

Could chemo fog lead to brain dysfunction in cancer patients?

DR. KALLIOPI MEGARI, UNIVERSITY OF IOANNINA, GREECE

Chemo fog, (other terms used chemo brain, Post chemotherapy cognitive impairment (PCCI), cognitive dysfunction, or or), is referred to a decrease in neuropsychological performance of neurocognitive measures after chemotherapy for the treatment of cancer. Chemotherapeutic drugs are cytotoxic affecting both normal and cancer cells, contribute to cognitive impairment observed in some individuals following chemotherapy treatment and may lead to dementia. We investigated the manifestation of cognitive impairment related to chemotherapy, before chemotherapy (T1), immediately after chemotherapy-1 day (T2) and 6 months later (T3), among 187 adult patients with different types of cancer (breast, colorectal, prostate and thyroid cancer). Cognitive functions were assessed, such as attention and working memory, visuospatial perception, executive functions, complex scanning and visual tracking, as well as short and long-term memory using a battery of neuropsychological tests. We had an assessment of emotions, such as anxiety, depression, positive and negative mood to investigate the emotional functioning of cancer patients. Results revealed a statistical significance in performance, immediately and 6 months post-chemotherapy (T3), although no statistically significant differences were found between the groups in any of the neuropsychological test, before chemotherapy. Patients showed lower performance immediately post-chemotherapy (T2) that remained stable 6 months post-chemotherapy (T3), compared to T2 in all cognitive domains ($p < 0,001$). Patients with breast cancer showed significantly lower performance on all cognitive domains compared to other patients. In addition, all patients had a lower performance at T2, which means low emotional functioning with no statistical significant changes. At T3 all patients, had an increased performance with increased emotional functional 6 months post-chemotherapy. Cognitive change that can be detected with repeated testing is essential for an accurate interpretation of neuropsychological performance in studies with cancer patients.