

When Memory Fails Following Chemotherapy

Richard Béliveau

Translated from Le Journal de Montréal, June 10, 2013

Some people who receive chemotherapy for the treatment of cancer display cognitive symptoms following the treatments. This is a phenomenon commonly known as “chemo brain”.

Approximately one third of patients treated for cancer by use of chemotherapeutic medicines complain of cognitive problems subsequent to these treatments. These problems generally take the form of memory loss, of difficulties in maintaining attention or concentration, of an inability to perform several tasks simultaneously as well as marked changes in the sense of humor. This phenomenon, called chemo brain, is particularly frequent in breast cancer survivors and can sometimes last several years and involve serious decreases in the quality of life for the people affected. With improvements in cancer treatments and a significant increase in the number of people who survive this disease, the cognitive dysfunction which follows from chemotherapy thus represents a serious secondary effect, and it is important to better understand this problem.



The cognitive dysfunction caused by chemotherapy involves, in about a third of patients, several serious secondary effects including memory loss, lack of attention and concentration, and problems with humor.

BRAIN DAMAGE

The mechanisms responsible for chemo brain remain poorly understood. In the past, it was assumed that these cognitive problems were associated with psychological factors such as depression or anxiety, or with the physical and mental fatigue which often accompanies chemotherapeutic treatment. However, several studies later demonstrated that the cognitive problems were closely

correlated with decreased performance during precise neurological tests, indicating that they were truly caused by brain damage⁽¹⁾. Furthermore, magnetic resonance experiments have shown that chemotherapy can be associated with a reduction in the size of specific regions of the brain involved in cognitive function (frontal cortex). The mechanisms involved in this damage remain obscure, but it is suspected that the anticancer treatments modulate the immune response and provoke a release of inflammatory molecules which can damage the brain and alter its structure and function.

REDUCE INFLAMMATION

The cognitive impairment which can be caused by chemotherapy should not, however, be considered by patients as a reason to avoid chemotherapy. Despite the secondary effects associated with it, chemotherapy remains a tool which is absolutely indispensable for treating a large number of cancers and its effectiveness enables it to save innumerable lives. It is thus important to follow the recommendations prescribed by the treating oncologist and to undertake the treatments with optimism, while remaining conscious of the possible impacts these treatments may have on the quality of life.

Although there are no pharmacological agents for fighting the cognitive problems associated with cancer treatments, it is interesting to note that certain aspects of lifestyle have been recognized as reducing post-chemotherapy inflammation and which might then reduce the impact of chemo brain. Clinical tests have clearly shown that regular physical exercise reduces the production of inflammatory cytokines, and this diminution could contribute to decreasing the damage to cerebral structures caused by inflammation. A quality diet, rich in vegetables and lacking in processed foods which are rich in sugar and fats, also provides a powerful anti-inflammatory effect which could contribute to maintaining the inflammatory molecules at a lower level, without negative effects on the body. These changes to lifestyle are even more important in that they diminish the risk of cancer recurrence and are associated with higher survival rates in patients.

(1) Ganz P et al. Cognitive Complaints After Breast Cancer Treatments: Examining the Relationship With Neuropsychological Test Performance 2013; 105(11):791-801.