Abstract

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A Comprehensive Review on Nanomedicine: Promising approach for treatment of brain tumor through intranasal administration.

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Brain tumors have become one of the deadliest cancers; however, their treatment is still limited by conventional approaches. Brain tumors, among other CNS diseases, are the most lethal form of cancer due to ineffective diagnosis and profiling. The major limiting factor in treating brain tumors is the blood-brain barrier (BBB), and the required therapeutic concentration is not achieved. Hence, most drugs are prescribed at higher doses, which have several unwanted side effects. Nanotechnology has emerged as an interesting and promising new approach for treating neurological disorders, including brain tumors, with the potential to overcome concerns related to traditional therapeutic approaches. Moreover, biomimetic nanomaterials have been introduced to successfully cross the blood-brain barrier and be consumed by deep skin cancer for imaging brain tumors using multimodal functional nanostructures for more specific and reliable medical assessment. These nanomedicines can address several challenges by enhancing the bioavailability of therapeutics through controlled pharmacokinetics and pharmacodynamics. Further nasal drug delivery has been considered as an alternative approach for the brain's targeting for the treatment of several CNS diseases. A drug can be directly delivered to the brain by bypassing the BBB through intranasal administration. This review discusses intranasal nanomedicine-based therapies for brain tumor targeting, which can be explored from different perspectives.

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