VIBRIO, HELICOBACTER, CAMPYLOBACTER

Date: Thursday, January 3, 2019 – 10:30 am.


EDUCATIONAL GOALS AND OBJECTIVES

A reading and attending the lecture on Vibrio, Campylobacter and Helicobacter, you will be able to describe the mechanisms by which Vibrio cholerae, Campylobacter jejuni and Helicobacter pylori cause disease and the clinical syndromes they cause.

To achieve this goal you will be able to:

1. Describe the morphologic characteristics of each of the organisms.
2. List the differences between the classical and El Tor biotypes of Vibrio cholerae
3. Identify the adherence factor in Vibrio cholerae
4. Describe the molecular and physiological actions of cholera toxin
5. List the features of the disease cholera
6. Explain how oral rehydration can be accomplished with glucose-containing solutions in persons with cholera

7. Identify the reservoir and mechanism of transmission of *Campylobacter jejuni*

8. Identify two non-infectious diseases that may occur following infection with *Campylobacter jejuni*

9. Describe the clinical features of gastroenteritis caused by *Campylobacter jejuni*

10. List the important virulence factors of *Helicobacter pylori*

11. Describe how Helicobacter is able to thrive in the acid environment of the stomach

12. List the diseases associated with *Helicobacter pylori*

13. Identify the invasive and non-invasive tests for diagnosing infection with *Helicobacter pylori*.
INTRODUCTION

_Vibrio, Campylobacter, and Helicobacter_ are similar appearing enteric pathogenic bacteria which cause diarrheal disease (Vibrio and Campylobacter) or gastritis (Helicobacter).

_Vibrio cholerae_ is the cause of classic waterborne cholera, an exotoxin-mediated diarrheal disease occurring in almost yearly epidemics in Asia and Africa with less frequent spread to the New World. Worldwide pandemics are often associated with the appearance of a new strain of the bacteria. More than 1,000,000 cases occur yearly in India, South East Asia, South America, and parts of Africa. Recent devastating epidemics have occurred following natural disasters in Haiti and war in Yemen. Cholera is a rare disease in the United States. Cholera toxin is the major pathogenic mechanism responsible for its manifestations. Other vibrio species cause less severe diarrhea or septicemic wound infections associated with exposure to seawater.

Although discovered in the 1970’s, _Campylobacter jejuni_ is now recognized as an important cause of diarrhea throughout the world, including North America. Discovered even later, _Helicobacter_ (formerly _Campylobacter pylori_ has been associated with most inflammatory and ulcerative diseases as well as certain malignancies of the stomach and small bowel. Yes, peptic ulcer is an infectious disease that can be cured with antibiotics. Two Australian physicians, Drs. Marshall and Warren were awarded the 2005 Nobel Prize in Medicine for discovering _Helicobacter pylori_.