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Research on neurological diseases, such as Alzheimer's, Parkinson's, and multiple sclerosis

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ABSTRACT

Neurological diseases, including Alzheimer's, Parkinson's, and multiple sclerosis, pose a growing challenge to global health. Researchers strive to elucidate the underlying mechanisms, develop advanced diagnostic methods, and create innovative therapeutic strategies to address these complex conditions. The identification of biomarkers plays a crucial role in research. Investigating specific molecules in cerebrospinal fluid or brain imaging can provide early clues about the development of these diseases. The goal is to develop more accurate diagnostic methods, allowing interventions even before the appearance of evident symptoms. Genetic studies are essential to understand the hereditary basis of these conditions. Identifying associated genes and modifiable and non-modifiable risk factors offers crucial insights. Such information guides preventive strategies and personalized interventions. Developing therapies that protect nerve cells is a central focus. Neuroprotective substances are under scrutiny, seeking to preserve neuronal integrity and slow the progression of the disease. This approach aims to provide treatments that go beyond symptomatic management.

Keywords: Neurological diseases, Alzheimer's, Parkinson's, Multiple sclerosis, Biomarkers.

INTRODUCTION

Neurological diseases, such as Alzheimer's, Parkinson's, and multiple sclerosis, represent a complex set of global health challenges, affecting millions of people around the world. These conditions impact not only the quality of life of affected individuals but also have significant implications for health systems and long-term care. Given this scenario, scientific research emerges as an essential tool to unravel the mysteries of these pathologies and develop innovative strategies for diagnosis, treatment, and eventually cure.

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OBJECTIVES

Identify and evaluate potential biomarkers that may indicate early development of neurological diseases, with a focus on Alzheimer's, Parkinson's, and multiple sclerosis.

Investigate the genetic components associated with Alzheimer's, Parkinson's, and multiple sclerosis to better understand the hereditary roots of these conditions and identify therapeutic targets.

To research and evaluate promising neuroprotective substances that can preserve neuronal integrity, with the aim of developing therapies that go beyond symptomatic treatment.

METHODOLOGY

To conduct a comprehensive systematic review of the up-to-date scientific literature, using databases such as PubMed, Scopus, and the Cochrane Library, to identify relevant studies related to biomarkers, genetics, neuroprotective therapies, disease-modifying treatments, and immunomodulation in the target neurological diseases.

Apply strict inclusion and exclusion criteria to select relevant studies. Include research that presents robust methods, representative samples, and clinically significant results. Exclude studies with inadequate design or insufficient data.

RESULTS

Identification of several potential biomarkers in different biological fluids, such as specific proteins in cerebrospinal fluid and changes in brain imaging, offering promising opportunities for early diagnosis of Alzheimer's, Parkinson's, and multiple sclerosis.

Significant findings in genetic studies highlighting genes associated with a higher risk or protection against these conditions. These findings provide valuable insights into the underlying mechanisms and open doors to personalized therapies.

DISCUSSION

The identification of biomarkers promises to revolutionize clinical practice, allowing for earlier diagnoses and preventive interventions. However, the standardization and validation of these biomarkers are critical challenges that require continuous attention.

Understanding the genetic basis opens doors to personalized therapeutic approaches. Individualization of treatment based on genetic profiling can improve therapeutic efficacy, but ethical and privacy issues need to be carefully addressed.

CONCLUSION

Research in neurological diseases, with a focus on Alzheimer's, Parkinson's, and multiple sclerosis, has outlined significant advances, ushering in a new era of understanding and treatment. The results obtained provide a solid basis for reflection and point to promising directions in the scientific and clinical scenario.

The identification of promising biomarkers opens doors to early diagnosis strategies, promoting interventions even before the appearance of clinical symptoms. This potentially transformative approach can positively impact patients' prognosis and quality of life.