

Transdermal Drug Delivery Systems

Introduction

Transdermal drug delivery system is defined as the topically administered medications in the form of patches which when applied to the skin deliver the drug, through the skin at a predetermined and controlled rate. Transdermal patches are delivered the drug through the skin in controlled and predetermined manner in order to increase the therapeutic efficacy of drug and reduced side effect of drug. For effective Transdermal drug delivery system, the drugs are easily able to penetrate the skin and easily reach the target site

Transdermal formulation maintain drug concentration within the therapeutic window for prolong period of time ensuring that drug levels neither fall below the minimum effective concentration nor exceed the maximum effective

Benefits of transdermal drug delivery system

1. Avoidance of first pass metabolism of drugs.
2. Transdermal medication delivers a steady infusion of a drug over a prolonged period of time
3. The simplified medication regimen leads to improved patient compliance and reduced the side effects, inter and intra-patient variability.
4. No interference with gastric and intestinal fluids.
5. Maintains stable or constant and controlled blood levels for longer period of time.
6. Comparable characteristics with intravenous infusion

Drawbacks of transdermal drug delivery system

1. The possibility of local irritation may develop at the site of application. Many problems like Erythema, itching, and local edema can be caused by the drug, the adhesive, or other excipients in the patch formulation.
2. Many drugs with a hydrophilic structure having a low penetration through the skin and slowly to be of therapeutic benefit. Drugs with a lipophilic character, however, are better suited for transdermal delivery.
3. The barrier function of the skin changes from one site to another on the same person, from person to person and with age.

4. Transdermal drug delivery system cannot achieve high drug levels in blood/plasma.