



Novel approach of targeted drug delivery system and its application

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Abstract

The novel drug delivery system is the new and advance method for treating the disease. From the era when the therapeutic response of drug depends mainly upon the interaction of drug molecules with the cell on the cell membrane- related Biological receptors. To achieve this goal the correct amount of drug has to be delivered to the site of action along with simultaneous control of the drug input rate. Generally after administration of drug located carrier's through only rate undesired bio distribution of drug molecule systemic administration of drug molecules limitations viz, rapid clearance from the systemic circulation either by metabolism inhibited penetrate target tissues or undesired non- specific uptake by sensitive normal tissue or cell cells

Keywords: microencapsulation, microspheres, dendrimers

Introduction

The novel drug delivery system is the side specific drug delivery system. It is new approach of pharmaceuticals by the using of the this technique, in this technique the micron size particle is used for the drug carrier for the drugs the drug is inserted in the polymers and dendrimer and then it injected in the body and give the specific action New drug delivery system development is largely based on promoting the therapeutic effects of a drug and minimizing its toxic effects by increasing the amount and persistence of a drug in the vicinity of a target cell and reducing the drug exposure of non-target cell .This is still largely based on Paul Ehrlich’s magic bullet concept

Benefits and importance of targeted drug delivery system

- They provide improved or unique clinical benefits, such as
- a. Improvement of patients' compliance
 - b. Improved outcomes
 - c. Reduction of adverse effects
 - d. Improvement of patients’ acceptance of the treatment
 - e. Avoidance of costly interventions such as laboratory services
 - f. Allowing patients to receive medication as outpatients, and possibly
 - g. A reduction in the overall use of medicinal resources

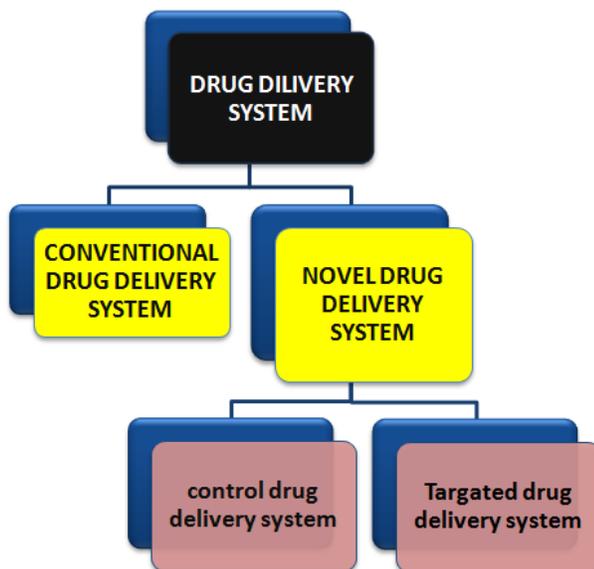


Fig 1

Conventional drug delivery system

The drug delivery system used from ancient time for administration of drugs for the systemic effect and desired therapeutic effects

Eg. Tablets, Capsules, Powders, Granules

Novel drug delivery system

The drug delivery system involves administration of dosage forms to the particular site of action receptor milieu or to target site of specific type of drug delivery

Objectives

Site specific: Maintain concentration and biodegradable

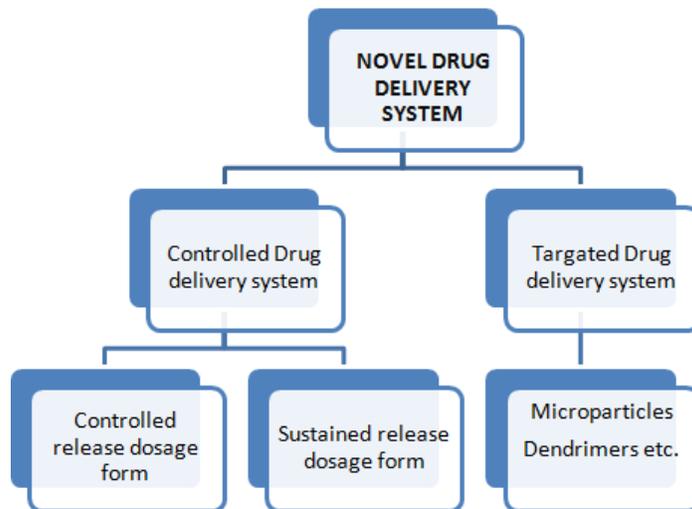


Fig 2

Targated Drug Delivery System (TDDS)

It is the part of the Novel drug delivery system in this system the microparticals (microspheres and is used microcapsules) dendrimers are use to treat the disease

1. Microencapsulation: Microencapsulation is a means of applying thin uniform coatings to microparticles of solids dispersion or droplets of liquids

- Microcapsules are small particles that contain an active agent (core material) surrounded by a shell or coating.

- Their diameters generally range from a few microns to a few millimetres.
- Microcapsules can have many different types and structures:
 - a. simple droplets of liquid core material surrounded by a spherical shell (Microcapsules)
 - b. irregularly-shaped particles containing small particles of solid core material dispersed in a continuous polymer shell matrix) microspheres).

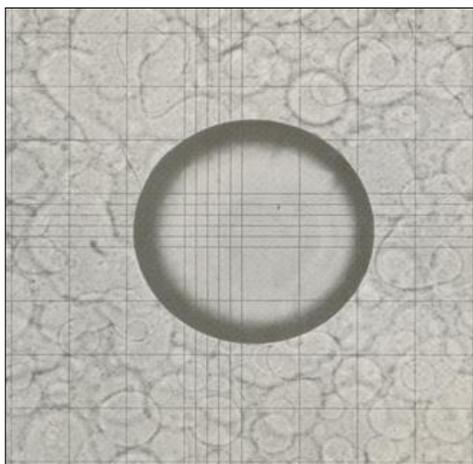


Fig 3

Microencapsulated liquid

Application of microencapsulation

Four important areas of microencapsulation application are:

1. The stabilization of core materials
2. The control of release or availability of core materials
3. Separation of chemically reactive ingredients within a tablet or powder mixture.
4. Taste-masking.

Dendrimers

Dendrimers are a new class of polymeric materials. They are highly branched, mono-disperse macromolecules. The structure of these materials has a great impact on their physical and

chemical properties. As a result of their unique behaviour dendrimers are suitable for a wide range of biomedical and industrial applications.

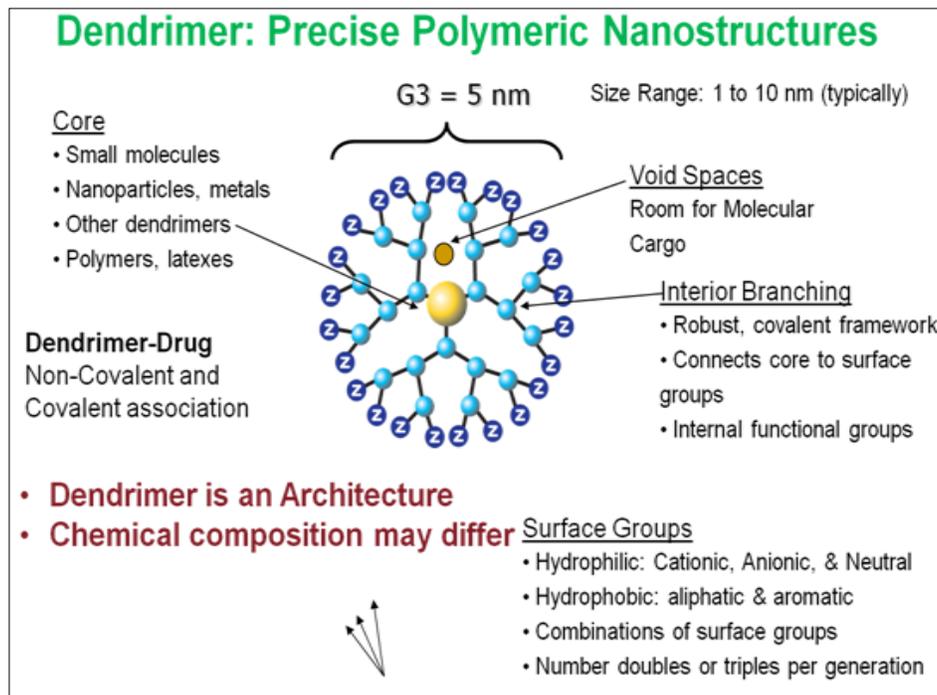


Fig 4

- Dendrimers ability to succeed as a drug delivery system depends upon the ability to readily structure control their six “critical nanoscale design parameters “
- size
- shape
- surface chemistry
- flexibility/
- rigidity
- architecture
- elemental composition

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