

Breast cancer survivors suffer 'chemo brain'

CHICAGO: Women who survive breast cancer after undergoing chemotherapy may also have to contend with impairments in attention, memory and planning skills, US researchers said on Monday.

They said women who had undergone chemotherapy for breast cancer had significantly less activity in parts of the brain responsible for executive functioning tasks compared with breast cancer patients who were not treated with chemotherapy.

Among those treated with chemotherapy, the study also found a strong correlation between women who complained they were having trouble with memory and thinking skills and actual deficits in these regions of the brain.

The study may help explain why many breast cancer patients complain of "chemo brain" – a term used to describe foggy thinking and memory lapses following treatment with chemotherapy.

"This is a huge validation for these women who are telling their doctors 'something is wrong with me'," said Dr Shelli Kesler of Stanford University School of Medicine in California, whose study appears in the Archives of Neurology.

Dr Kesler said the conventional thinking is that chemotherapy drugs cannot cross a protective membrane called the blood-brain barrier that protects the brain from toxins.

And doctors have dismissed women's complaints of brain deficits after chemotherapy, chalking them up to exaggeration and stress related to the cancer.

"This shows that when a patient reports she's struggling with these types of problems, there's a good chance there has been a brain change," Dr Kesler said.

Her study involved 25 breast cancer pa-

tients who had been treated with chemotherapy, 19 breast cancer patients who had surgery and other treatments, and 18 healthy women.

All were asked to perform a card-sorting task that involves problem-solving skills while their brain activity was monitored through functional magnetic resonance imaging or fMRI.

The women also completed questionnaires to assess their own cognitive abilities.

As in prior studies of cancer patients, the team saw significant reductions in activity in two parts of the prefrontal cortex, including one used for working memory, cognitive control and monitoring.

But they also found significantly reduced activation of an additional region of the prefrontal cortex linked with executive function – the area of the brain needed for planning.

Women in the chemotherapy group were also found to make more errors on the card-sorting task and take longer to complete it than healthy women and cancer patients who were not treated with chemotherapy.

While a finding in 25 women seems small, Dr Kesler said it is large for a brain scan study and points to a need to start

BRAIN AFFECTED

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identifying which women who undergo chemotherapy are most vulnerable to these types of deficits.

She said future studies should be done in which women are tested before they undergo chemotherapy to determine the impact of treatment on brain function.

Women are increasingly surviving their breast cancer, with breast cancer survivors comprising 22 per cent of the nearly 12 million cancer survivors in the United States, according to the Centers for Disease Control and Prevention.

REUTERS

Hope for new drugs after S'pore scientists discover protein that causes breast cancer

SCIENTISTS here have discovered a new protein that causes breast cancer.

Their finding could eventually lead to new drugs to treat the disease.

Named WBP2, the protein exists in two forms: dormant and active.

The dormant form is harmful only to people who already have breast cancer, because it encourages the rogue cells to multiply faster.

But the active form is dangerous even in healthy people: It changes

normal cells to breast cancer cells and then speeds up their growth.

The scientists from the National University of Singapore's Yong Loo Lin School of Medicine said it is not clear how many of these proteins are found in people.

They are "switched on" by a process called phosphorylation, where a phosphate binds to the protein, but it is also not known why this happens.

About 1,500 women are diagnosed

with breast cancer every year in Singapore. It is the most common form of the disease in women, accounting for more than a quarter of cases.

The scientists' research was published in the *Faseb Journal*, a top biology publication, in September.

They said the identification of the protein could lead to more targeted drugs. Several drugs currently being used in clinical trials are especially effective against cancer caused by WBP2.

Principal investigator Lim Yoon Pin said the team will start a new study involving 1,000 breast cancer samples by next June to find out how the protein works, and how prevalent it is among breast cancer cases. The protein has also been linked to lung, prostate and colon cancer.

The team's work has been funded by the Agency for Science, Technology and Research.

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