

Overview on Drug Delivery System

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Introduction

It is the process of administering of a therapeutic substance in the through one of the common rout of administration to achieve a therapeutic effect in humans or animals. The most critical points in this field are the improvement in drug efficacy and safety. Moreover, drug delivery system specifically focus on the synthesis of target therapy i.e., the drugs will release their active ingredients only in the target area of the body so in this case the released of the drug within a period of time will mainly controlled through its formulation. So in this case the targeted therapy will design in a way that it will reach its intended site of action without being in contact with the host's defense mechanism.

Drug Delivery Route

There are various anatomical routes which thought them medical drugs can be administered into the human body. The selection of the route depends on three factors which are: the effect desired, the type of the disease and finally the type of the product. Medical drug will be administered either directly to the organ which suffer from disease or given systematically and targeted to the infected organ. The most common routes of drug administration include the following:

- Oral route- this is the oldest route which has been used for conventional and novel drug delivery. The main two reasons for considering this route is the highly preferred one are ease of administration and the highly accepted and/ or comfortable for the patients.
- Parenteral route- This route or term means the introduction of medical therapy into the patient body through different routes other than oral route, these routes include intramuscular, intravenous, intra-arterial and subcutaneous route. This route considered as a very important role in the medical field and many drugs now a day's synthesis to be administered by this route.

- Transdermal route- In this route the medical treatment will apply on the body surfaces such as the skin and / or mucous membrane. This route of administration significantly associated with local effect rather than systemic effect. Moreover, this route will transfer the active ingredients directly to the systematic circulation without gastrointestinal and/ or liver metabolism.
- Inhalation route- In this type of medical treatment application route, the medical treatment will directly reach the lungs, by this way this route considers the route of choice to avoid systemic effect i.e., increase the bioavailability of the drug in the system. This route consider as the first choice in the treatment of respiratory diseases.

Drug Delivery System Development

In the recent years the researchers in the pharmaceutical and industries develop a more sophisticated and potent drugs. Most of these drugs mainly consist of protein and/ or DNA, these drugs characterize by their ability to liberate their bioactive ingredients at the right time, site and in safe concentration i.e., control toxicity. To address these challenges, bioengineers are designing platforms that are biocompatible, biofunctional, and/or biomimetic. Moreover, these techniques i.e., controlling the time, site and concentration of active ingredients release will be used for the drugs which usually have narrow therapeutic window and high toxic level these points make traditional methods of drug delivery ineffective.

Conclusion

Therefore it is a very important point for the open access journals to encourage researchers and clinicians to work hard in order to develop these techniques in order to produce highly potent and sophisticated drugs with low side effects.

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