Namazi Exp J Forensic
Med Volume 6:2, 2021

Journal of Forensic Medicine

Commentary Open

Drug Delivery

H. Namazi

Department Pharmaceutical Nanotechnology, Tabriz University of Medical Science, Tabriz, Iran

Introduction

Drug delivery refers to approaches, formulations, technologies, and systems for transporting a pharmaceutical compound within the body a short time supported nanoparticles as needed to securely achieve its desired therapeutic effect.

Medications are often taken during a kind of ways—by swallowing, by inhalation, by absorption through the skin, or by injection . Each method has advantages and disadvantages , and not all methods are often used for every medication.

Drug delivery systems are engineered technologies for the targeted delivery and/or controlled release of therapeutic agents. Drugs have long been used to improve health and extend lives. The practice of drug delivery has changed dramatically within the past few decades and even greater changes are anticipated within the near future. Biomedical engineers have contributed substantially to our understanding of the physiological barriers to efficient drug delivery, like transport within the circulatory system and drug movement through cells and tissues; they have also contributed to the event several new modes of drug delivery that have entered clinical practice.

Yet, with all of this progress, many drugs, even those discovered using the foremost advanced biology strategies, have unacceptable side effects because of the drug interacting with healthy tissues that are not the target of the drug. Side effects limit our ability to style optimal medications for several diseases like cancer, neurodegenerative diseases, and infectious diseases. Administering drugs locally rather than systemically (affecting the whole body) could also be a standard because of decrease side effects and drug toxicity while maximizing a treatment's impact. A topical (used on the skin) antibacterial ointment for a localized infection or a cortisone injection of a painful joint can avoid variety of the systemic side effects of these medications. There are other ways to understand targeted drug delivery, but some medications can only tend systemically.

Microneedle arrays are one example of a replacement method to deliver medications through the skin. In these arrays, dozens of microscopic needles, each far thinner than a strand of hair, are often fabricated to contain a medicine . The needles are so small that, although they penetrate the skin, they don't reach nerves within the skin, thus delivering medications painlessly.

NIBIB-funded scientists are developing such a patch with an array of dissolvable microneedles for vaccine delivery. These patches are easy to use and do not require refrigeration or special disposal methods, so as that they could be used by patients themselves reception . This technology could be especially helpful in low-resource communities which can not have many health care providers or adequate storage facilities for traditional, refrigerated medicines.Biotechnology advances are leading to improved medications which can target diseases more effectively and precisely. Researchers have begun to reformulate drugs so as that they might even be more safely utilized in specific conditions. The more targeted a drug is, the lower its chance of triggering drug resistance, a cautionary concern surrounding the use of broad-spectrum antibiotics.

Nanotechnology is opening up new avenues for drug delivery vehicles. NIBIB-funded researchers have reported promising results in developing a treatment for glioblastoma, a devastating brain cancer. In rat models of the disease, they have shown that tumors are often penetrated and shrunken when injected with nanoparticles. The nanoparticles target the tumor by delivering an altered gene, or suicide gene, that's programmed for necrobiosis . The nanoparticle method replaces a sort of gene therapy using viruses, which can have unpredictable outcomes.

Other NIBIB-funded researchers are developing a system of drug delivery employing a kind of bacteria that features a two-part navigation system—magnetic and oxygen sensing. they have tested the delivery system in mice, achieving a stimulating success delivering drugs to tumors. The bacteria seek out oxygen-poor zones, which are a feature of tumors. employing a computer-programmed magnetic flux to direct the bacteria to tumors, the researchers found that the bacteria were drawn deep into the oxygen starved tumors, away from healthy cells. This process could open the door for guiding drug-laden bacteria to tumors deep within the body.

***Address for Correspondence:** H. Namazi Department Pharmaceutical Nanotechnology, Tabriz University of Medical Science, Tabriz, Iran, E-mail: namazi_h@gmaill.com*

***Copyright:** © 2021 H.Namazi, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted Iran, distribution, and reproduction in any medium, provided the original author and source are credited.*

Received March 09, 2021; **Accepted** March 23, 2021; **Published** March 30, 2021