**Real-time clinical utility of ctDNA genomic alterations in untreated patients with advanced NSCLC**


1. Department of Medical Oncology, Hospital Clinic de Barcelona, Barcelona, Spain. 2. Department of Medical Oncology, Hospital de Granollers, Barcelona, Spain. 3. Department of Pathology, Hospital Clinic de Barcelona, Barcelona, Spain. 4. Laboratory of Translational Genomics and Targeted Therapies in Solid Tumours, IGSBAPS, Barcelona, Spain. 5. INVATA, Cambridge, UK. 6. Department of Medical Oncology, Gustave Roussy, Villejuif, France. 7. Department of Medical Oncology, Hospital George Pompadour, Paris, France. 8. Department of Biomedical Diagnostics, Hospital Clinic de Barcelona, Barcelona, Spain.

**BACKGROUND**

- Comprehensive genomic profile by next-generation sequencing (NGS) circulating tumour DNA (ctDNA) can identify a wide spectrum of genomic alterations in patients with non-small cell lung cancer (NSCLC) leading to targeted therapies in:
  - Routine clinical care
  - Clinical trials
  - Others (expanded access, off-label, etc)
- At diagnosis liquid biopsy offers a minimal-invasive & easy alternative to tissue sampling (0,2,3)

**OBJECTIVE**

We aimed to assess the real-time clinical utility of liquid biopsy by InvisiFirst™-Lung for guiding targeted therapies in patients with advanced NSCLC.

**PATIENTS AND METHODS**

- A total of 61 patients with advanced NSCLC were enrolled (InvisiFirst™-Lung clinical trial)

**RESULTS**

- The median number of GAs per patient was 2 (range 0-6)

**DISTRIBUTION OF ctDNA GAs**

- At least 1 GAs was found in 92% of patients (56/61)
- A total of 55 patients (90%) had clinically informative results

**Insensitive Tissue**

- In 18 patients (29%) tissue was insufficient for molecular assessment
- In 9 patients (15%), liquid biopsy provided clinically informative results (Fig. 4)

**DISTRIBUTION OF ctDNA GAs BY ESCAT TIERs**

- A total of 20 patients (33%) had at least 1 GAs included in ESCAT tier I & II

**INSUFFICIENT TISSUE**

- In 18 patients (29%) tissue was insufficient for molecular assessment
- In 9 patients (15%), liquid biopsy provided clinically informative results (Fig. 4)

**TURNDOWN TIME**

- The median turnaround time of liquid biopsy was 10 calendar days (range 6-14) from blood draw to report delivery (5 days from lab receipt to report)
- The median time of tissue molecular report was 13 days (9-21), since day of test request to report

**TISSUE-BLOOD CONCORDANCE**

- The concordance of tissue/liquid biopsy was assessed in 54 cases
  - Regarding the main GAs, the tissue/liquid concordance was
    - BRAF V600E (7/7 (100%))
    - KRAS G12C (12/12 (100%))
    - ERBB2 (7/7 (100%))
    - NRAS (3/3 (100%))

**CONCLUSIONS**

- Real-time ctDNA NGS is feasible for routine clinical care in unsellected patients with newly diagnosed advanced non-small cell lung cancer
- In our cohort, ctDNA NGS could guide treatment selections in 33% of the cases (ESCAT tier I & II) in clinical routine and/or clinical trials.