

Short Notes on Controlled Drug Delivery Systems

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COMMENTARY

The method of drug delivery play a major role based on the drug's ability to show its efficacy. There are drugs which show maximum effect with minimal concentration and there are drugs which show minimal effect with maximum concentration. Thereby, based on the drug type, efficacy, concentration and its therapeutic action, the dosage form is formulated. There are certain parameters that take charge of the dosage forms which play crucial role in the formulation of the drug or dosage form. The new ideas draw a path for the development of drug with respect to the pharmacokinetics, pharmacodynamics, toxicity, immunology and efficacy related parameters. The drug delivery systems are classified into several forms based on the mode of action and pattern of drug release, such as and by the application of new strategies such by controlling the drug release based on the pharmacological parameters are called as Novel drug delivery systems. There are different types of novel drug delivery systems.

Types of novel drug delivery systems

1. Oral drug delivery systems
2. Mucosal drug delivery systems
3. Nasal drug delivery systems
4. Buccal drug delivery systems
5. Ocular drug delivery systems
6. Transdermal drug delivery systems
7. Parenteral drug delivery systems
8. Targeted drug delivery systems

The controlled drug delivery systems (CDDS), are one of the novel drug delivery systems. These are formulated for maintaining the concentration of the drug within the therapeutically effective range. The main aim of this CDDS are that, instead of giving the medication frequently, the drug start releasing in systematic manner,

such that the frequency of drug intake as well as the toxicity can be minimized. The CDDS are having the different concepts based on the drug release, such as; sustained release or prolonged release, targeted release, controlled release and modulated release. The sustained release generally starts releasing of the drug with an initial therapeutic dose, once administered and thereby in an interval of time, the other dose releases in a slow manner. This controlled release of the drug takes over a control on the concentration of the drug as well as the targeted area such as target to the tissue or organ etc.

The targeted drug delivery refers to the administration of the drug with the pre-formulated capsules which has the tendency to target straight away to the targeted organ or tissue. In the field of the pharmaceuticals, the sustained release systems are been widely used in the oral medication. Controlled release systems can be either programmed or pre-programmed and sometimes self-programmed.

Activities of Novel drug delivery systems

- Reduces the drug intake frequency
- Improves patient compliance
- Reduces fluctuation of drug levels in blood
- Stabilizes medical condition

There are several advantages of the CDDS which includes certain therapeutic effects that reduce the drug plasma concentration. The adverse effects can be improvised and also patient comfort can be obtained. Most importantly, the reduction in the health cost is seen as in comparison with those of the conventional dosage forms. Therefore, these dosage forms lead for the better patient compliance.

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CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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