

Nosocomial infections/school (nurse)

- This is an infection occurring after 48 hours of hospitalization or an infection occurring in connection with a medical intervention.
- The occurrence of nosocomial infections (NOIs) is one of the indicators of the quality of a medical facility.

Endogenous infection

- The infection is caused by the transfer of infection from another colonized system of the organism.
- Primarily endogenous → bacteria originating from the normal microflora.
- Secondary endogenous → "foreign" bacteria colonize the gastrointestinal tract of the patient/client and then cause infection.

Exogenous infection

- Bacteria originating from the surrounding environment.
- Specific → the occurrence of infection is related to compliance with the principles of asepsis.
- Non-specific → occurrence according to the current epidemiological situation in the given area.

Early warning system

- Finding and reporting epidemiologically significant cases that require urgent action.

Continuous monitoring system

- Evaluation of trends in the occurrence of NN in certain groups.
 - Catheter sepsis, ventilator pneumonia, urosepsis, etc.

Factors of the formation of NN

- Insertion of catheters.
- The severity of the underlying disease.
- Length of hospital stay.
- Invasive monitoring.
- Implantation of foreign bodies.
- Nature and scope of the operation.
- Associated disease.
- The need to retain a customer

Originators of bacterial NN

- Commensal strains – coagulase-negative staphylococci (E. Coli).
- Pathogenic - anaerobic gram+ rods (Clostridia), Gram⁺ cocci (Staphylococcus aureus, streptococci, enterococci), Gram⁻ rods (enterobacteria - Klebsiella, Proteus spec., Pseudomonads, Legionella).

Originators of viral NN

- Transfusion, dialysis, injection, endoscopy → transmission of hepatitis B, C.
- Fecal - oral route → enteroviruses, rotavirus, RSV.
- Other infections → CMV, HIV, influenza virus.

Consequences of NN

- Extending the length of hospitalization, increasing costs.
- Causing another disease.
- Source of spread of infection.

Prevention of NN

- Active search → regular bacteriological examination, swabs from the throat, nose, invasive entrances.
- Isolation → individualized care, patient/client isolation (P/C).
- P/K decolonization – washing in disinfectants, wiping the oral cavity, washing hair and skin.
- 3 negative consecutive smears → cure.

By the staff

- Adherence to asepsis principles.
- Restrictions on sick staff (colds, diarrhoea, skin infections, etc.).
- Barrier nursing.
- Increasing resistance to infection (correct use of ATB, vaccination, monitoring of risk factors).

Principles of barrier care

- Use disposable aids, or individualize aids.
- Take care of the personal hygiene of the patient and your own.
- Follow the work procedures according to the standards of the given healthcare facility and the methodologies of the Ministry of Health of the Czech Republic (aseptic procedures, sterile aids, decontamination of aids...).
- Maintain and control the cleanliness of the environment.
- Use effective disinfectants according to the epidemiological plan.
- Make sure that the so-called clean and dirty paths do not cross during individual work procedures.
- Take care of perfect disinfection and sterilization of tools and material.
- Use protective equipment in client care.
- Make sure that the integrity of the client's skin and mucous membranes is not violated unnecessarily.
- A general nurse may not wear jewelry or watches on her hands, or have long or artificial nails during her work.
- A general nurse must wear work clothes and use protective clothing for designated work procedures.
- Follow the principles of hygienic hand protection in a medical facility.
- Handle clean and dirty laundry properly.
- Follow the principles of handling biological material.
- Follow the principles of proper food handling.
- Sort and ensure the regular removal of waste from the workplace.
- Observe the hygienic filter.
- Know and ensure compliance with the principles of the hygienic-epidemiological regulations of the given workplace.
- Educate the patient about basic hygienic-epidemiological measures.
- The general nurse is an example for her colleagues and encourages them to observe preventive measures in the fight against nosocomial infections.
- The general nurse deepens her knowledge.

Catheter sepsis

- Peripheral venous catheter - the risk of infection increases on the 3rd day of cannulation.
- Central venous catheter - the risk of infection increases on the 7th day of cannulation.
 - For catheters with ATB impregnation, cuff impregnated with silver, the limit moves to 10-14. days.
 - Tunneled catheters the least risk of infection.
 - The safest location in order → v. subclavia – v. jugularis – v. axilaris – v. femoralis.
 - Appropriate regular smears, taking blood cultures in case of fever.
 - After pulling out the end of the catheter at K+C.
- Swan-Ganz catheter – risk of infection increases on day 4 of cannulation.
- Arterial catheter – max. 4-5 days, exchange of sets every 96 hours.

Originators

- Staphylococcus aureus.
- Candida species.
- Pseudomonas aeruginosa.
- Corynebacterium jeikeium.
- Enterobacteriaceae.

Path of originator

- Percutaneous penetration.
- Hematogenous route.
- Contaminated catheter.
- Contaminated infusion solution.

Clinic

- Redness at the injection site.
- Secretion.
- Soreness.
- Febrile.
- Positive blood cultures (bacteremia).
- Picture of general sepsis.

Uroseps

- Permanent urinary catheter (PMC) - the risk of infection increases from the 5th day of insertion.
- Max. the duration of introduction of latex MK is 14 days.
- Drainage system 7 -14 days.

Originators

- Gram⁺ cocci (Staph. Aureus, enterococci).
- Gram⁻ stick (E.Coli, Klebsiella pneumoniae, Proteus sp., Pseudomonas sp.).
- Yeast (Candida species).

Surgical wound infection

Originators

- Staphylococcus aureus.
- Streptococcus pyogenes.
- Streptococcus epidermis.
- Clostridium perfringens.

Ventilator pneumonia

- In patients/clients requiring UPV.
- Endotracheal cannula and tracheostomy allow direct contact of the lower respiratory tract with the environment, traumatize the tissue, make coughing difficult, high risk of microaspiration.
- Artificial pulmonary ventilation – higher concentration of O₂ slows down the movement of mucus, damages the defense capacity of the lungs.

Originators

- Staphylococcus aureus.
- Haemophilus influenzae.
- Streptococcus pneumoniae.
- Pseudomonas species or aeruginosa.
- Klebsiella pneumoniae.
- Enterobacteriaceae.

Input

- Inhalation, hematogenous route, aspiration.
- Failure to observe asepsis when handling the circuit.
- Neutralization of gastric contents, ATB treatment increase the risk.
- Surgical interventions in the abdominal cavity, cushioning.

Prevention

- Adherence to asepsis principles.
- A thorough OSA of the ENT and pharynx.
- Individualized care.
- Maintenance of equipment, replacement of circuit components.
- Early initiation of enteral nutrition.
- Elevated position of the upper half of the body.
- Pre-operative training of coughing and deep breathing.
- Early mobilization.

MRSA

- Good affinity for healthy skin and mucous membranes - most often on moist and hairy areas.
- The nose and throat are most often inhabited, rarely in the vagina.
- Transmission by direct contact, infected aerosol.

Risk groups

- Health workers.
- DM I. Typu.
- Dialyzed P/K.
- Patient's skin disease.
- Immunodeficient patients.
- Drug addicted and HIV positive.

The infection proceeds in the same way, but the treatment is more difficult.

The most common causes

- Pyoderme.
- Abscesses (soft tissue infections).

- Joint and bone infections.
- Catheter sepsis.
- Ventilator pneumonia.
- Infection of implants

Links

References

- KAPOUNOVÁ, Gabriela. *Nursing in intensive care*. 1. edition. Praha : Grada, 2007. pp. 350. ISBN 978-80-247-1830-9.
- MAĐAR, Rastislav. *Prevention of nosocomial infections in clinical practice*. 1. edition. Praha : Grada, 2006. pp. 178. ISBN 80-247-1673-9.