Jane Kanowitz, MD, consults with her patient at the Smilow Cancer Hospital Care Center in North Haven.

A Chemo-toxicity Calculator for Older Patients

The powerful toxins delivered in chemotherapy are designed to kill cancer and save lives. But for older patients, those toxins carry a higher risk and may be intolerable. On the other hand, age alone is not a trustworthy indicator of risk, nor does a healthy appearance necessarily mean that an older patient has the physical and mental ability to endure a full regimen of chemotherapy. Oncologists faced with these risks and unreliable markers may be reluctant to offer chemotherapy to older patients who could benefit from it, or may offer it in dosages that do more harm than good.

The Cancer and Aging Research Group (CARG), a national association of geriatric oncology researchers, has developed a validated tool to help physicians and patients make informed decisions about chemotherapy for patients over the age of 70. CARG's "chemo-toxicity calculator" was recently tested in a six-month study at 15 Smilow Cancer Hospital Care Centers as part of an American Society of

Clinical Oncology Quality Initiative. The team that designed and ran the study expects the tool to change the way chemotherapy is managed for older patients throughout the Smilow Cancer Hospital Network.

The tool consists of eleven questions asked before a patient over 70 first receives chemotherapy. The provider and patient complete the form together in about five minutes. Some questions are factual: the patient's age, cancer type, levels of hemoglobin and creatinine, and the proposed treatment schedule (doses and type of treatment). Other questions address the patient's ability to function: hearing, balance (how many times has the patient fallen in the past six months?), mobility (can the patient walk one block?), autonomy (can the patient self-administer medicine?), and limitations on social activities caused by physical or emotional difficulties. The tool then calculates the patient's risk on a scale from 0 to 23.

"The tool predicts the risk of toxicity, the risk of hospitalization, and the need to either lower the dose of chemotherapy or change the treatment plan," said Jane Kanowitz, MD, Principal Investigator of the study and Assistant Professor of Clinical Medicine (Medical Oncology) and Medical Director of the Smilow Cancer Hospital Care Center in North Haven.

The tool also neutralizes unconscious biases that can affect treatment. "Oncologists who have been in practice for decades have come to rely on their clinical judgement and were surprised by the calculator's predictive risk in some patients," said Paula Pike, RN, BSN, MSN/A, MBA/HC, NE-BC, Clinical Program Manager for the Smilow Cancer Hospital Network, and a member of the project team. "Some participants were really surprised at what the tool stated for predicted risk."

The medical literature suggests that physicians overestimate or underesti-mate how well someone will do on chemotherapy about a third of the time. "That's substantial," said Dr. Kanowitz. "I've been using this tool for years and I'm still sometimes surprised when someone is predicted to do better or worse than my perceptions of them. The tool filters out those biases so we don't overtreat or undertreat people."

"Oncologists have been ingrained with the certainty that prescribing chemotherapy is better than doing nothing," she noted. The CARG calculator is intended to provide a more nuanced view. "It also gives patients and their families a better understanding and allows them to make educated decisions for themselves," Dr. Kanowitz said. "For instance, 'I might live longer but I'm not going to live better, and I'm not sure that's what I want.'" The tool also makes it easier to have the difficult conversation about treatment, added Dr. Kanowitz, because the risk calculation is based on objective information, not on the opinions of the doctor or patient.

The team is still analyzing data from the study, but using the calculator clearly altered treatment plans. Half of the patients in the study received a lower dose or a different treatment following use of the tool. In a few cases, very high scores led to a mutual decision to forego chemotherapy for palliative care. Ms. Pike recalled a case where an oncologist had been certain that a patient was too frail for chemotherapy, but the tool predicted low risk. The oncologist prescribed the full dose and the patient tolerated the treatment well.

The project team also surveyed Smilow's oncologists about the tool. About 80 percent called it valuable for making decisions about treatment, and 75 percent said it helped them discuss the risks of chemotherapy. Dr. Kanowitz and Ms. Pike expect the final data to make a definitive case for using the CARG calculator despite the additional few minutes it adds to a patient visit.

"I think the data will show that using the tool can keep people out of the hospital," said Ms. Pike, "and also puts the patient at the center, which helps us learn what's important to them and to prepare a treatment plan that meets their goals of care." ⟳

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> —Dr. Jane Kanowitz