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Review article

Transdermal drug delivery system: Innovations in skin permeation

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Abstract

Delivery of drugs into systemic circulation via skin has generated lot of interest during the last decade. Transdermal drug delivery systems (TDDS) offer many advantages over the conventional dosage forms or controlled release peroral delivery systems. TDDS provides; constant blood levels (1-7 days), avoids first-pass metabolism, increased patient compliance, and dose dumping never occurs. The choice of drugs delivered transdermally, clinical needs, and drug pharmacokinetics are some of the important considerations in the development of TDDS. In addition to methods to enhance transdermal absorption of drugs such as sorption promoters and prodrugs, the physicochemical and biological factors affecting transdermal permeation of drugs are discussed. Although, novel approaches like iontophoresis and ultrasound are gaining importance as a means to increase drug permeation into systemic circulation, clinical products based on these approaches are still far away. The cost per milligram of drug delivered transdermally is more expensive than peroral route. The added cost could be justified, if TDDS improve patient compliance and reduces toxic/side effects.

Keywords: Transdermal delivery, controlled release, penetration and permeation.

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