

# Predictors of Self-Reported Memory Problems in Patients With Ovarian Cancer Who Have Received Chemotherapy

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Changes in cognitive function, including memory problems, are recognized as a serious potential sequela to chemotherapy (Ahles & Saykin, 2001). Estimates of the frequency of chemotherapy-related cognitive impairment (CRCI) range from 75%–95% shortly following the completion of treatment and 17%–35% two or more years after completion of therapy (Ahles & Saykin, 2001). To date, most research on this topic has involved patients with breast cancer (Bender et al., 2006, 2007; Brezden, Phillips, Abdolell, Bunston, & Tannock, 2000; Castellon et al., 2004; Ferguson, McDonald, Saykin, & Ahles, 2007; Klemp, Stanton, Kimler, & Fabian, 2006; Kreukels et al., 2006; Schagen et al., 1999; Tchen et al., 2003; van Dam et al., 1998). Few studies have been conducted specifically to evaluate CRCI in patients with other solid tumors (Ahles et al., 2002; Malmstrom & Karlsson, 2003; Shapiro, 2005; Troy et al., 2000).

About 22,000 women in the United States are diagnosed with ovarian cancer each year (American Cancer Society, 2010). Treatment of ovarian cancer typically consists of combination therapy with a platinum-based regimen and a taxane. Second-line agents may include etoposide, liposomal anthracyclines, and iphosphamide (an analog of cyclophosphamide). These agents have been related to proinflammatory cytokine release and oxidative stress, both hypothesized causes of CRCI (Ahles & Saykin, 2007; Chen, Jungswadee, Vore, Butterfield, & St. Clair, 2007; Wood et al., 2006). Subtle cognitive changes may be associated with chemotherapy for patients with ovarian cancer (Malmstrom & Karlsson, 2003).

Results of previous research suggest that age and education are predictors of cognitive performance after chemotherapy (Jenkins et al., 2006) and that depression and fatigue are associated with cognitive function (Bender et al., 2006; Castellon et al., 2004). Contradictory results have been published related to CRCI and time since chemotherapy. No statistical difference related to time since chemotherapy and CRCI was noted by van Dam et al. (1998) for patients receiving chemotherapy

**Purpose/Objectives:** To examine the association between self-report of memory problems and the most commonly reported concurrent symptoms by women with ovarian cancer who have received chemotherapy.

**Design:** Secondary analysis.

**Setting:** Midwestern university-based school of nursing.

**Sample:** 638 women with ovarian cancer participating in a larger study who had received chemotherapy and 68 women with ovarian cancer who had not received chemotherapy.

**Methods:** Responses to a demographic questionnaire, disease and treatment history survey, and symptom severity index were analyzed using Pearson's correlations, hierarchical regression analysis, and Welch t tests for unequal sample size.

**Main Research Variables:** Self-rating of memory problems, time since chemotherapy, education level, and self-rating of commonly reported symptoms associated with ovarian cancer.

**Findings:** Nine symptoms accounted for 37% of the variance of memory problems (controlling for time since chemotherapy and education level). Significant predictors of memory problems included fatigue, mood swings, numbness or tingling, and sleep disturbance. Mean scores for self-reported memory problems were significantly different for participants who received chemotherapy compared to those who had not.

**Conclusions:** Findings suggest that memory problems were common following chemotherapy for ovarian cancer. Additional prospective study is warranted to evaluate potential mechanisms underlying these symptom interactions. Further qualitative study may be of value to describe the patient experience and identify effective coping strategies.

**Implications for Nursing:** Patient and family education should include information about the potential for memory problems following chemotherapy for ovarian cancer.

for breast cancer. However, Schagen et al. (1999) and Schagen, Muller, Boogerd, and van Dam (2002) found a decrease in changes in cognitive function between the time points of two and four years postchemotherapy,