What Are Antimicrobial Agents?

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Antimicrobial agents are certain types and essential components used to kill or hinder the growth of microorganisms. These components are used in treating various types of ailments and even limiting and preventing the growth of certain microbes on the surfaces of both living and non-living things. Antimicrobial agents are not only limited to antibiotics; disinfectants and antiseptics have also become included as separate categories. However, antibiotic agents have become a major focus in recent times to enhance the treatment of bacterial diseases. The version of resistant strains of bacteria in the current world has contributed to the advancement in the antibacterial sector more than the concentration given to disinfectants and antiseptics. Antibiotics destroy pathogenic microbes within the body. The essay, therefore, seeks to explore the categories of antimicrobial agents and the differences between viral and bacterial ailments. Finally, it shows the reason why the identification of the infection is critical in determining the best antimicrobial to be used.

Categories Of Antimicrobial Agents

The main categories of antimicrobial agents include antibiotics, disinfectants, and antiseptics. Firstly, the terminology antibiotics refer to the use of specified medications and drugs like sulphonamides and fluoroquinolones to treat infections caused by pathogenic microorganisms such as staphylococcal aureus. The antibiotics can be further subdivided into antibacterial, antifungals and antivirals (Monitoring, 2016). Antibacterial agents are those medicines specified to treat bacterial infections; antivirals are used against viruses, while antifungals, as the name suggests, are used against fungal infections. The infectious agents have proved to be resistant to certain antibiotics, and this is posing a threat to humans globally. The second category of antimicrobial agents is disinfectant, which is the chemical constituent used to kill a wide range of pathogenic microorganisms on the surfaces of non-living objects, such as on floors, beaches, and drainage systems. The utilization of disinfectants helps to inhibit the spread of pathogenic infectious agents from the surfaces to the body of the living (Harbarth, 2014).

Disinfectants include bleaching agents such as chlorine and Jik, among others, subjected to low concentrations as 10 per cent concentrated. Antiseptics serve as the third group of antimicrobial agents. Also, it is a chemical element applied to living soft tissue that is injured or accidentally cut. It helps in minimizing the infection, especially during the surgery process. Some types of antiseptics include Dettol and iodine solutions. Further, antiseptics are used to remove pathogens on the surfaces of hands after a laboratory experiment.

Differences Between Viral And Bacterial Infections

Bacterial infections are caused by single pathogenic cell prokaryotic bacteria that increase their multiplication in the body. The infections are severe and cause death when not treated. These ailments get treated through the use of antibacterial drugs taken by the patient as prescribed by the physician. However, overuse of the antibacterial drugs can enhance resistance strains of the bacteria being treated to develop in the body. Bacterial infection can also be identified in the laboratory. A microbiologist can culture bacterial pathogens in the lab and identify the type of bacteria affecting the individuals through the identification and characterization of the bacteria, especially via gram staining and other biochemical tests of that particular bacterium (Bosch et al., 2013). On the other hand, viral infections are caused by viruses, pathogenic microorganisms that replicate within a host. Viral infections occur when the responsible virus is within the patient.

Unlike bacterial ailments, virus infection is species-specific, meaning certain strains of the virus only affect a specific species where it can grow and replicate accordingly. The viruses have a behaviour of hiding within the body cells, and when the person experiences a weak immunity system, they cause an attack again in the body. Some antiviral drugs are used for the treatment of viral infections. However, most viral ailments do not have specified treatment, while the doctor prescribes some antibiotics like paracetamol only to reduce the body's fever. Unlike bacteria that are cultured in the lab, identification of viruses becomes difficult since viruses cannot be cultured in the laboratory.

The proper identification of bacterial and viral infections is key to selecting a proper antimicrobial agent to avoid the risks of resistance of pathogenic microbes to drugs. Most viruses and bacteria have evolved the resistance mechanism in the body. Therefore, improper identification of these microorganisms can lead to improper drug prescription, leading to resistance (Brooks, 2014). Therefore, proper identification will help in allocating drugs that specifically target the infection, thus preventing the pathogen from fostering infection.

Conclusion

The essay has focused on antimicrobial agents and bacterial and viral infections. The antimicrobials help minimize and treat the infections, thus preventing the risk of death. However, when these antimicrobials are misused, resistance can occur to the strains of the microbes being prevented.

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