CLOSTRIDIOIDES DIFFICILE INFECTION: LABORATORY DIAGNOSIS AND CONTROL STRATEGIES

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Introduction. *Clostridioides* (previously *Clostridium*) *difficile* has received much attention in the past decades due to its rapid spread and rising virulence. The reclassification of *Clostridium difficile* to *Clostridioides difficile* in 2016 was based on phenotypic, chemotaxonomic and phylogenetic analyses. The bacterium is an anaerobic, spore-forming, Gram-positive bacillus that that causes infectious diarrhea by producing two toxins - toxin A (an enterotoxin) and toxin B (a cytotoxin). *C. difficile* is spread via the oral-fecal route and in hospitalized patients may be acquired through the ingestion of spores from other patients, healthcare personnel's hands, or from environmental surfaces. The incidence and the severity of *C. difficile* infection (CDI) have been significantly increased globally during the last 20 years. CDI is a leading cause of antibiotic-associated diarrhea and one of the most common healthcare-associated infections resulting with high levels of morbidity and mortality.

Material and methods. The objective of the study was to carry out an analysis of the literature related etiology, epidemiology diagnostic methods and prevention measures of CDI. The bibliographic search was made using internet search medical databases as Medline (PubMed) and Scopus, as well as through the other relevant.

Results. After several decades the epidemiology of CDI noted a marked increase in incidence and severity, occurring at a disproportionately higher frequency in older patients. *C. difficile* exists in two forms: the vegetative form highly sensitive to oxygen and the heat-stable spore form, which is able to survive a variety of harsh conditions. The clinical picture is diverse and ranges from asymptomatic carrier status, through various degrees of diarrhea, to the most severe, life threatening colitis resulting with death (liquid diarrhea, dehydration, fever, appetite loss, and abdominal pain, which are often severe). The diagnostic methods have considerably progressed over the years. Multistep algorithms combining two or three assays can increase diagnostic accuracy of *C. difficile* infection and are recommended, especially when there are no institutional criteria for patient stool submission. The best performing diagnostic algorithm may differ in each institution, depending on test volume, patient population, laboratory work flow, and cost.

According CDC, the core strategies for the prevention of CDI in acute care facilities include: isolate and initiate contact precautions for suspected or confirmed CDI; confirm CDI in patients; perform environmental cleaning to prevent CDI; develop infrastructure to support cdi prevention; engage the facility antibiotic stewardship program.

Conclusions. Since the last decade, *C. difficile* has remained a major cause of attention in hospitals and also an important topic for research worldwide. Diagnosis is based on direct detection of *C. difficile* toxins in feces, and studies recommend multistep algorithms combining two or three assays. Appropriate use of antibiotics and contact precautions, for example, using gloves, hand washing, and environmental disinfection, along with integrated surveillance programs can be effective for the control of CDI outbreaks.