Advanced Health Technologies and Nanotechnologies in Neurodegenerative Diseases

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Abstract

The fields of medicine and therapeutics have lately turned towards more modern approaches for the therapy of diseases. These approaches have been classified as new health technologies and various issues that regard their development, application in therapy, regulatory framework, approval and post-approval monitoring have emerged. In the European environment, the law and legislation distinguish new health technologies in certain subcategories, namely, medicinal products, medical devices, biotechnological products, advanced therapy medicinal products and nanomedicinal products. Among these strategies, nanomedicine utilizes entities at the nanoscale that exhibit therapeutic effect in various diseases, such as neurodegenerative disorders, through chemical, physical or biological action. Several nanotechnology-based therapies have been authorized until today; however, there is still no marketed nanomedicine for neurodegenerative diseases. Advanced nanotechnological platforms, including the prominent example of stimuli-responsive chimeric/mixed nanocarriers, promise high therapeutic efficacy and safety, through their functional properties and biocompatibility, which come from their composing molecules, self-assembled properties and supramolecular structures. The integration of certain important analytical tools for the study of nanocarriers is also of great importance and may provide knowledge for further development of advanced nanomedicines as well as for their follow-on products, known as "nanosimilars".

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