

DRUG DELIVERY: DEVELOPMENT, FACTORS AND THERAPEUTIC OUTCOMES

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COMMENTARY

Drug delivery involves methods, formulations, production strategies, storage systems, and technologies involved in transporting a combination of drugs to their intended destination to achieve the desired therapeutic effect. Principles related to drug invention, administration route, location identification, metabolism, and toxicity are used to improve efficiency and safety, as well as to improve patient comfort and compliance. Drug delivery is aimed at altering the pharmacokinetics of a drug and its specificity by formulating it with different compounds, drug carriers, and medical devices. There is an additional emphasis on increasing bioavailability and duration of treatment to improve therapeutic outcomes. Other studies have also focused on improving the safety of the pharmacist. For example, several types of microneedle tablets have been developed to provide vaccines and other drugs to reduce the risk of needle injury. Drug delivery is a concept that is closely linked to dosage form and administration route. Although the management route is often used in exchange for drug delivery, both have different concepts. Administration route refers to the route a drug takes to enter the body, while drug delivery involves delivery systems engineering and may include different dosage forms and devices used to deliver the drug through the same route. Common methods of administration include oral, injection, subcutaneous, transdermal, inhaled, rectal, and vaginal, however drug delivery is not limited to these routes and there may be several ways to deliver medication per route. Since the approval of the development of the first regulated release, research into new delivery systems has been on going, as opposed to the development of new drugs that have been declining. There are a number of factors that may contribute to this change in concentration. Other factors that may contribute to the increase in drug delivery system development may include an increase in chronic and infectious diseases, as well as a general understanding of the pharmacology, pharmaco-

kinetics, and pharmacodynamics of many drugs. Targeted drug delivery is the delivery of a drug in its place without affecting other tissues. The interest in targeted drug delivery has grown significantly due to the potential effects of treating cancer and other chronic diseases. In order to achieve effective target delivery, the designed system must avoid host protection mechanisms and revolve around its intended destination. The formulation of controlled or modified dosage changes the rate and time at which the drug is released, in order to produce adequate or continuous drug induction. This time we saw more drugs being developed as CR, with the introduction of transdermal patches to allow the drug to absorb less of the skin. Since then, dozens of other CR products have been developed to address the physiochemical properties of various drugs, such as injectable injections of antipsychotics and sex hormones that need to be injected once every few months. Medicinal preparations containing peptides, proteins, antibodies, genes, or other biologic components often suffer from absorption problems due to their large size or electrostatic charges, and may cause enzymatic degradation once they enter the body. For these reasons, recent drug delivery efforts have focused on ways to prevent these problems through liposomes, nanoparticles, synthetic proteins, and many others. Intracellular delivery of macromolecules by chemical carriers has significantly improved RNA-based vaccines in COVID-19, and proteins are also delivered to vivo cells and DNA is normally delivered in vitro.

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DECLARATION OF CONFLICTING INTERESTS

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