MedicalXpress

Targeted drugs for advanced cancer move from specialist units to community setting

October 9 2018

Nearly 1 in 4 patients with advanced cancer, treated at Comprehensive Cancer Care Network (NCCN) centres in the US, are receiving innovative drugs matched to DNA mutations in their tumours. This achievement, to be reported at the ESMO 2018 Congress in Munich, shows that cutting-edge precision medicine is spreading from highly specialist cancer units to other healthcare facilities so more patients can benefit, wherever they are treated.

"We have shown that we can perform large-scale tumour profiling and use the results to match patients to targeted treatment in the type of community setting where most patients are treated in the United States," said Dr. Ricardo H. Alvarez, Medical Oncologist, Cancer Treatment Centers of America, Atlanta, USA.

"At our hospitals, we can identify patients with advanced cancer, refractory to previous treatment, and take tissue or liquid biopsies which we send to a central laboratory for analysis and get results within three weeks. If these show alterations in tumour DNA which can be matched to a targeted medicine, we initiate treatment usually with a drug that has been approved for use against a different tumour type, or through enrollment in a gene-directed clinical trial," Alvarez explained.

In the new study, tumour DNA data were analysed from 6,177 patients with advanced cancer treated by over 50 oncologists at five hospitals of Cancer Treatment Centers of America, from 2013-2017. DNA alterations were identified in 94% (5839/6496) of tumour samples, of

which 47% were considered clinically relevant. Analysis of a large subset of patients showed that 23% (1169/4490) received treatment matched to DNA alterations in their tumours. This compares with 11% of patients being enrolled in clinical trials of targeted treatment on the basis of tumour DNA alterations in previously reported studies at academic centres. (2,3)

"In the next few years, we hope that as many as 50% of our patients will receive matched treatment through clinical trials or off-label treatment with approved medicines," said Alvarez. "It is so encouraging to see how precision medicine is changing the way we treat our patients in the community and our next step is to analyse the effects of targeted treatment on survival and quality of life," he added.

The tumours most commonly treated by the community oncologists were breast (18%), colorectal (15%), lung (14%) and gynaecological (11%). The most frequent clinically relevant tumour DNA changes were in the KRAS (23%) and PIK3CA (15%) genes, with the most common alterations being gene amplification (32%). Of patients whose DNA alterations were matched to targeted drugs, 57% (662/1169) received therapies already approved by the US Food and Drug Administration for a different type of tumour, and 15% (178/1169) received treatments in clinical trials.

Dr. Joaquin Mateo, lead author of the recently published paper on ESCAT (ESMO Scale for Clinical Actionability of molecular Targets) aimed at simplifying and standardising choices for targeted cancer treatment, welcomed the findings of the US oncologists: "This is an important study because of the large number of patients and what it tells us about the impact of genomic research on patient care and clinical decisions in the community where the majority of patients are treated. Studies like this are building the evidence we need to implement precision medicine within the oncology community and offer it more

widely to our patients," said Mateo, Principal Investigator of the Prostate Cancer Translational Research Group from the Vall d'Hebrón Institute of Oncology, Barcelona, Spain.

He looks forward to more detailed information about how tumour profiling determined treatment decisions, and the cost of analysing DNA samples from such large numbers of patients.

"The affordability of precision medicine is an important issue and we will need to address the challenge of ensuring efficient use of funds if we can only apply the results of tumour DNA testing to the treatment of a quarter of patients," he said.

Mateo suggested that some variability in matching targeted treatment to tumour DNA alterations between studies may be due to a lack of standard criteria for determining what is a match, and to differences in availability of targeted treatments.

"We need to be confident that matches and the reporting of genomics data and their interpretation are robust across all treatment centres whether they are in hospital or the community. This will make targeted treatments based on these DNA alterations more likely to benefit our patients," Mateo pointed out.

For this reason, he hopes for full implementation of the ESCAT which grades classes of alterations in tumour DNA according to their relevance as markers for selecting patients for targeted treatment, based on the strength of clinical evidence supporting them.

"We hope that the ESCAT will provide a common language for determining relevant mutations and identifying patients most likely to benefit from targeted treatment," he concluded.

Provided by European Society for Medical Oncology