

Review on Transfersomes: Promising Carrier for Transdermal Drug Delivery

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Abstract

The transdermal drug delivery systems (TDDS) facilitate over the traditional techniques by including the ability to deliver a drug more selectively to a specific point; more straightforward, more accurate, and less frequent dosing besides decreasing variability in systemic drug concentrations; absorption that is more consistent with the site and mechanism of action; and minimized toxic metabolites. Moreover, these are painless and self-administered delivery systems that can increase patient compliance and provide a controlled release of the medications. However, the greatest challenge of TDDS is the barrier function of stratum corneum (SC), the outermost layer of the skin which allows only unionised molecule and molecule with molecular weight less than 500 Da to pass through it. As a result, this method can only be used to provide a restricted number of medications. Now a days, some of the possible alternatives to this challenge are chemical permeation enhancer, iontophoresis, sonophoresis, microneedles, electrophoresis and vesicular system such as liposome, transfersome, ethosome etc. Transfersomes appear to be one of the most promising of these techniques, as they feature a bilayered shape that allows lipophilic and hydrophilic drugs, as well as amphiphilic drugs, to be encapsulated with better penetration efficiencies than typical liposomes. Transfersomes are elastic in nature, which can deform and squeeze themselves as an undamaged vesicle through narrow pores that are significantly smaller than its size. This review discusses the concept of transfersomes, composition of transfersomes, mechanism of action and various preparation techniques. Also, this review focuses on recent applications of transfersomes along with their benefits and drawbacks. Additionally, this review sheds light on future research scope to motivate the researchers for future outstanding research works.

Keywords: Transdermal drug delivery systems; Stratum corneum; Transfersomes; Liposomes; Mechanism of action.