

41P Next Generation Sequencing (NGS) and patient pathways: What is the impact on clinical decision?

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Background: Patient stratification, through the use of personalized medicine tools, is supposed to optimize patient care, reduce toxicities and increase the risk-benefit balance as well as decreasing healthcare costs. However, few studies have assessed the impact of

Next Generation Sequencing (NGS) on clinical decision making. We evaluated whether information on mutational profiles modified clinical practice and care for patients with non-metastatic and metastatic cancer in an observational impact study.

Methods: This study was a multicentric observational decision impact analysis conducted in seven sequencing platforms and 117 hospitals working with these platforms. The platforms were certified by the French National Cancer Institute (INCa). All NGS analyses performed between October 2013 and September 2016 for adult patients treated for lung, colorectal cancer or melanoma, both metastatic and non-metastatic, were included. We excluded analyses on constitutional mutations, somatic mutations for other cancers or NGS analysis with exclusive research purpose. Patients' pathways and referral patterns were obtained from NGS prescription forms and interviews with biomolecular biologists and clinicians. We extracted anonymized data on NGS results from the platforms.

Results: 1213 patients from more than 117 centres were analyzed. Even if panels used were relatively homogeneous - less than 20kb (97%) and commercial kits (80%) -, we observed significant variability among practices. Depending on the initial structure of care and on the platform to which it was related, patients benefited from an NGS analysis at diagnostic (2 platforms) or later on (5 platforms), of a review of the medical file by a multidisciplinary meeting or not and of an unequal access to medical innovation on the national territory.

Conclusions: We observed an important variability among practice on national territory. Thus patient equality of treatment is questionable. In a healthcare and economic perspective, important topics still need to be assessed to get a better understanding of the global impact of NGS. Among the outstanding questions: how can disutility of care, such as avoided complications and toxicities, limitation of diagnostic wavering, be evaluated?

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