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### 656 TIME TO DIAGNOSTIC CLARITY FOR SUSPECTED CHECKPOINT-INHIBITOR PNEUMONITIS IN PATIENTS WITH LUNG CANCER

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**Background** Optimal diagnostic algorithm to differentiate checkpoint inhibitor pneumonitis (CIP) from mimics is uncertain; patients with respiratory comorbidities often receive prolonged corticosteroids until diagnostic clarification. Drawbacks to empiric use of corticosteroids include decreased immunotherapy (IO) efficacy and increased infectious risk. This retrospective study systematically collected data on patients treated for lung cancer who were suspected to have severe CIP.

**Methods** This single-center retrospective cohort study collected data on all lung cancer patients who received > 1 dose of an immune checkpoint inhibitor between 6/1/18 and 2/1/20 (n=210), were subsequently hospitalized and received > 1 dose of systemic corticosteroids for any indication (n=97). Data were collected on clinical factors including comorbidities, cancer stage, IO cycles, biomarkers, diagnostic work-up, antibiotics, steroids, progression, and survival. A blinded radiologist reviewed all imaging of suspected CIP cases and categorized their radiographic patterns.

**Results** In our high-risk cohort of 97 patients, median follow-up was 23 months with progression in 54 patients (56%) at median 11 months and death in 67 patients (69%) at median 14mo. Twelve patients (12%) were suspected to have severe CIP after IO treatment for lung cancer; CIP was confirmed in 5/12 and ruled-out (mimics) in 7/12 after 30 and 3 median IO cycles, respectively. Most suspected patients underwent CXR, CTA chest, blood cultures, and received empiric antibiotics. Common radiographic patterns were ground-glass opacities, organizing pneumonia, hypersensitivity pneumonitis, and acute interstitial pneumonia/acute respiratory distress syndrome (AIP/ARDS) among confirmed cases (4/5) and ground-glass opacities, organizing pneumonias, bronchiolitis, AIP/ARDS among mimics (4/7). The median time to confirm CIP or rule out a mimic was 5 ± 4 days. Median time to onset of symptoms differed substantially for confirmed and mimic cases: 17 months and 1 month, respectively.

**Conclusions** CIP mimics were more common than confirmed cases in routine clinical practice, particularly among patients hospitalized for respiratory symptoms <1 month after initiating immunotherapy for lung cancers. In these cases, it is reasonable to empirically cover possible CIP with shorter (~1 week) courses of steroids until diagnostic clarity is achieved. CT imaging should be obtained as it is sensitive though not specific for CIP. CIP mimics may contribute to the higher incidence of CIP reported by real-world patient registries than by clinical trials.

**Ethics Approval** The study was approved by Wake Forest Baptist Medical Center's Ethics Board, IRB approval number 00044126

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### 657 INTERLEUKIN-6 RECEPTOR BLOCKADE FOR MANAGEMENT OF IMMUNE CHECKPOINT INHIBITOR RELATED ADVERSE EVENTS IN PATIENTS WITH MELANOMA

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**Background** Management of certain immune mediated adverse events (irAEs) can be challenging and may require prolonged/chronic immune suppression with corticosteroids or other immunosuppressant which could compromise and even reverse the efficacy of immune checkpoint inhibitors (ICI). While the exact immunobiology of irAEs is not fully understood there is enough evidence that IL-6 induced Th-17 that may play critical role in the pathogenesis. Herein, we describe our clinical experience using interleukin-6 receptor (IL-6R) blockade in management of irAEs in melanoma patients.

**Methods** We searched MD Anderson databases to identify cancer patients who had received ICIs between January 2004 and March 2020. Of 11,391 ICI-treated patients, 21 patients with melanoma who received IL-6R blockade after ICI infusion were identified and their medical records were reviewed.

**Results** Median age was 61 years (41–82), 52% were females, 90% received anti-programmed cell death-1 antibodies. Fourteen patients (67%) had de novo onset irAEs (11 had arthritis, and 1 each with polymyalgia rheumatica, oral mucositis, and CNS vasculitis), and 7 patients (33%) had flare of their pre-existing autoimmune diseases (5 had had rheumatoid arthritis, and 1 each with myasthenia gravis and Crohn's disease). Median time from ICI initiation to irAEs was 91 days (range, 1–496) and to initiation of IL-6R blockade was 6.6 months (range, 0.6–24.3). Median number of IL-6R blockade was 12 (range, 1–35), and 16 patients (76%) were concomitantly receiving corticosteroids of median dose of 10 mg (range, 5–20 mg). Of the 21 patients, irAEs improved in 14 (67%) (95% CI: 46%–87%). Of 13 evaluable patients with arthritis, 11 (85%) achieved remission or minimal disease activity as defined by the clinical disease activity index. Median time from initiation of IL-6R blockade till improvement of irAEs was 2.9 months (range, 1.5–36.9). Nineteen patients tolerated well IL-6R blockade, while two patients stopped treatment due to abdominal pain and sinus tachycardia. The median CRP levels at irAEs was 84 mg/L (0.6–187) and decreased to 1.9 mg/L (0.56–12) at 10 weeks after initiation of IL-6R blockade (P=0.02). Of the 17 evaluable patients, the overall tumor response rate by RECIST-1.1 criteria was similar before and after IL-6R blockade initiation (41% vs. 53%).

**Conclusions** Our data demonstrated that IL-6R blockade could be an effective therapy for irAEs management without dampening the efficacy of ICIs. Prospective clinical trials with longitudinal blood, tumor, and inflamed tissue biopsies are planned to accurately validate these findings and better study the immunobiology of irAEs.

**Ethics Approval** The study was approved by The University of Texas MD Anderson Cancer Center intuition's Ethics Board, approval number PA19-0089

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