

# Cognitive Effects of Cancer Treatment: “Chemo Brain” Explained

**Katrina Evens, RN, MS, OCN<sup>®</sup>,  
and Valerie S. Eschiti, PhD, RN, AHN-BC, CHTP, CTN-A**

An estimated 11.1 million Americans are living with cancer. Many have received chemotherapy, and a portion of patients treated with chemotherapy develop cognitive difficulties, often referred to as “chemo brain.” Chemotherapy-induced cognitive impairment can impact all areas of a patient’s life. Yet little education is given to patients and families regarding the potential side effect prior to initiation of cancer treatment. This is, in part, because nurses may struggle with understanding the scientific causes behind the cognitive disabilities. This article will describe hypothesized pathophysiology, signs and symptoms, and potential contributing factors of chemotherapy-induced cognitive impairment. Potential treatment strategies, including pharmacologic and nonpharmacologic interventions, also will be discussed.

**A**n estimated 11.1 million Americans are living with cancer, and nearly 1.5 million more are expected to be diagnosed in 2009 (American Cancer Society, 2009). Many patients with cancer require treatment with chemotherapy or radiation, and they receive education regarding expected side effects. One side effect which is not always discussed is the potential for cognitive difficulties (Myers & Teel, 2008). Cognitive impairment, often referred to as “chemo brain” or “chemo fog,” is not always taken seriously by cancer survivors (American Cancer Society, 2008). In fact, according to the American Cancer Society (2008), cancer survivors frequently joke about chemo brain.

Chemotherapy-induced cognitive impairment can be seen as insignificant in light of the potentially life-saving treatment needed in the face of a cancer diagnosis. Even in reference books, readers are hard-pressed to find information relating to cognitive impact from the treatment of cancer in comparison to other side effects such as fatigue, nausea, vomiting, hair loss, and pain.

Chemotherapy-induced cognitive impairment rarely is discussed prior to the initiation of cancer treatment. Myers and Teel (2008) stated, “Only 38% of participants [nurses] assessed patients for CI [cognitive impairment] and 44% educated patients and families on the topic” (p. 725). Many nurses are not prepared to educate patients regarding the potential development of cognitive impairment. As a result, many patients are not forewarned of the impact it may have on their lives and are ill-prepared for it.

However, cognitive impairment has gained the attention of healthcare providers. This article aims to educate nurses regarding assessment for chemotherapy-induced cognitive impairment and present possible interventions and treatments.

## At a Glance

- ◆ Chemotherapy-induced cognitive impairment is believed to occur because of alterations in the blood-brain barrier, vascular injury, and myelination changes, and it may have a genetic link.
- ◆ The cognitive difficulties from chemotherapy are unique and can last for months to years after treatment.
- ◆ Medications, exercise, stress management, nutrition, and support groups may be beneficial in addressing cognitive challenges.

## Definition of Chemotherapy-Induced Cognitive Impairment

Chemotherapy-induced cognitive impairment is described as dysfunction, weakening, or impairment (Coyne & Leslie, 2004; Staat & Segatore, 2005) of memory in patients who have been treated with chemotherapy for cancer. Cognitive impairment

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Katrina Evens, RN, MS, OCN<sup>®</sup>, is an assistant professor of nursing in the nursing and allied health program at Clinton Community College and a nurse at Champlain Valley Physicians Hospital, both in Plattsburgh, NY; and Valerie S. Eschiti, PhD, RN, AHN-BC, CHTP, CTN-A, is an assistant professor in the College of Nursing at the University of Oklahoma Health Sciences Center in Oklahoma City. The authors were participants in the 2008 *Clinical Journal of Oncology Nursing* Writing Mentorship Program. (Submitted October 2008. Accepted for publication January 21, 2009.)

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