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General Infection Control in the Intensive Care Unit

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Nutrition

Increased risk of postoperative infectious complications in malnutrition and hypoalbuminemia [1,2]. In hypoalbuminemia, cellular immunity is impaired [3]. Nosocomial blood infections are significantly higher in intensive care patients with fewer calories than their daily requirement [4]. Early enteral nutrition reduces sepsis incidence and intensive care mortality [5].

Glycemic Control

Hyperglycemia negatively affects neutrophil function, phagocytosis and cytokine activation [6]. Strict glucose control reduces mortality and morbidity in intensive care [7].

Training Of Intensive Care Personnel

Periodic training reduces the rate of infection [8]. Reduced risk of infection in certified nurse care [9]. High patient / nurse ratio increases the risk of infection [10].

Intensive Care Environment

Microorganisms can be everywhere in intensive care; hands, door handles, computers, etc. Periodically, staff should be given environmental cleaning and hand hygiene training

For the cleanliness of the environment [11]

ultraviolet light sterilization lamps hydrogen peroxide can be used in Steam decontamination instruments

even if the source patient leaves intensive care, his room may continue to harbor pathogens. Air and water filtration systems can be a source of pathogens [12]. Water tap P. may colonize with aeroginosa, water filter placement reduces this risk [13].

Isolation Measures

Standard measures [14]

a. Gloves should be worn before contact with blood and body fluids, damaged skin and mucous membranes.
b. Hands should be washed after the gloves are removed
c. Mask, glasses and apron should be worn if there is a possibility of splash
d. The apron should be waterproof
e. Needles must be deposited in puncture-resistant containers
f. Patients colonized with resistant pathogens should be entered into the room by wearing long aprons and gloves, MRSA and VRE transport should be prevented

Respiratory Isolation (Measles, Chickenpox, Lung-Larynx Tbc)

Particles smaller than 5µm can reach distant points by hanging in the air or sticking to dust particles.

Special room, negative pressure should be applied continuously, Air change should be 6-12 times per hour

Droplet isolation (haemophilus influenza, n. menengitidis, m. Pneumoniae, pertussis, plague, adenovirus,influenza, mumps, rubella)

It is intended for infections transmitted by particles larger than 5µm. These particles cannot remain suspended in the air and travel no further than 1 meter. Mask should be worn if the private room is to be approached more than 1 meter

Contact isolation (mrsa, vre, acinetobacter, pseudomonas, cl.difficile, enterohemorogic e. Coli, shigella, rotavirus)

Special room, gloves and hand disinfection, Apron should be worn, medical equipment used for the patient should not be used for any other patient

Tight Contact Isolation (Vre)

Special room, gloves and hand disinfection, Apron, special medical devices, surfaces in the room should be disinfected every day

Patient Screening [15]

Colonized cases with multidrug resistant bacteria newly taken into intensive care are the new reservoir for infections. Surveillance cultures for MRSA and VRE reduce colonization and infection with these microorganisms

Patient Decolonization

Daily patient bath with 2% chlorhexidine-containing covers reduces hospital-based infection and multidrug-resistant bacterial colonization [16]. Bath with 2% chlorhexidine in most ICU has become standard practice

Hand Hygiene [17]

Hand hygiene training and monitoring reduces the rate of infection. Alcohol-based foam or gel has been found to reduce the number of colonies in hands and the number of multidrug-resistant pathogens compared to soap washing [18]. There was no difference between chlorhexidine-containing antiseptic and alcohol-based foam in terms of bacterial colonization in the hands [19]. If contaminated with contaminated / protein material or blood and other body fluids, wash with soap or antimicrobial soap and water. Alcohol-based hand antiseptic is used if there is no visible contamination and can be washed hand with antimicrobial soap as an alternative:

a. Before direct contact with the patient
b. Prior to wearing gloves during central venous catheter placement
c. Before urinary catheter, peripheral vascular catheter and other invasive procedures
d. Patient's integrity intact after contact with skin
e. Body fluids, integrity impaired after contact with the skin
f. When passing from a contaminated body area to a clean area during patient care
g. After contact with inanimate objects and surfaces around the patient
h. After the gloves are removed

Hand Hygiene

Products used Non-antimicrobial soap: removes dirt organic matter in hand with detergent properties

Alcholls: denaturation of proteins, rapid but short-acting antimicrobial activity. MRSA, VRE, gram positive and negative bacteria, M. tuberculosis, high effectiveness against fungi and viruses, bacterial spores, parasitic cysts and some non-enveloped viruses are less effective against.

Chlorhexidine

Acts by disrupting the cytoplasmic membrane. It has a good effect on Gram-positive bacteria and enveloped viruses, and less on gram-negative bacteria, fungi, and non-enveloped viruses.

Chloroxylenol

Inactivates bacterial enzymes. It is more effective against Gram-positive bacteria.

Hexachlorophene

Its effectiveness against Aureus is good but it is low against gram negatives and viruses

Iodine

It acts by disrupting protein synthesis and cell wall. Gram-positive-negative bacteria, viruses, fungi and myc. effective against tuberculosis.

Alkyl Benzalkonium Chloride

Acts on the cytoplasmic membrane. It is more effective against Gram positives.

Triclosan

Affects the cytoplasm membrane and RNA synthesis. It is used as an active agent in antimicrobial soaps. It is more effective against Gram positives.

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