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Short Communication

Outcomes of Bacteriology in both Developed and Developing Countries

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DESCRIPTION

Bacteriology is the study of the relationship between bacteria and their medicine. Bacteriology evolved from doctors who had to apply pathogen theory in the 19th century to test concerns about food and wine spoilage. The identification and characterization of disease-related bacteria has led to advances in pathogenic bacteriology. Koch's postulate played a role in identifying the relationship between bacteria and certain diseases. Since then, bacteriology has made many successful advances, including effective vaccines such as diphtheria toxoid and tetanus toxoid. Some vaccines were less effective and had side effects. Bacteriology has also made it possible to discover antibiotics.

In developed countries, 90% of infectious diseases recorded in hospitalized patients are caused by bacteria. These cases probably reflect a small fraction of the actual number of bacterial infections that occur in the general population and usually represent the most serious cases. In developing countries, various bacterial infections often have devastating effects on the health of the population. Malnutrition, parasitic infections and poor hygiene are several factors that contribute to the increased susceptibility of these individuals to bacterial pathogens. The World Health Organization (WHO) estimates that 3 million people die of tuberculosis, 500,000 whooping cough and 25,000 die of typhoid fever each year. Diarrhea disorders and many of which are bacterial, are the second leading cause of death in the world (after cardiovascular disease), killing 5 million people annually [1].

Ideally, many bacterial infections can be considered adjustment disorders of the bacterium, as well adapted parasites propagate in their host without causing significant damage. Relatively non-toxic (ie, well-adapted) microorganisms can cause disease under certain conditions: abnormally abundant, impaired host defenses (eg, AIDS or chemotherapy), or the presence of anaerobic conditions. Pathogens make up a small part of the bacterial species. Many non-pathogenic bacteria are beneficial to humans (i.e., the gut micro biota produces vitamin K) and are involved in important processes such as nitrogen fixation, waste decomposition, food production, drug preparation and environmental bioremediation [2,3].

Bacteria are microscopic, single-celled organisms that exist in their millions, in every environment, both inside and outside other organisms. Some bacteria are harmful, but most serve a useful purpose. They support many forms of life, both plant and animal, and they are used in industrial and medicinal processes.

Bacteria are single celled organisms. They lack organelles such as chloroplasts and mitochondria, and they do not have the true nucleus found in eukaryotic cells. Instead, their DNA, a double strand that is continuous and circular, is located in a nucleoid. The nucleoid is an irregularly shaped region that does not have a nuclear membrane. Bacteria also have a cell membrane and a cell wall that is often made of peptidoglycan. The cell membrane and cell wall are collectively called the cell envelope. Many bacteria need a cell wall to survive.

Reproduction is caused by a binary division in which bacterial cells divide after reaching a certain size. Bacteria reproduce asexually, so the two daughter cells that result from dichotomy have the same DNA as the parent cell. However, some bacteria can also exchange genetic material between them, known as horizontal gene transfer. This method uses two existing bacteria. It is not a form of parent-to-child transmission.

Infections caused by antibiotic resistant bacteria are becoming more and more important in both hospitals and the general public. In recent years, drug resistant bacteria of gram-positive clostridium difficile have emerged worldwide and have been identified as the causative agent of intestinal infections with high mortality and morbidity [4,5].

CONCLUSION

Gram-negative bacterial infections that are resistant to both first-line and second-line treatments are also more common. Early diagnosis and better understanding of the virulent properties of these bacteria should lead to the development of more appropriate therapeutic interventions. Preventing the spread of clostridioides difficile and multidrug resistant gram-negative

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bacteria is an important issue in nosocomial infection control. Ahealthy and diverse intestinal flora is considered to be an important defense mechanism against colonization [6,7].

Fecal Micro Biota Transplantation (FMT) is recognized as the standard treatment for recurrent. Difficile infection and is being studied for the eradication of multidrug-resistant bacteria from the intestinal tract. Other diseases that affect the imbalanced micro flora in the intestinal tract, such as Inflammatory Bowel Disease (IBD) and Irritable Bowel Syndrome (IBS), are also being considered for FMT treatment and the exact content of the donor's feces.

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