

Memory problems after chemo linked to brain changes

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Shown is a close-up of an intravenous (IV) bottle. Credit: Linda Bartlett/public domain

(HealthDay News)—Breast cancer survivors who had chemotherapy

show changes in brain activity during multitasking chores, according to a new Belgian study.

These findings may partly explain the phenomenon dubbed "chemo brain." For years, people who've had [chemotherapy](#) have reported changes in thinking and memory, especially when doing more than one thing at once.

"Before you can fix a problem, you need to know what the problem is. And this study demonstrates what the problem may be. It's a really good first step to understanding the what. Now we need to understand the why and how to fix it," said Dr. Courtney Vito, a breast surgeon and assistant clinical professor of surgical oncology at the City of Hope Comprehensive Cancer Center in Duarte, Calif. Vito was not involved in the current study, but reviewed the study's findings.

In her experience, Vito said, women tend to be affected more by chemo brain than are men after chemotherapy. However, she said, "women tend to multitask more, so this might explain part of it."

The new study was published online May 27 in the *Journal of Clinical Oncology*.

Problems with thinking and memory (so-called "cognitive" changes) are a common side effect of chemotherapy, according to background information in the study. The good news is these changes, while real and concerning, often aren't significant.

"Despite their impact on day-to-day activities, the observed cognitive changes are often of small magnitude and fall mostly within the normal range," wrote the study's authors.

Still, the researchers wanted to understand the exact reason behind these

changes, something that hasn't been well-studied, they noted.

To best do this, the investigators needed to see how the brain functioned before treatment and after treatment.

For the study, Dr. Sabine Deprez from the Catholic University of Leuven in Belgium and colleagues evaluated 18 women with [breast cancer](#) who had chemotherapy, 16 with breast cancer who didn't have chemotherapy, and 17 healthy women without breast cancer.

The researchers measured the brain activity of the study volunteers using a device called functional MRI, which allows doctors to measure what areas of the brain are active during certain tasks.

The tests were done one to two weeks before chemo treatment, then four to six months after chemotherapy ended. The other two groups underwent the imaging tests at the same times.

The decrease in brain activity that occurs during multitasking was seen in those who had chemo but not in the other two groups. There was also a link between the patients' complaints about concentration and memory and the changes in [brain activity](#) seen in the imaging tests, according to the study authors.

The researchers suggested these changes may be due to damage that occurs to the brain during chemotherapy, or because certain connections in the brain may be affected by chemotherapy.

The study has many strengths, said Dr. Daniel Silverman, professor of molecular and medical pharmacology and director of the University of California, Los Angeles Brain Wellness Center. Silverman also was not involved in the study but reviewed the findings.

Among the strengths of the new research, he said, is that the researchers followed the women over time, observing them at different time points, known as a longitudinal study.

In his own research, Silverman has found that activity in various parts of the brain was altered in [breast cancer survivors](#) who had chemotherapy, even up to 10 years after completing the treatment.

However, most [women](#) see improvements long before then. "About 80 percent have a return to normal within one to two years after completing the chemotherapy," said Silverman.

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