MedicalXpress

Molecular tumor board helps in advanced cancer cases

May 5 2014

With accelerating development of personalized cancer treatments matched to a patient's DNA sequencing, proponents say frontline physicians increasingly need help to maneuver through the complex genomic landscape to find the most effective, individualized therapy.

In a paper published in the May 5 online issue of *The Oncologist*, researchers at the University of California, San Diego School of Medicine and Moores Cancer Center detail their experience evaluating 34 patients between December 2012 and June 2013 using a molecular tumor board – a new type of advisory group comprised of multidisciplinary experts, including those in the fields of tumor genetics, basic science and bioinformatics.

"Next generation sequencing tools were used to profile patients' tumors," said Razelle Kurzrock, MD, director of the Center for Personalized Cancer Therapy at UC San Diego Moores Cancer Center. In the 34 cases examined, no two patients shared the same genomic abnormalities. "We found 74 genes with 123 aberrations involved in cancer growth. Technology is permitting us to look at the molecular level of tumors, but most physicians are not trained in advanced genomics. We need access to experts in fundamental molecular biology to translate the data."

The Moores Cancer Center's Molecular Tumor Board brought together medical, surgical and radiation therapy oncologists, biostatisticians, radiologists, pathologists, clinical geneticists, basic and translational science researchers, and bioinformatics and pathway analysis specialists

to discuss the intricacies of tumor genetics and tailor a personalized treatment plan for patients with advanced cancer or who have exhausted standard therapies.

Of the 123 abnormalities found in the patients' genetic cancer profiles, 107 of these irregularities appeared only once. "Cancer can be different in every patient," said Barbara Parker, MD, Moores Cancer Center deputy director for Clinical Affairs. "Standard therapy can be very efficient for many patients, but for those who do not respond to conventional treatment we need to find alternatives that will work for their disease."

For 12 patients studied who had failed to respond to conventional therapy, treatment plans were modified according to the results of their genomic testing and the Molecular Tumor Board's input.

"Three of the patients who had personalized cancer treatment plans discussed at the Molecular Tumor board had a partial response," said Richard Schwab, MD, Moores Cancer Center hematology oncologist and co-director of the Biorepository and Tissue Technology Shared Resource. "Developing a plan tailored to a patient's genetic makeup is helping us treat patients who are not responding to standard care or whose disease may have become drug resistant."

Other patients in the study had their molecular profiling done while they were receiving treatment that was still working for them because their physicians anticipated that the therapy would become ineffective. The results of genomic matching in these patients are not yet available. Some patients could not be treated on the basis of Molecular Tumor Board discussions because there was no clinical trial for which they were eligible or because insurance would not cover the discussed medications.

"We have found that molecular diagnostics play an important role in

patient care when paired with the expertise of a molecular tumor board," said Maria Schwaederle, PharmD, lead author and a researcher in the Center for Personalized Cancer Therapy. "However, the immense complexity of tumors and their genomic aberrations will require sophisticated computer technologies for optimal interpretation, and patients need access to more clinical trials and to targeted drugs."

Provided by University of California - San Diego