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Clinical Aspects of Phage Therapy

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Description

Phage therapy, viral phage therapy, or dietary therapy is the therapeutic use of bacteriophage to treat pathogenic bacterial infections. Bacteriophage, also called phage, is a type of virus. Phage attaches to bacterial cells and injects the viral genome into the cells. The viral genome effectively replaces the bacterial genome and stops bacterial infections. The bacterial cells that are causing the infection cannot proliferate and instead produce additional phage. Phages are highly selective in bacterial strains for which they are effective.

Benefits include fewer side effects and a lower risk of bacterial development of resistance. The disadvantage is that it is difficult to find effective phage for a particular infection. However, toxic phage can be easily isolated from the environment, much faster than other compounds and natural products. In addition, the development of standardized manufacturing processes will significantly speed the delivery of phage from the laboratory to the clinic.

Phages are often compared to antibiotics. Phages are usually more successful than antibiotics when the biofilm is covered with a layer of polysaccharides that antibiotics normally cannot penetrate. Bacteriophage is much more specific than antibiotics. As a rule, they are harmless not only to the host organism but also to other beneficial bacteria such as the gut microbiota, reducing the possibility of opportunistic infections. They have a high therapeutic index. This means that there are few side effects even when the phage therapy is higher than the therapeutic concentration. Phage replicate in vivo (in vivo cells), so lower effective doses can be used.

Phage as a specific living, dynamic and evolving entity does not easily fit into current categories, norms, and development models. In this sense, they act as destroyers and show the limits of existing infrastructure. More specifically, to continue Chandler's first train of thought, this post also shows that antibiotics also form a sort of epistemological infrastructure that acts as a powerful inhibitor of the development of phage therapy. The purpose is that with this in mind, antibiotics prevent the development of solutions to the problems they contribute to. Due to the lack of data from RCTs, phages are currently used only in complex cases of patients who have failed treatment and are always associated with antibiotic treatment. However, the possible uses are diverse and it is entirely conceivable that some of them can be used in place of antibiotics. Therefore, they have the potential to control some existing super bacteria, while limiting the emergence of new ones by limiting the use of antibiotics. Possible uses go far beyond human health, such as biological control, animal health, and the environment.

However, phages, dynamic and evolutionary beings, are assembled, classified and classified as chemical molecules, as we have shown. In extending Chandler's set of ideas, antibiotics can be thought of as an epistemological infrastructure that represents an obstacle to the development of phage therapy and imposes restrictions as well as the notions of treatment and cure on the basis of eradication. Again, the importance of RCTs cannot be ruled out, only problems and assumptions regarding RCT design are shown.

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