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Short Communication

Use of Sargramostim Drug in Alzheimer Patients for Memory Improvement

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ABSTRACT

Alzheimer's disease is a neurologic disorder that causes the brain to shrink (atrophy) and the death of brain cells. It is the most common cause of dementia, which is defined as a progressive loss of cognitive, behavioural, and social abilities that impairs a person's ability to function independently. Sargramostim is a yeast expressed human recombinant granulocyte macrophage colony-stimulating factor (GM-CSF). It has 127 residues and is a glycoprotein.

Keywords: Alzheimer's disease; Sargramostim drug; Biomarker; Glycoprotein; Neurologic disorder

INTRODUCTION

Alzheimer's disease is a neurologic disorder that causes the brain to shrink (atrophy) and the death of brain cells. Alzheimer's disease is the most common cause of dementia, which is defined as a progressive loss of cognitive, behavioral, and social abilities that impairs a person's ability to function independently.

Memory loss, language problems, and impulsive or erratic behavior are all common symptoms of Alzheimer's disease. Plaques and tangles in the brain are one of the most common symptoms of the disease. A loss of connection between the brain's nerve cells, or neurons, is another symptom. Information cannot easily pass between different areas of the brain, or between the brain and muscles or organs, because of these characteristics. People's ability to remember recent events, reason, and identify people they know deteriorates as the symptoms worsen. A person with Alzheimer's disease may eventually need full-time assistance [1].

Sargramostim is a yeast-expressed human recombinant granulocyte macrophage colony-stimulating factor (GM-CSF). It has 127 residues and is a glycoprotein. When Leu23 is replaced, the protein behaves differently than when it is native [2].

USE OF SARGAMOSTIM

Sargramostim is a hematopoietic growth factor that promotes the survival, clonal expansion (proliferation), and differentiation of hematopoietic progenitor cells in people who have had a bone marrow transplant or who have been exposed to chemotherapy and are recovering from acute myelogenous leukaemia. Mature granulocytes and macrophages can also be activated by GM-CSF. Patients' ability to make red and white blood cells is decreased after a bone marrow transplant or chemotherapy. External sources of GM - CSF can help bring neutrophil levels back to normal, allowing them to fight infections more effectively.

Sargramostim activates a JAK2 STAT1/STAT3 signal transduction pathway by binding to the Granulocyte-macrophage colony stimulating factor receptor (GM-CSF-R-alpha or CSF2R). Hemopoietic cells and neutrophils are produced as a result of this [3,4].

USE IN ALZHEIMER PATIENTS

Sargramostim, a drug commonly used to increase white blood cells after cancer treatments, appears to be effective in treating and improving memory in people with mild to moderate Alzheimer's disease, according to a new study. This drug is made up of a recombinant DNA-produced natural human protein. Researcher's present evidence from a clinical trial that suggests Sargramostim may have both disease-modifying and cognition-enhancing properties in Alzheimer's disease patients in their study [5].

Short-term Sargramostim therapy improved innate and other immune cells, modulated cytokine measures, and was safe and well-tolerated by participants, according to the researchers. In the 30 point Mini-Mental State Exam, they discovered that cognition memory improved by nearly two points. Measurements of Alzheimer's disease blood biomarkers—brain amyloid, tangles, and neurodegeneration—all increased to near-normal levels [6].

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CONCLUSION

The FDA approved the use of sargramostim to improve survival in adults and children who have been exposed to myelosuppressive radiation doses (Hematopoietic Syndrome of Acute Radiation Syndrome; [H-ARS]). It was the third FDA-approved medical countermeasure at the time, and it was suggested to improve survival in patients exposed to myelosuppressive radiation doses.

REFERENCES

1. Gendelman HE, Zhang Y, Santamaria P, Olson KE, Schutt CR, Bhatti D, et al. Evaluation of the safety and immunomodulatory effects of sargramostim in a randomized, double-blind phase 1 clinical Parkinson's disease trial. NPJ Parkinson's Disease.2017;3:1-12.

2. Cummings J, Lee G, Ritter A, Sabbagh M, Zhong K. Alzheimer's disease drug development pipeline: 2019. Alzheimer's & Dementia: Transl Res Clini Interven.2019;5:272-293.

3. Cesar LA, Ferreira JF, Armaganijan D, Gowdak LH, Mansur AP, Bodanese LC, et al. Diretriz de Doença Coronária Estável. Arq Bras Cardiol.2014;103:1-59.

4. Cummings J, Lee G, Ritter A, Zhong K. Alzheimer's disease drug development pipeline: 2018. Alzheimer's & Dementia: Transl Res Clin Interven.2018;4:195-214.

5. Ihara M, Saito S. Drug repositioning for Alzheimer's disease: finding hidden clues in old drugs. J Alzheimer's Dis.2005:1-16. 2020.

6. Korzenik JR, Dieckgraefe BK, Valentine JF, Hausman DF, Gilbert MJ. Sargramostim for active Crohn's disease. New Eng J Med.2005;352:2193-2201.