

160P - LungMetrics India: Molecular epidemiology and testing patterns in 4,773 non squamous NSCLC patients

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INTRODUCTION

The evolution of molecular epidemiology and various molecular techniques have changed the therapeutic paradigm of lung cancer. Beyond those which are targeted using tyrosine kinase inhibitor, there are alterations which are implicated in causing resistance to targeted therapy. Indian data for the same is currently lacking and the use of next generation sequencing based comprehensive genomic profiling is still in its nascent stages. This study is a depiction of the molecular epidemiology of non small cell lung cancer in an Indian cohort.

METHODS AND MATERIALS

- All patients with biopsy proven non-squamous NSCLC were included in this study
- The demographics, clinical features and molecular data were collated and recorded from the medical record archives and the hospital information system
- Molecular Testing:
 1. EGFR: RTPCR
 2. ALK: IHC
 3. ROS1: FISH
 4. NGS: OncoPrint focus assay consisting of 52 genes. Interrogates SNVs, fusions and CNVs.
- Statistical analyses: MedCalc software

RESULTS

- ✓ Between 2011-2021: 4773 non squamous NSCLC patients
- ✓ Male: Female- 1.65:1
- ✓ Smoker vs non smoker: 56.2% versus 43.8%
- ✓ Testing patterns:
- ✓ Molecular testing done in 3356 patients
- ✓ NGS in 391 patients
- ✓ Compared 2017 after the WHO made molecular testing mandatory in NSCLC:
 - molecular testing for EGFR increased by 35%, ALK by 37%, ROS1 by 38%
- ✓ NGS started in 2017, and has increased by 3.4%

✓ MOLECULAR RESULTS

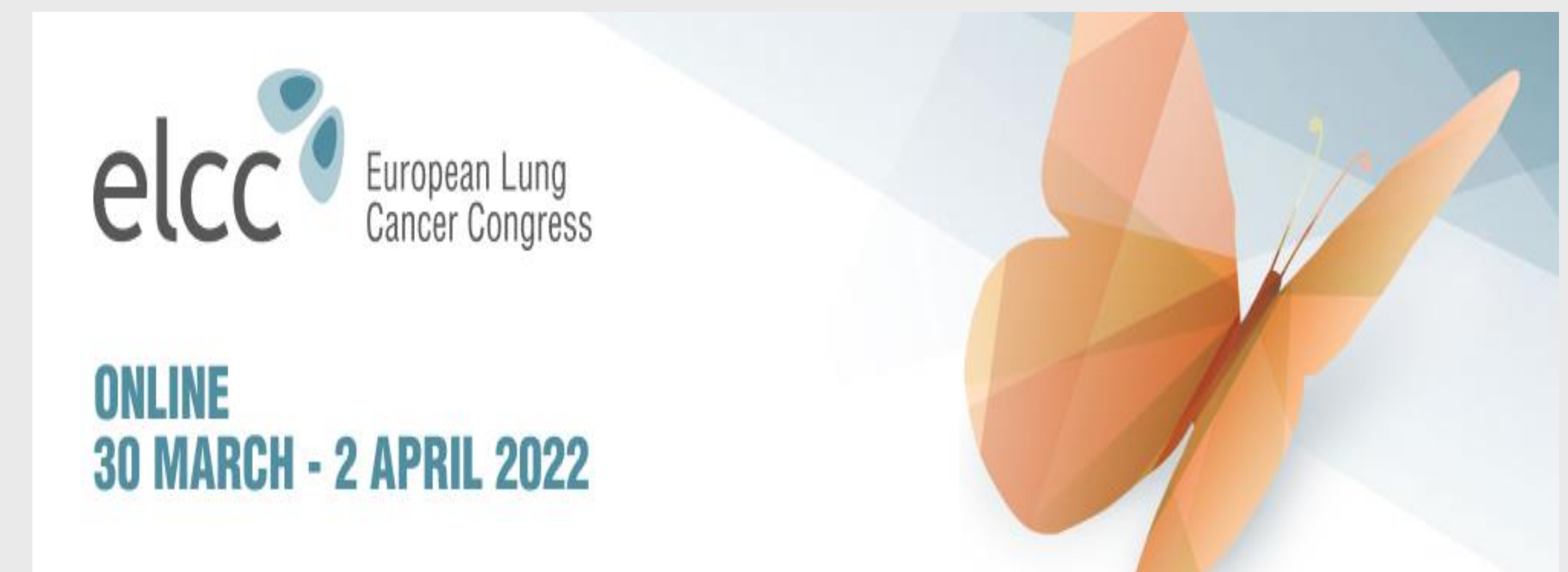
- ✓ EGFR: 27.8%
- ✓ ALK: 5.6%
- ✓ ROS1: 1.8%
- ✓ BRAF: 5%
- ✓ NTRK: 0.2%
- ✓ KRAS: 25%

DISCUSSION

- ❑ We are now moving fast forward to an era wherein commercially available highly sensitive methods such as digital droplet PCR and next generation sequencing (NGS) platforms are being used to test for these targetable mutations/rearrangements in tissue- and nontissue-based specimens as well
- ❑ The phenomenal radiological responses, as well as clinical benefit (including improvement in survival) observed with administration of a targeted drug in advanced/metastatic NSCLC patients with a driver mutation/rearrangement, is not matched by any type of chemotherapy, radiation or its combination

CONCLUSIONS

- ❑ NGS is the way forward in any solid organ malignancy including Lung which serves as the poster child of modern precision medicine.
- ❑ Awareness is important not only among the patients but also treating clinicians, and pathologists.
- ❑ New lab developed tests may help in alleviating the financial restraints which prevent routine NGS testing



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