

About Cancer-Related Cognitive Impairment

I Chernikowa, S Savin and B Zaydiner*

*Regional Cancer Hospital, Russian Federation.

Published April 07, 2022

ABSTRACT

The survival rate of cancer patients has increased, the quality of their lives (qol) is receiving more attention. As an important component of qol, cancer-related cognitive impairment (CRCI) is recognized, it's characterized as deficits in areas of cognition including memory, attention, concentration, and executive function. The incidence of CRCI in adult patients is about 17% to 70%. These disorders are often transient, but at least one-third of survivor's experience sustained cognitive symptoms, which are associated with mental disorders. Biological aging, mental state, cognitive reserve & other psychosocial components, DNA damage play significant roles in the generation of CRCI. The pathophysiological mechanisms underlying CRCI include direct neurotoxic effects (chemotherapeutics attribute), indirect mechanisms, hormone level, genetic polymorphism. The indirect mechanisms are represented by cytokines releasing under the influences of the tumor itself, treatment modalities, patient's long-term stress. The excessive cytokines are associated with disrupted hippocampal stem cell function and reduced memory performance. The volume of hippocampus in patients receiving chemotherapy is relatively low providing a basis for cytokine-mediated CRCI. The same influences induce inflammation in the body propagating to the brain. Neuroinflammation regulates mood, cognitive, and behavioral changes associated with CRCI. Patients' stress stimulate the HPA axis to activate excessively, increasing the cortisol secretion, which triggers damage to the brain structure and function. There's well-known genetic polymorphism related to the cognitive function namely $\epsilon 4$ allele of APOE, that is involved in neuroplasticity. Three ways of CRCI diagnosis in detail, which are self-reported cognitive impairment, neuropsychological scale, and imaging findings. Cognitive rehabilitation is based on principles of neural plasticity and functional reorganization with 2 main underlying mechanisms: retraining and functional compensation. Retraining strengthens impaired cognitive skills through repeatedly practicing tasks, whereas functional compensation focuses on honing strategies to modify the environment and/or one's approach to achieve a goal.

Keywords: Cognitive impairment, Mechanisms, Inflammation, Cytokines, Cancer, Hippocampus

Corresponding author: Boris Zaydiner, Regional Cancer Hospital, Russian Federation, E-mail: oridin1950@gmail.com

Citation: Chernikowa I, Savina S & Zaydiner B. (2022) About Cancer-Related Cognitive Impairment. Int J Surg Invasive Procedures, 5(S1): 01.

Copyright: ©2022 Chernikowa I, Savina S & Zaydiner B. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.