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Chapter: 6 Microneedle Drug Delivery System: A Painless Revolution

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Abstract:
Abstract: This manuscript explores the forefront of innovator in microneedle-based drug delivery system. Microneedle arrays (MNA) are considered as a one of the most promising resource to achieve systemic effect boy transdermal delivery of drug. They are designed as a minimally invasive painless System which a bypass the stratum corneum, overcoming the potential drawbacks of subcutaneous injections of other transdermal delivery systems, such as chemical enhancers, nano p micro particles or physical treatments. The present work mainly emphasizes all the case studies reported from the past ten years that utilize MNS Containing therapeutics in the treatment -of chronic pain - associated disease like rheumatoid arthritis, neuropathic Pain, osteoarthritis, psoriatic arthritis of atopic dermatitis. This review intends to offer a general overview of current state of MNA research, focusing on strategies, applications, op types of molecules delivered recently by these systems. In addition, some Information about the fabrication technique., of mechanism of drug delivery, applications of advantages over traditional methods are in discussed. of challenges of limitations are discussed.
Keywords: Microneedle, Transdermal delivery, MNS- Micro Needle System, MNA- Micro Needle Array, Micro Fabrication, Close-Looped delivery.

6.1 Introduction

The oral route is the most frequently used for drug administration, due to its simplicity and low cost (specialized staff is not required). In addition, oral solid pharmaceutical forms (tablets, capsules) generally have good physicochemical stability and easy dosing. However, these formulations also face certain obstacles that may impair the bioavailability of the drug such as hepatic first pass effect, complex formation,

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