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Some Technologies and Methods for Prevent and Treatment of Infectious Diseases

			
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ABSTRACT

Infectious diseases are caused by many microorganisms such as bacteria, viruses, parasites and fungi, which transmitted directly or indirectly from person to another. The good idea is for detection new or developed methods for prevent and controlling on these disease. Some of these methods includes, using of transgenic plants for producing of surface antigens which used in immunization, Targeted therapy of infections by using nanoparticles for production of drug with high activity, DNA technology for diagnosis of infectious disease and production of vaccine, Probiotic bacteria for treatment of infectious disease and finally fighter of antibiotics resistant. Results and conclusions includes, providing drug with high activity and low cost, safe vaccines and developing new method for preventing and treatment.



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INTRODUCTION:

Infectious diseases are diseases that caused by pathogenic microorganisms, which includes bacteria, viruses, parasites or fungi. These diseases are spread of from person to another in direct or indirect methods. Other diseases can transmitted from animals to human and cause diseases which called Zoonotic diseases[1].

Technologies and Methods:

1-Transgenic plants:

Disease control was made by plant having genetically modified, the goal for researcher is producing toxic molecules carrying insect and for producing vaccine with low cost, which can be grown or freeze dried and shipped at the world such as production of hepatitis B surface antigens in transgenic plants for oral immunization [2].

2-Targeted Therapy:

Some antibiotics having hydrophilic nature, and these features prevent capacity to penetrate cells, further more the internalized molecules are accumulated in lysosomes due to low bioactivity of drug, and lower activity against intercellular pathogens[3,4].

Drug delivery system (DDS) was suggested for passive targeting of infected cell of the mononuclear phagocystic system to enhance therapeutic index of antimicrobials in the intercellular environments and low side effect comparable with antibiotics[5]. By using nanoparticle targeting intracellular bacteria, the residue of high concentration of antimicrobial drug at site of infection occurred by nanoparticle target with low dose of drug. Nanoparticle can be targeted at site of infection passive or active. The passive targeted nanoparticle undergo extravasations at site of infection. Actively targeted nanoparticles contain on ligand (eg .antibodies) that binds for receptors (e.g. antigens) at site of infections [6].

Chemotherapeutical using of passive target to cells and organs of reticulo -endothelial system has been a significant area for treatment of chronic disease. The component of reticulo-endthelial system are site for clearance and nanoparticles localization [7].

3-DNA Technology:

The new forms of chemotherapy and vaccines can be made by genome sequencing of major infectious agent [8,9]. Pure antigen for hepatitis B virus was produced in other organisms by Recombinant DNA technology for developing of safe vaccines, Lately using DNA itself as vaccine antigen It may be possible for genetically engineer disease vector to make them unable for transmitting particular organism after mosquito genome was sequenced [10], PCR using as rapid diagnostic test for new organism identification and observation vaccine trial [11].

4- Probiotics using for infectious disease treatment:

Probiotics a good bacteria using for describe or as a replacement for native gut bacteria. It was identified by World health organization as live microorganisms that when consumed in adequate amount as part of food, give a health benefit on the host [12]. The content of intestinal flora may altered by exposing for infectious disease. The talking a probiotics during this time will work by balancing the intestinal flora to prevent growth of bad bacteria [13].

5-Fighter spread of Antibiotic resistant:

For fighter spread of antibiotic resistances:

For patients:

- 1- Antibiotics was taken exactly as the doctor prescribe, same dose.
- 2-The patient must be taken of antibiotics as prescribed by doctor, and not share with other antibiotics or use another.
- 3- The antibiotic must be not saved for other illness and discard any leftover medication that give after course of treatment was finished.
- 4- avoid the asking on antibiotics when your doctor thinks do not need them.

For Doctors and Nurses:

- 1- The types of drug resistant infection in your facility should be known when it occurred and make immediate alerts when identified by laboratory.
- 2- Make alert when the patient with drug resistant infections transfer from place to another.
- 3-The patient should be protected from drug resistant infections.
- 4- The relevant guidelines and precautions should be followed at every patient encounter.
- 5- Wisely antibiotics prescribe.
- 6- The temporary medical device such as catheters and ventilators should be removed after the completion of the need for it [14].

Results:

Developing and spread of infectious diseases can be prevented by using new technology and methods and these method must be also developed and renewal for new infectious agents. These method must be provide:

- 1- production of safe and new vaccines.
- 2- production of drug with higher activity and low cost.
- 3- using of good bacteria for treatment of disease.
- 4- Fighter and prevent of antimicrobial resist microbes.

Conclusions:

Infectious diseases should be prevented by new methods, technologies and drugs which having low cost with higher activity. Fighter of antimicrobial resist microbes must be achieved.

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