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1885P Precision medicine for patients with rare cancers: An effective strategy within the prospective MOSCATO trial

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Background: MOSCATO 01 trial (NCT01566019) is a prospective molecular screening program using high-throughput molecular analysis to guide targeted therapy for patients (pts) with advanced cancers. This approach resulted in enrichment of early phase clinical trials with rare genomic alterations and rare tumors, that may lack an approved standard of care.

Methods: A retrospective clinical and molecular analysis of pts with rare tumors, enrolled in the MOSCATO 01 trial. An on-purpose tumor biopsy was performed, followed by high-throughput molecular analysis using targeted Next Generation Sequencing (NGS), comparative genomic hybridization array (CGHa) and Whole Exome Sequencing (WES) after histological control. Matched therapy was decided accordingly for pts who had targeted molecular alterations.

Results: Between December 2011 and March 2016, 122 pts with 58 different tumors types were enrolled in the MOSCATO 01 trial. Median age was 59 years (range, 19-89), median number of previous systemic therapies was 4 (range, 0–13), 51% (63/122) were women, 90% had ECOG performance 1and 2. Most prevalent histologies were adenocarcinoma of unknown primary (12%), lung NE tumor (8%) and SCC of unknown primary (5%). Most frequent actionable alterations were PIK3CA mutation (14%), ERBB2 amplification (10%), and EGFR amplification (4%). Of 122 pts, 62 (51%) harbored $\geq$ 1 actionable genomic alterations. Thirty pts (25%) received matched therapy. Of these, 6 had a partial response, 9 had stable disease as the best response. Overall response rate (ORR) was 20%. Median PFS2 for matched therapy was 2.8 [95% C.I (1.2 – 4.3)] versus median PFS1 for last standard line 4.6 months, $p = 0.8$. Pts harboring EGFR amplifications had the best median duration of response 9.8 months on matched therapy. Median overall survival was not significantly improved in pts who received matched therapy when compared to pts with unmatched therapy, 14.8 and 8.4 months, respectively($p = 0.1$).

Conclusions: Precision medicine using high-throughput molecular analysis of rare cancers is feasible in clinical practice and can affect their clinical outcomes. Rare tumors harboring EGFR amplification showed prolonged response to targeted treatment. Larger studies and more effective targeted molecules are still needed.

Legal entity responsible for the study: Gustave Roussy Cancer Campus.