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Clostridium difficile infection

Jacobina A. Adamu
Otterbein University, adamu@otterbein.edu

Clostridium Difficile Infection

Adamu, BSN, RN
Otterbein University, Westerville, Ohio

Introduction

•Clostridium difficile infection (CDI) refers to bacterium that infects the gut thereby causing diarrhea
•It is a spore-forming bacterium that lives in the colon. It provides an environment that is favorable for multiplication of spores (Deshpande, Pant, Olyaee, & Donskey, 2018).
•The use of antibiotics can promote growth of Clostridium difficile
•Clostridium difficile produce toxins A and B which causes diarrhea and inflammation.
•Diarrhea is the most common symptom for Clostridium difficile
•Treatment involves stopping use of antibiotics
•Clostridium difficile infection tends to recur in the course of antibiotic treatment (Luo & Barlam, 2018).
•There are several treatment options for treating recurring Clostridium difficile infection
•Surgery is necessary when Clostridium difficile infections do not respond to other treatment regimens.

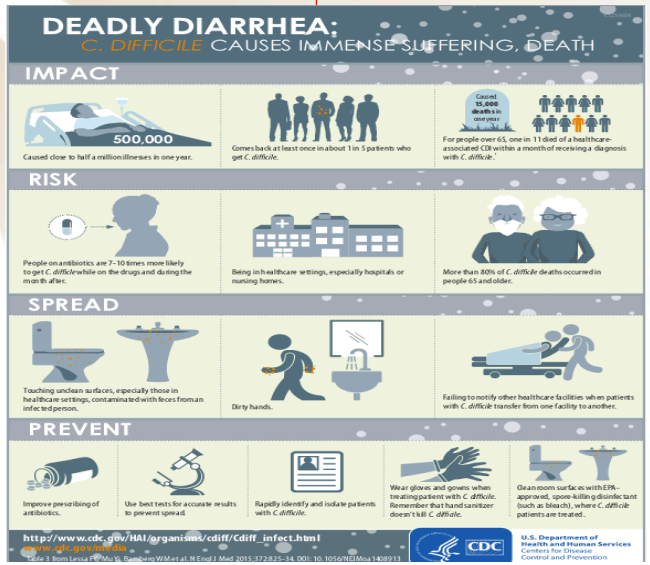
Problem Statement

- Clostridium difficile is a serious emerging healthcare issue
- It is a public health problem
- Nearly 500,000 infections and 29,000 deaths that occur annually in the U.S are attributable to Clostridium difficile infection
- This infection has led to an increase in the number of patients who need admission to ICU (Luo & Barlam, 2018)

The Topic of Choice

- The topic of choice for this presentation is Clostridium difficile infection
- The topic focuses on prevalence of this infection in the United States
- The pathogen is ubiquitous in nature
- The bacteria is commonly found in the soil (Deshpande et al.,2018).
- The bacterium appears as irregular cells when observed under a microscope
- The bacteria is tolerable to extreme conditions
- Produces multiple toxins
- There are multiple risk factors for Clostridium difficile infection
- Common risk factors include antibiotics, acid suppression medication, and elemental diet.

Illustration below retrieved From www.cdc.gov



Reasons for Choosing the Topic

- Clostridium difficile infection is an enormous healthcare issue yet underappreciated
- The public has limited knowledge on this issue
- There is dearth of information in regards to the particular type of antibiotics that cause CDI
- Is the leading cause of nosocomial infectious diarrhea
- This problem is associated with significant financial burden
- The economic impact of CDI is expected to increase in coming years (Desai, Gupta, Dubberke, Prabhu, Browne, & Mast, 2016).

Illustrative Figure

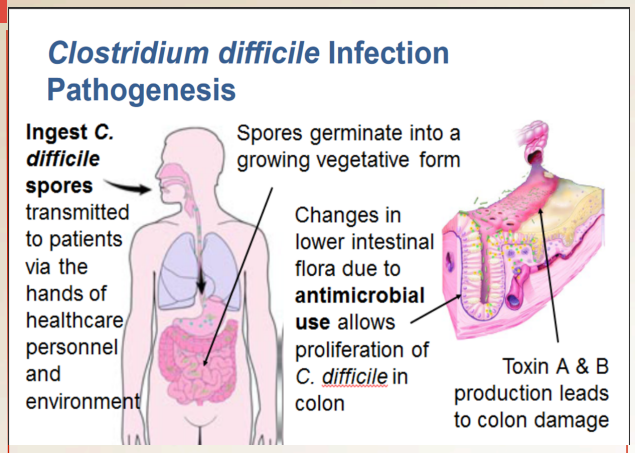


Illustration above retrieved From www.cdc.gov

Pathophysiological Processes

- The pathophysiology of Clostridium difficile infection occurs in three phases
- The three phases include microbial suppression, collateral damage, and a window of vulnerability.
- The microbial suppression phase entails the suppression of the protective ability of intestinal microbiota
- The suppression of intestinal microbiota is oftentimes caused by using antibiotics for treatments
- The collateral damage phase entails the disruption of the intestinal microbiota
- Bacterium comes close to epithelium
- The last phase is window of vulnerability
- This phase involves recurrence of the infection in the course of treatment (Luo & Barlam, 2018).
- Even though everyone is at risk of getting infected with Clostridium difficile, the degree of risk markedly varies.
- long-term use of proton inhibitors is associated with Clostridium difficile infection leading to increased morbidity and mortality rates (McDonald, E.G, Milligan, J., Frenette, C., Lee,T. C. 2015).
- Also some people get infected whiles others do not, because these individuals who get infected do not adhere to high levels of hygiene.
- Age 65 years and older are at risk
- Current or recent use of antibiotic (cdc.gov)

Signs & Symptoms

- Watery diarrhea three or more times a day lasting for at least two days
- Mild abdominal cramping and tenderness
- Blood in stool
- Rapid heart rate
- Kidney failure
- Swollen abdomen
- Increased white blood cell count
- Loss of appetite
- Dehydration
- Fever
- Weight loss (Lee, & Fishman, 2017)

Underlying Pathophysiology

- Clostridium difficile infections are either endogenous or exogenous
- Endogenous infection is caused by carrier strain
- Exogenous infection is acquired from contaminated healthcare providers (Ofosu, A. 2016).
- The infections spreads through the fecal oral route
- The infection occurs in the large intestine.
- Another factor may be host susceptibility and bacteria virulence.
- The multiplication of the bacterium causes severe damage to intestinal crypts (Deshpande et al.,2018)

Implications for Nursing Care

- There is a lot that needs to be known about Clostridium difficile infection especially early recognition and prevention of infection
- The infection impacts negatively on quality of healthcare delivery
- This infection has prompted search for alternative treatment options besides antibiotics
- Patients needs has become increasingly difficult hence the need for patient and family education.
- Nurses have a role in treatment and prevention of Clostridium difficile infection through enhanced contact precautions and meticulous hand hygiene (Desai, et al., 2016).

Significance of Pathophysiology

- Helps in early identification of signs and symptoms
- Allows physicians to choose appropriate treatment
- Is helpful when choosing preventive measures
- Reduces the risk of recurrence (Luo & Barlam, 2018)
- Helps in immediate isolation of infected individuals

Conclusion

- Clostridium difficile infection is a major healthcare concern yet-under-appreciated
- Causes significant morbidity and mortality
- Prevalence of this problem in the US has been increasing steadily in recent years
- There are multiple risk factors for Clostridium difficile infection
- The most prominent risk factor is antibiotic treatment
- The problem can be prevented by using alternative treatment options and adhering to meticulous hand hygiene.

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