

Study finds evidence of gender-related differences in development of colon cancer

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A new study by researchers at the University of Southern California (USC) has found evidence that supports gender-related differences in the development and survival of metastatic colon cancer.

The study, which will be published in the April 15 issue of the journal *Cancer Research*, found that specific gene variants linked to the development of colon cancer resulted in opposite survival outcomes for men and women.

Germline variations in the epidermal growth factor receptor (EGFR) DNA -- a gene widely expressed in colonic tissue -- has been linked with poor prognosis in colon cancer, says Oliver Press, an M.D. student at the Keck School of Medicine of USC and lead author of the study. However, when researchers looked at EGFR as a prognostic factor, they found that it had opposite implications for men and women.

"We expected to find that high expression would correlate with a poor prognosis and faster growth of the cancer," says Press. "What we found was that men followed the expected trend, while women's response was the opposite."

Researchers analyzed 318 patients -- 177 men and 141 women -- with metastatic colon cancer treated at the USC/Norris Comprehensive Cancer Center and the LAC+USC Medical Center between 1992 and 2003. All the patients were exposed to similar chemotherapy treatments. When genomic DNA samples were analyzed, researchers found that

women who had specific gene variants linked with high expression of EGFR had higher overall survival rates, while men with the same variants had lower survival.

"This is the first report to show that the prognostic value of EGFR depends on gender," says Heinz-Josef Lenz, M.D., professor of medicine at the Keck School of Medicine and the principal investigator on the study. "This may suggest that, in the future, molecular markers should be evaluated differently in women and men and that treatment decisions may depend on gender and not only on molecular or clinical findings."

Previous research has shown a protective effect of female hormones in colon cancer survival, Press notes. The findings of the study indicate that hormone receptors are important to signal pathways related to the survival of patients.

The study is an important jumping off point to further research into how men and women differ in response to specific treatments, he says.

"Research will need to be done to determine whether women and men respond differently to certain cancer therapies," Press says. "Down the road we may see targeted chemotherapy that is tailored to get the best response from male and female patients."

Source: University of Southern California

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