Model uses sociodemographic factors to predict aromatase inhibitor non-adherence risk

December 6 2023

Credit: Unsplash/CC0 Public Domain

A new risk model uses baseline sociodemographic and financial measures to predict which patients prescribed long-term therapy with

aromatase inhibitors for breast cancer are at significantly higher risk of stopping that therapy early (non-adherence).

The work was presented in a poster spotlight discussion session at the 2023 San Antonio Breast Cancer Symposium (SABCS) on Wednesday, December 6.

The authors analyzed data from the SWOG S1105 clinical trial, including measures of patient adherence to aromatase inhibitor (AI) therapy for hormone-sensitive breast cancer. They created a model composed of individual sociodemographic and financial factors—as well as measures of area-level deprivation and rural/urban location—that were statistically significantly associated with adherence.

The presence of each additional risk factor increased the risk of non-adherence by 47%. Those with more than two risk factors had a 64% greater likelihood of AI non-adherence.

Lead author on the abstract is Dawn L. Hershman, MD, MS, who presented the work at SABCS.

"We recognize that non-adherence to endocrine therapy is multifactorial. Predicting who is at risk will help us target personalized interventions to the right patients," said Hershman, who is American Cancer Society Professor of Medicine and Epidemiology at Columbia University Irving Medical Center, deputy director of the Herbert Irving Comprehensive Cancer Center, and group co-chair-elect of SWOG Cancer Research Network.

About two-thirds of patients treated for breast cancer have hormone receptor-positive disease, meaning the growth of their tumors is driven by estrogen or progesterone. Women with this type of cancer are often prescribed drugs that reduce hormone production, such as aromatase

inhibitors (AIs).

Clinical trials have shown that taking an AI daily for several years can significantly reduce the chance of the breast cancer returning. But for a variety of reasons, including common side effects such as bone pain and hot flashes, many patients stop taking their AIs early.

The risk model being presented at SABCS was developed using data from the SWOG S1105 clinical trial, a randomized study that enrolled more than 700 post-menopausal women to test whether text message reminders could improve adherence to AI therapy. All patients had been prescribed AI therapy for breast cancer, and they were assessed on the study every three months for continued use of their AI pills. Primary results of the trial, which Hershman led, were published in the *Journal of Clinical Oncology* in 2020.

To develop the predictive model, the researchers analyzed a set of demographic and financial measures collected when patients joined the S1105 trial. They found four of these measures had statistically significant associations with increased non-adherence to AI therapy: younger age, less education, lower out-of-pocket costs, and living in urban areas. In their data, race and ethnicity were not associated with non-adherence.

"These findings provide further evidence that an individual's social and economic background can contribute vital information in predicting the course of their treatment," said senior author Joseph Unger, Ph.D., associate professor at the Fred Hutchinson Cancer Center and a biostatistician and health services researcher with the SWOG Cancer Research Network.

"This recognition is important for establishing early on which patients are at much greater risk of non-adherence to long-term AI therapy,

which could allow more effective targeting of interventions."

The authors conclude that such interventions, in addition to steps to relieve symptoms from side effects, should focus on structural barriers in patients at highest risk.

More information: PS04-08: "Sociodemographic Risk Factors and Prediction of Aromatase Inhibitor Non-Adherence in Women with Breast Cancer Enrolled in SWOG S1105," Hershman, DL, et al. 2023 San Antonio Breast Cancer Symposium.

Provided by SWOG Cancer Research Network