

GENETIC AND CELLULAR THERAPIES IN THE TREATMENT OF ALZHEIMER'S DISEASE

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Genetic and cellular therapies seek to correct, replace, or modify defective genes or cells to treat medical conditions. These approaches offer great potential for the treatment of neurological diseases, such as Alzheimer's, which is a complex neurodegenerative disease that affects cognitive function and memory and currently has no definitive cure. This is an integrative literature review, with the objective of analyzing the current scenario and future perspectives in the treatment of Alzheimer Disease with genetic and cellular therapies. Articles published from 2019 to 2023 were searched in PubMed, LILACS and SCIELO databases, with the use of the following health descriptors: "Genetic Therapy", "Cell- and Tissue-Based Therapy", "Alzheimer Disease". Genetic and cellular therapy in the treatment of Alzheimer's is an evolving field with notable studies and technology developments in progress. Researchers are trying to use gene therapy aiming to rectify genetic mutations or expand the synthesis of essential proteins for brain health, like the stimulation of growth factor or antioxidant proteins production. Also, cellular therapies are being explored to substitute or correct damaged brain cells, which involve the utilization of stem cells to recreate brain tissue or specialized cells for determined purposes, such as neurotransmitter release. Some other techniques that are being investigated include therapeutic vaccines to make the immune system attack abnormal proteins, such as beta-amyloid, and gene editing, for example CRISPR-Cas9. Many of these approaches are in incipient phases of study or clinical trials and are not ready for widespread use, once Alzheimer's is a hard disease with numerous factors involved, but, as research progresses, it is expected that genetic and cellular therapies will represent a crucial place among the available therapeutics, offering hope for decelerating the disease's progression and in the enhancement of life quality for affected patients.

Keywords: Genetic Therapy, Cell- and Tissue-Based Therapy, Alzheimer Disease.

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