Also, you are encouraged to use good sites. Plz get rates of N.I. in India, and international stats. Read the methods to prevent N.I.