Opinion

Conditional Survival as a Pragmatic Resource for Cancer Survivors and Health Care Professionals

Although there are readily available population-level data from national data sets and large clinical trials regarding the likelihood that patients with a de novo diagnosis of cancer may be alive at certain times (ie, 5 years), there is a paucity of data to guide actual cancer survivors on their estimated outcome if they have already survived a certain number of years. In fact, for patients who are followed up years after being treated for a cancer, a common scenario is for the patient and caregivers to ask practitioners what the longer term prognosis may be. The question posed to practitioners may be, "Doc, am I now cured? It's been 5 years since we finished treatment." This is an everyday practical query in the clinic. In the meantime, a currently available crude outcome prediction tool is known as *conditional survival*. For example, the 5-year conditional (overall and cause-specific) survival can be calculated for covariates that are included in multivariable regression models. Conditional survival is the proportion surviving, for example, 5 additional years, per the following equation: when S(t) is (overall or cause-specific) survival at time t, conditional survival is S(× +5)/S (×). In this issue of *JAMA Oncology*, Swords et al[1] calculate conditional survival for pancreatic cancer survivors and demonstrate from the Surveillance, Epidemiology, and End Results data set that mortality from recurrent pancreatic cancer is not the major cause of death for patients who have

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survived approximately 9 years post diagnosis. In fact, consistent with other studies of survivors from treatment for primary gastrointestinal tract tumors,[2,3] prognosis improves over time. There are some open-source data sets of cancer survival prediction calculators that have been developed to facilitate pragmatic discussions between patients and clinicians pertaining to conditional survival for select solid tumors.[4] As these outcome tools are refined to include individualized patient-level "-omic" information, next-generation outcome prediction tools have the potential to be more accurate in estimating outcome for cancer survivors.

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