translational research

1621P NEXT GENERATION SEQUENCING. A KEY IN SEARCH OF LOCKS?

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Aim: Cancer treatment has rapidly evolved in the last decades. Research is mainly directed towards the development of targeted treatments based on individual patient and tumor characteristics. A major recent focus has been the use of sequencing tests that focus on targetable gene alterations. Comprehensive cancer genomic testing using Next-Generation Sequencing (NGS) technology is a very fast and efficient tool which identifies a large number of alterations, some of which may prove to be an important aid in therapeutic decision-making. Many challenges exist in the transition of these technologies from research tool to clinical practice. We aimed to investigate the effectiveness of the current NGS technology as an aid in the oncologic treatment at our institution.

Methods: We retrospectively evaluated a cohort of 75 cases of patients with solid tumors treated from Nov. 11 until Feb. 14, who had their tumors sent for a commercially available sequencing assay that utilizes clinical grade NGS. We analyzed all patients for the identification of targetable gene alterations, and whether this result led to a change in treatment and final outcome.

Results: Sixty-six patients (88%) were eligible for our analysis (47% female). Sixty-two (94%) had an identifiable mutation, and 11 (17%) received treatment directed by the NGS result. Seven of these 11 patients (63%) had their tumor analyzed by specimens from metastatic sites. Only one patient had a significant tumor response, which was achieved after 2 months of directed treatment, with disease progression 4 months later. The median number of treatment lines prior to the NGS test was 3.

Conclusions: Current technology already allows us to identify a large number of mutated genes in cancer specimens. However, most of those mutations are not yet drugable. Our results were somewhat disappointing, with less than 10% response among those few who could receive the directed therapy. However, it is important to note that ours was a heavily pretreated population, and that a significant number of the mutations identified might not be real drivers to the tumor growth. The results of our study suggest that the NGS test is still largely investigational, and that its use as a rescue tool for heavily pretreated patients remains questionable.

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