Potential and future scope of nanoemulsion formulation for topical delivery of lipophilic drugs

Sang Yup, B., Chatterjee, B.
Department of Pharmaceutical Technology, Gulhane Military Medical Academy, Istanbul, Turkey

Abstract

Nanoemulsion is an emulsion-type formulation of two different systems in which nanoemulsion containing drug is incorporated into a gel base. The fusion of the two systems makes the formulation advantageous in several ways. Lipophilic drugs can be easily incorporated and the skin permeability of the incorporated drug can be enhanced in several folds due to the finally distributed droplets of nanoemulsion phase. As a result, the pharmacokinetic and pharmacodynamic profiles of the lipophilic drugs are improved significantly. An interesting trend in topical nanoemulsion use in recent years has been noticed because of the better acceptability of the preparation to the patients due to their transcutaneous delivery, avoidance of gastrointestinal side effects, easier applicability and good therapeutic and safety profile. Despite of having few limitations, nanoemulsion formulation can be considered as a potential and promising candidates for topical delivery of lipophilic drugs in the future. The aim of this review is to evaluate and report the current potential and future scope of nanoemulsion formulation for becoming an effective delivery system for poorly water soluble drugs. In this review, we have summarized and discussed the outcome of different studies on permeability, pharmacokinetic, pharmacodynamic and safety profile of the Lipophilic drugs delivered topically through nanoemulsion. Rationality of use along with the major challenges to overcome for nanoemulsion formulation has been discussed. © 2013 Elsevier B.V.