Survivors from Anti-PD-(L)1 Immunotherapy in NSCLC:
Clinical Features, Survival Outcomes and Long-term Toxicities

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DISCLOSURES

I do not have any relevant financial relationships to disclose.
Immunotherapy improves OS in NSCLC
And leads to immune-related toxicity

5-year OS of NSCLC patients receiving 1L pembrolizumab (mOS 22.3 mos)

Incidence of irAE’s at 3 & 5 years in NSCLC patients treated with pembrolizumab

Garon et al, JCO 2019.
Identification of NSCLC Immunotherapy Survivors

**Study population**
- Retrospective cohort (IRB-approved JHU database)
- IO survivor: alive >1 year after anti-PD-1/PD-L1 treatment initiation
- Histologically-confirmed stage III/IV NSCLC treated between 11/2009-2/2020

**Analytic plan**
- Demographics, treatment, and irAE’s identified via chart review
  - irAEs defined by biopsy, clinical course, or multidisciplinary consensus; graded by CTCAE v5.0
  - Chronic irAEs: experienced >1 year after start of IO
- Median overall survival (OS) & progression-free survival (PFS) estimated using Kaplan-Meier
  - OS: time from IO initiation to death from any cause
## Results

### Clinical Characteristics

<table>
<thead>
<tr>
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<th>n (%)</th>
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<tbody>
<tr>
<td><strong>Median Age at start of IO</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;65 years</td>
<td>54 (47)</td>
</tr>
<tr>
<td>≥65 years</td>
<td>60 (53)</td>
</tr>
<tr>
<td><strong>Smoking Status</strong></td>
<td></td>
</tr>
<tr>
<td>Current/Former</td>
<td>94 (82)</td>
</tr>
<tr>
<td>Never</td>
<td>20 (18)</td>
</tr>
<tr>
<td><strong>Histology</strong></td>
<td></td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>76 (66)</td>
</tr>
<tr>
<td>Squamous cell</td>
<td>30 (26)</td>
</tr>
<tr>
<td>Other</td>
<td>8 (8)</td>
</tr>
<tr>
<td><strong>PD-L1 status</strong></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>69 (61)</td>
</tr>
<tr>
<td>0%</td>
<td>13 (11)</td>
</tr>
<tr>
<td>1-49%</td>
<td>8 (7)</td>
</tr>
<tr>
<td>&gt;50%</td>
<td>24 (21)</td>
</tr>
<tr>
<td><strong>Median number of doses received, (range)</strong></td>
<td>13 (1-121)</td>
</tr>
<tr>
<td><strong>Monotherapy</strong></td>
<td>74 (65)</td>
</tr>
<tr>
<td><strong>Combination therapy</strong></td>
<td>40 (35)</td>
</tr>
</tbody>
</table>

### Spectrum of irAE’s

- **Neurologic (1)**
  - Peripheral neuropathy
- **Endocrine (18)**
  - Hypothyroidism
  - Thyroiditis
  - Hypophosphitis
  - DM1
  - Fatigue
- **Pulmonary (21)**
  - Pneumonitis
- **Renal (1)**
  - Nephritis
- **HematoLogic (2)**
  - Aplastic anemia
  - Anemia
- **Dermatologic (21)**
  - Dermatitis
  - Pruritus
  - Psoriasis
- **Rheumatologic (17)**
  - Inflammatory arthritis
  - Sicca syndrome
  - Xerostomia
  - Dry eye
  - Costochondritis
- **Gastrointestinal (14)**
  - Colitis
  - Diarrhea
  - Hepatitis
  - Pancreatitis
Results: Time to development of irAE’s

Median time to single irAE: 22 weeks

Median time to 1st multisystem irAE: 9 weeks

Most common multi-system irAE’s:
- Dermatitis-pneumonitis (4)
- Pneumonitis – inflammatory arthritis (3)
- Pneumonitis – sicca (2)
NSCLC ICI survivors have unique long-term needs

- 36% (114/317) of NSCLC patients survived >1 year after initiation of IO.

- 52% (59/317) of ICI survivors developed irAEs.

- 27% (31/114) required ongoing management of irAEs at 1 year.