Oncologists differ widely on offering cancer gene testing, study finds

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A study led by Dr. Stacy Gray suggests that not all doctors are ready to embrace tests that look for DNA changes in patients' tumor samples, while others plan to offer this type of cancer gene testing to most of their patients. Credit: Dana-Farber Cancer Institute

Many cancer researchers believe that cutting-edge advances in genomics will pave the way for personalized or "precision" cancer medicine for all patients in the near future. A new study by researchers at Dana-Farber Cancer Institute, however, suggest that not all doctors are ready to embrace tests that look for hundreds of DNA changes in patients' tumor samples, while others plan to offer this type of cancer gene testing to most of their patients. The findings are published in the *Journal of Clinical Oncology*.

The wide variation in attitudes was in part determined by physicians' genomic confidence. Physicians who had a lot of confidence in their ability to use and explain genomic findings were more likely to want to prescribe the test and consider using test results when making treatment recommendations. Physicians with lower levels of genomic confidence were more reluctant to offer such testing. These findings are particularly interesting because the survey was carried out at the Dana-Farber/Brigham and Women's Cancer Center (DF/BWCC), which has a comprehensive research program that allows all consenting patients to have tumor testing that could find mutations and other DNA changes that drive their cancer. In some cases those genomic tumor profiles can provide targets for specific drugs known to be effective against particular mutations.

The researchers were perplexed by another key finding – 42 percent of responding oncologists approved of telling patients about test results even when their significance for the patient's outlook and treatment is uncertain. This issue comes with the growing use of predictive multiplex testing, which can hunt for tens or hundreds of mutant genes simultaneously and which often detects rare DNA variants that may or may not be relevant to an individual's cancers.

"Some oncologists said we shouldn't return these results to the patient, and others say 'of course we should give them to the patient'," said Stacy

W. Gray, MD, AM, of Dana-Farber, first author of the report. "The fact that we found so much variation in physicians' confidence about their ability to use genetic data at a tertiary care National Cancer Institute-designated Comprehensive Cancer Center makes us pause and wonder about how confident physicians in the community are about dealing with this," she said. "It begs the question at a national level, how are we going to make sure that this technology for cancer care is adequately delivered?"

The survey was done in 2011 and early 2012 as a baseline assessment of physicians' attitudes prior to the rollout of the tumor profiling project called Profile at DF/BWCC. The Profile technology platform includes complete DNA sequencing of more than 300 genomic regions to detect known and unknown cancer-related mutations. The technology can also examine those regions for gains and losses of DNA sequences and rearrangements of DNA on chromosomes. The results are entered into a database for research purposes, but, if patients agree, the clinically important findings can also be returned to their doctor for use in the clinic.

A total of 160 adult cancer physicians – including medical oncologists, surgeons and radiation oncologists – participated in the survey. They were asked about their current use of somatic testing (i.e., testing patients' tumors for known mutations one at a time), their attitudes about multiplex testing, and their confidence in their ability to understand and use genomic data. The survey did not include a direct test of the physicians' knowledge.

Respondents said they ordered tumor genomic testing on an average of 24 percent of patients. Twenty-two percent of the doctors reported low confidence in their knowledge about genomics. Fourteen percent lacked knowledge in explaining these concepts to patients, and 26 percent doubted their ability to make treatment recommendations based on

genomic data. Perhaps for these reasons, 18 percent of the physicians said they planned to use multiplex tumor testing only infrequently.

Gray and her colleagues conclude there is "little consensus" on how physicians plan to use this new tool for personalized cancer care, and suggest the need for evidence-based guidelines to help doctors determine when testing is indicated.

"One of the strengths of this study is that its information comes from an institution where 'precision cancer medicine' is available to everyone," commented Barrett Rollins, MD, PhD, a co-author on the paper and Dana-Farber's Chief Scientific Officer. "It highlights the fact that there's a lot of work to be done before this can be considered a standard approach in oncology."

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