

Perspective

Synthesis of Biological Changes with Inflamations in Human Body

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DESCRIPTION

Inflammation is the biological response of body tissues to harmful stimuli, such as pathogens, damaged cells, or irritants and is a protective response which involves immune cells, blood vessels, and molecular mediators. It eliminates the starting cause of cell injury, clear the necrotic cells and tissues damaged from the inflammatory process and starts the tissue repair. The major sign and symptoms of inflammation are heat, pain, redness, swelling and loss of function. Moreover, it is a generic response as it involves mechanism of innate immunity.

Anti-inflammatory, refers to a substance that reduces inflammation or swelling. Anti-inflammatory drugs consists mainly of analgesics, which reduces pain by reducing inflammation and opioids, which affect the central nervous system by blocking pain signal to brain. The enzyme synthesizes prostaglandins that produces inflammation. As whole, the NSAIDs prevent the prostaglandins from being synthesized, eliminating the pain.

Antimicrobial drugs are either bactericidal (they kill microbes directly) or bacteriostatic. In bacteriostasis, the host's own defenses, such as phagocytosis and antibody production, usually destroys the microorganisms. Antimicrobial agents are substance that kill or inhibit the growth of microbes such as bacteria, (antibacterial activity), fungi (antifungal activity), viruses (antiviral) or parasitic (antiphrastic activity).

Bacteria is a tiny organism consisting of one single cell. They reproduce in approximately every twenty minutes by dividing in two. This means that, one bacterial cell can produce over one billion new bacteria. Bacteria are present in wide-variety of shapes, i.e from spheres to rods to spirals. These are omnipresent, they grow in soil, acidic hot springs, radioactive waste, seawater, and deep in the earth's crust. Bacteria are important in recycling of nutrients and helps in fixation of nitrogen from the atmosphere. Characterization of bacteria has been not done completely. Till now half of the bacteria can be cultured in laboratory.

The human body contains a large number of microorganisms, such as bacteria, fungi and archaea. Those microorganisms that do not cause disease, are termed normal flora. Bacteria are present in wide variety of shapes and sizes, called morphologies.

Bacterial cells are about 10 times smaller than eukaryotic cells and are typically 0.5-5.0 micrometers in length. However, a few species, for example Thiomargarita namibiensis and Epulopiscium fishelsoni are up to half a millimeter long and are visible to the unaided eye. Among the smallest bacteria, Mycoplasma, which measure only 0.3 micrometers, as small as the largest viruses. Most bacterial species are either spherical, called cocci (sing. coccus, from Greek kókkos, grain and seed) or rod-shaped, called bacilli (sing. bacillus, from Latin baculus, stick).

Some rod-shaped bacteria, called vibrio, are slightly curved or commashaped; others, can be spiral-shaped, called spirilla, or tightly coiled, called spirochetes. A small number of species even have tetrahedral or cuboidal shapes.

The shape influences the ability of bacteria to acquire nutrients, attach to surfaces, swim through liquids and escape predators. It is estimated that 500 to 1,00,000 species of bacteria reside in the human body.

Bacterial cells are much smaller than human cells and there are about ten times as many bacteria as human cells in the body (1000 trillion (1015) *versus* 100 trillion (1014)). Though normal flora is found on all surfaces exposed to the environment (on the skin and eyes, in the mouth, nose, small intestine, and colon), the vast majority of bacteria live in the large intestine.

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Received: 02-Jan-2023, Manuscript No.CPECR-23-19922; Editor assigned: 04-Jan-2023, Pre QC No. CPECR-23-19922 (PQ); Reviewed: 18-Jan-2023, QC No CPECR-23-19922; Revised: 23-Jan-2023, Manuscript No. CPECR-23-19922 (R); Published: 03-Feb-2023, DOI: 10.35248/2161-1459.23.13.344

Citation: Radnus E (2023) Synthesis of Biological Changes with Inflamations in Human Body. J Clin Exp Pharmacol. 13:344.

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