



Prevenција intrahospitalnih infekcija i dezinfekcija

Prevention of Healthcare-Associated Infections and Disinfection

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Apstrakt

Hygieinos je grčka reč i znači zdravlje. Higijena, poznata i kao kontrola infekcija, naučna je disciplina koja je usko vezana sa promocijom i očuvanjem zdravlja ljudi i sprečavanjem bolesti. Dobila je ime prema Higiji (*Hygieia*, lat. *Hygia*), kćeri poznatog grčkog lekara Asklepija (*Eskulap*, *Aesculapius*), koju su mnogi antički umetnici prikazivali kao mladu ženu koja u ruci drži zmiju i posudu sa vodom, što je simbol zdravlja. Njeno ime se vezuje za čistoću i higijenu. Svrha bolničke higijene je zaštita bolesnika od dodatnih bolesti i istovremeno zaštita zdravstvenih radnika.

Infekcija predstavlja biološki proces koji podrazumeva ulazak mikroorganizama u organizam čoveka (kroz kožu i sluzokožu) i njihovo razmnožavanje u tkivima prema kojima pokazuju afinitet. Uročnici zaraznih bolesti su mikroorganizmi koji se mogu preneti na dva načina sa osobe na osobu: direktnim kontaktom bez zadržavanja u spoljašnjoj sredini i indirektnim kontaktom koji podrazumeva da mikroorganizmi provode izvesno vreme u spoljašnjoj sredini. Veliki svetski problem hospitalnih zdravstvenih ustanova su bolničke infekcije, kako u razvijenim, tako i u zemljama u razvoju. Izazivači su najčešće bakterije, gljivice i virusi.

Intrahospitalna infekcija definiše se kao bolest koja se javila nakon 48 sati boravka u bolnici, a nije postojala, niti je bila u fazi inkubacije u momentu prijema u bolnicu radi ispitivanja ili lečenja. Mora da ispunjava jedan od ovih uslova:

1. Da su se simptomi infekcije pojavili najranije trećeg dana tekuće hospitalizacije ili kasnije, ili su se simptomi infekcije javili na dan prijema, pri čemu je do prethodnog otpusta iz bolnice za akutne poremećaje zdravlja proteklo manje od 48 sati.
2. Da je pacijent hospitalizovan sa simptomima infekcije operativnog mesta (ili su se simptomi manifestovali prva 2 dana od početka hospitalizacije), ili je pacijent primljen sa antimikrobnom terapijom infekcije operativnog mesta, koja se ispoljila u roku od 30 dana od dana operacije, pod uslovom da pacijentu nije ugrađen implant, ili da pacijent ima duboku infekciju operativnog mesta, odnosno infekciju organa ili prostora koja se ispoljila u roku od 90 dana od dana operacije – pod uslovom da je pacijentu ugrađen implant.
3. Da je pacijent hospitalizovan sa simptomima infekcije izazvane bakterijom *Clostridium difficile*.
4. Ako je neko invanzivno medicinsko pomagalo (trahealni tubus, centralni ili periferni venski kateter, urinarni kateter) plasirano prvog ili drugog dana od prijema, a simptomi infekcije povezani sa pomagalom su se razvili prva 3 dana hospitalizacije.

Abstract

Hygieinos is a Greek word and it means health. Hygiene, also known as infection control, is a scientific discipline that is closely related to the promotion and preservation of human health and disease prevention. It was named after Hygieia (*Hygieia*, lat. *Hygia*), the daughter of the famous Greek physician Asclepius (*Aesculapius*, *Aesculapius*), who was depicted by many ancient artists as a young woman holding a snake and a bowl of water in her hand, which is a symbol of health. Her name is associated with cleanliness and hygiene. The purpose of hospital hygiene is to protect patients from additional diseases and at the same time to protect health workers.

Infection is a biological process that involves the entry of microorganisms into the human body (through the skin and mucous membranes) and their reproduction in the tissues to which they show affinity. The environment and indirect contact, which implies that microorganisms spend some time in the external environment. A major global problem of hospital health institutions is hospital infections, both in developed and developing countries. The most common causes are bacteria, fungi, and viruses.

An intrahospital infection is defined as a disease that occurred after 48 hours of hospital stay, and did not exist or was in the incubation phase at the time of admission to the hospital for examination or treatment. It must meet one of the following conditions:

1. That the symptoms of infection appeared on the third day of the current hospitalization at the earliest or later, or the symptoms of infection appeared on the day of admission, while less than 48 hours passed before the previous discharge from the hospital for acute health disorders.
2. If the patient was hospitalized with symptoms of a surgical site infection (or the symptoms manifested themselves in the first 2 days from the start of hospitalization), or the patient was admitted with antimicrobial therapy for a surgical site infection, which manifested itself within 30 days from the day of the operation, provided that the patient no implant was installed, or the patient has a deep infection of the surgical site, that is, an infection of an organ or space that manifested itself within 90 days from the day of the operation - provided that the patient had an implant installed.
3. That the patient is hospitalized with symptoms of an infection caused by the *Clostridium difficile* bacterium.
4. If an invasive medical device (tracheal tube, central or peripheral venous catheter, urinary catheter) was placed on the first or second day of admission, and symptoms of infection related to the device developed during the first 3 days of hospitalization.



Stopa bolničkih infekcija u našoj zemlji je u okviru svetskog proseka i javlja se kod 5–10% hospitalizovanih pacijenata. Učestalost i tipovi intrahospitalnih infekcija zavise od mnogo faktora kao što su: profil bolnice, imunsko stanje obolelog, bolnička higijena, obučenosost osoblja, usvojena ili neusvojena doktrina primene antibiotika u preventivne ili kurativne svrhe. Najčešći izazivači su: *Escherichia coli*, koagulaza negativne stafilokoke i *Staphylococcus aureus*, *Enterococcus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Enterobacter* i *Clostridium*. *Staphylococcus aureus* je jedan od najuobičajenih patogena koji uzrokuje infekcije kože i mekih tkiva.

Glavni način prenosa MPCA infekcije u bolnicama je sa jednog na drugog bolesnika preko ruku zdravstvenih radnika. Kao posledica dugotrajne primene antibiotika dolazi do pojave rezistentnih uzročnika infekcije.

Redosled najčešćih intrahospitalnih infekcija:

- infekcije urinarnih puteva (30 – 40% svih hospitalizovanih pacijenata)
- infekcije disajnih puteva (15 – 20%)
- infekcije operativnih rana (15 – 20%)
- infekcije opekotina
- infekcije kože i potkožnog tkiva

Prevenција bolničke infekcije podrazumeva higijenu ruku, sterilizaciju i antisepsu (dezinfekcija). Dezinficijensi se koriste za dezinfekciju površina, materijala i instrumenata. Antiseptici se koriste za dezinfekciju rana, kože i sluzokože. Antiseptici koji se najčešće koriste u zdravstvenim uslovima su: vodonik-peroksid, jod i jodni preparati, oktenisept, alkoholi i borna kiselina. Antiseptici deluju tako da sprečavaju rast i razvoj mikroorganizama, to jest, oni su bakteriostatici. Ako se radi o većim koncentracijama, tada ih nazivamo dezinficijensi. Oni ubijaju mikroorganizme i oni su baktericidna sredstva. Upotreba dezinfekcionih sredstava nije bezazlena, ukoliko se ne koriste adekvatno. Zbog toga je važno pratiti uputstva za upotrebu i pridržavati ih se kao i svih propisanih procedura u zdravstvenoj ustanovi i van nje.

The rate of nosocomial infections in our country is within the world average and occurs in 5-10% of hospitalized patients. The frequency and types of intrahospital infections depend on many factors such as the profile of the hospital, the immune status of the patient, hospital hygiene, staff training, and adopted or unadopted doctrine of the use of antibiotics for preventive or curative purposes. The most common pathogens are *Escherichia coli*, coagulase-negative staphylococcus and *Staphylococcus aureus*, *Enterococcus*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, *Enterobacter*, and *Clostridium*. *Staphylococcus aureus* is one of the most common pathogens that cause skin and soft tissue infections.

The main way of transmission of MPCA infection in hospitals is from one patient to another through the hands of health workers. As a result of long-term use of antibiotics, resistant pathogens appear.

The order of the most common healthcare-associated infections:

- urinary tract infections (30-40% of all hospitalized patients)
- respiratory tract infections (15 – 20%)
- surgical wound infections (15-20%)
- burn infections
- infections of the skin and subcutaneous tissue

Prevention of the infection includes hand hygiene, sterilization, and antiseptics (disinfection). Disinfectants are used to disinfect surfaces, materials, and instruments. Antiseptics are used to disinfect wounds, skin, and mucous membranes. Antiseptics that are most often used in health conditions are hydrogen peroxide, iodine and iodine preparations, octenisept, alcohols, and boric acid. Antiseptics work by preventing the growth and development of microorganisms, that is, they are bacteriostatic. If it is a matter of higher concentrations, then we call them disinfectants. They kill microorganisms and they are bactericidal agents. The use of disinfectants is not harmless, if they are not used adequately. That is why it is important to follow the instructions for use and adhere to them as well as all prescribed procedures in and outside the health facility.