Saturday, 27 March 2010 08:30–09:15

EUROPA DONNA TEACHING LECTURE

Impact of chemotherapy on cognitive function

639 Invited

Impact of chemotherapy on cognitive function

S.B. Schagen[1]. [1]*The Netherlands Cancer Institute, Department of Psychosocial research and Epidemiology, Amsterdam, The Netherlands*

As advances in therapy have improved survival rates of cancer patients, survivorship issues have called for attention, including the incidence of cognitive problems. Cognitive problems are widely recognized as a potential consequence of brain irradiation or localized chemotherapy for CNS disease, and it is increasingly apparent that chemotherapeutic agents delivered systemically for non-CNS tumors may also be associated with cognitive side-effects. Up to 50% of patients report the occurrence of cognitive symptoms at various time points after chemotherapy. Patients frequently describe these symptoms as seriously affecting their quality of life and daily life functioning.

A rapidly accumulating literature with mainly breast cancer survivors suggests that cytotoxic regimens are indeed associated with long-term cognitive deficits as measured with neuropsychological tasks. The cognitive changes associated with chemotherapy often involve attention problems, inefficiency of working memory, information processing speed, and executive functioning. These symptoms suggest a possible disturbance of frontal-striatal circuitry. The reported incidence of chemotherapy-related cognitive dysfunction is in the range of 15%-70%, depending on, among others, specific regimens applied. Recent neuroimaging, electrophysiological, and animal studies have reported structural and functional changes in the brain associated with chemotherapy.

Despite clear and strong indications of long-lasting effects on the central nervous system, the understanding of the nature of the cognitive impairment and the mechanisms driving this compromise is still fragmentary. Many biological factors have been proposed, including direct damaging effects on endothelial cells, or changes in synthesis of biogenic amines and neurotransmitters. Studies also suggest that, next to the array of biological factors, psychological variables can provide essential data for a better understanding of cancer treatment related cognitive symptoms, and possible relevant starting points for prevention.

In this educational session, an overview will be given on the incidence, severity, causes and risk factors of cognitive dysfunction following chemotherapy. Pharmacological and psychological interventions to prevent or intervene against cognitive symptoms will be discussed, as well as directives for professionals confronted with patients experiencing cognitive problems.