Transdermal drug delivery system through polymeric microneedle: A recent update

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ABSTRACT

As non-toxic, biodegradable, biocompatible materials, the polymeric microneedles have a great significance in terms of delivering therapeutic drug molecules through the skin. They provide several advantages like easy of fabrication, overall less manufacturing cost, a higher amount of drug loading with desired controlled release profile. Transdermal drug delivery through microneedles system has witnessed a great deal of advancement; few products have been launched in the market. However, the enormous potential of the same is still awaiting to be flourished to its full potential. Among the various types of microneedles, polymeric microneedles appear to be promising due to their inherent favourable attributes. This review describes the key features of the polymeric microneedles, such as their current update and marketed products, mechanism, kinetics, fabrication techniques, materials used, classifications, evaluation, applications, and future challenges. It also highlights a guideline for polymer selection concerning the recent design and intended use for delivering the drug through the transdermal route. Additionally, this review sheds light to clinical perspective, future scope, and direction of polymeric microneedles as a transdermal drug delivery system.

KEYWORDS: Transdermal delivery Cancer Polymeric microneedle Biodegradable Ocular

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