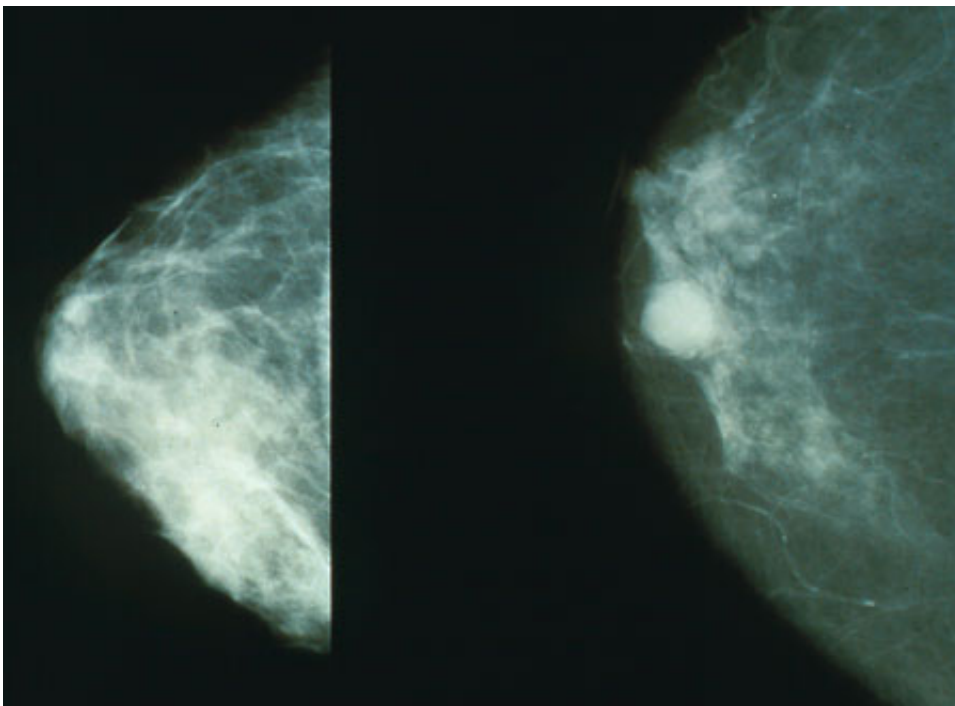


# Higher sTNF-RII associated with reduced memory functioning among breast cancer patients before treatment

June 22 2015

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Mammograms showing a normal breast (left) and a breast with cancer (right).  
Credit: Public Domain

Pretreatment cytokine levels, specifically soluble TNF receptor type two (sTNF-RII), are associated with reduced memory performance among newly-diagnosed, post-menopausal breast cancer patients prior to receipt of surgery and/or adjuvant therapy, according to a new study published

June 22 in the *JNCI: Journal of the National Cancer Institute*.

Neurocognitive dysfunction was associated with pro-inflammatory cytokines among [breast cancer survivors](#) in a previous report, and was attributed to chemotherapy effects. However, it is not clear if these associations exist even prior to treatment. Previous studies in breast cancer have defined pre-treatment as prior to adjuvant therapy but after surgical resection, but because cytokine levels can be altered following surgery, Sunita K. Patel, Ph.D., from the Departments of Population Sciences and Supportive Care Medicine, at the City of Hope Medical Center and Beckman Research Institute in Duarte, Calif., and colleagues, measured cytokines (sTNF-RII, Interleukin-6 (IL-6), and Interleukin-1 receptor antagonist (IL-1ra)) in plasma from 174 newly-diagnosed [breast cancer patients](#) before any treatment, including surgery. Comprehensive neuropsychological evaluations were also performed. Age-matched control subjects without cancer were evaluated as the comparison group. They observed memory performance was reduced in patients vs controls. In adjusted analysis, an association was seen between higher sTNF-RII and reduced [memory performance](#) among [breast cancer](#) patients but not cancer-free control subjects.

The authors conclude, 'Previous studies demonstrating an association between inflammatory markers and cognition have attributed the association to [cancer treatment](#), but our results suggest these links could be attributed to factors other than cancer treatment, possibly to factors that contribute towards the cancer diagnosis.'

In an accompanying editorial, Carissa A. Low, Ph.D., Pawel Kalinski, M.D., Ph.D., and Dana H. Bovbjerg, Ph.D., from the University of Pittsburgh Cancer Institute (Pittsburgh, PA) discuss the importance of the findings and briefly review data on additional behavior symptoms not explored in the study. They conclude the results suggest future studies are needed which 'will improve basic scientific understanding of

how activation of proinflammatory cytokine networks by cancer cells may increase behavioral symptoms and will also guide clinical interventions to reduce these cancer-related symptoms and improve patient quality of life.'

**More information:** *J Natl Cancer Inst* (2015) 107(8): djv131. [DOI: 10.1093/jnci/djv131](https://doi.org/10.1093/jnci/djv131)

Provided by Oxford University Press

Citation: Higher sTNF-RII associated with reduced memory functioning among breast cancer patients before treatment (2015, June 22) retrieved 25 April 2024 from <https://medicalxpress.com/news/2015-06-higher-stnf-rii-memory-functioning-breast.html>

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