

patients were excluded given lack of records or because they received less than 2 cycles of treatment.

**Results** 176 patients were included in the final analysis. ICIs were discontinued in 25/176 (14.2%) patients secondary to AE. 24/176 (13.6%) patients had grade III or higher AEs reported. 10/95 (10.5%) patients who received pembrolizumab developed grade III/IV AEs (8 pneumonitis, 2 nephritis). 5/45 (11.1%) patients treated with nivolumab developed grade III/IV AEs (2 pneumonitis, 1 new-onset DKA, 1 nephritis, 1 myositis). 8/19 (42.1%) receiving durvalumab had grade III or higher AEs (6 pneumonitis, 1 sepsis, 1 colitis). Lastly, 1/17 (5.8%) in atezolizumab group developed grade III/IV AE (colitis). 96/176 (54.5%) patients had one or more ER visit and 91/176 (51.7%) were admitted to the hospital for various reasons one or more times.

**Conclusions** ICIs have a relatively safe drug profile. 86.4% of our studied population did not develop any grade III or higher AEs. The main reason for ICI discontinuation was disease progression rather than AE. The most common grade III/IV AE was pneumonitis. Durvalumab had the highest incidence of AE, pneumonitis, which is likely related to radiation use prior to immunotherapy.

**Acknowledgements** N/A

**Ethics Approval** Institutional Review Board approval - IRB#: SFH-19-72

## REFERENCES

1. Azoury SC, Straughan DM, Shukla V. Immune checkpoint inhibitors for cancer therapy: clinical efficacy and safety. *Curr Cancer Drug Targets* 2015;**15**(6):452–62.
2. Kyi C, Postow MA. Checkpoint blocking antibodies in cancer immunotherapy. *FEBS Lett*. 2014 Jan 21;**588**(2):368–76. doi: 10.1016/j.febslet.2013.10.015.
3. Kroshinsky F, Stölzel F, von Bonin S, Beutel G, Kochanek M, Kiehl M, Schellongowski P, Intensive Care in Hematological and Oncological Patients (iCHOP) Collaborative Group. New drugs, new toxicities: severe side effects of modern targeted and immunotherapy of cancer and their management. *Crit Care* 2017 Apr 14;**21**(1):89. doi: 10.1186/s13054-017-1678-1.
4. Hofmann L, Forschner A, Loquai C, Goldinger SM, Zimmer L, Ugurel S, Schmidgen MI, Gutzmer R, Utikal JS, Heinzerling LM, et al. Cutaneous, gastrointestinal, hepatic, endocrine, and renal side-effects of anti-PD-1 therapy. *Eur J Cancer* 2016 Jun;**60**:190–209. doi: 10.1016/j.ejca.2016.02.025.

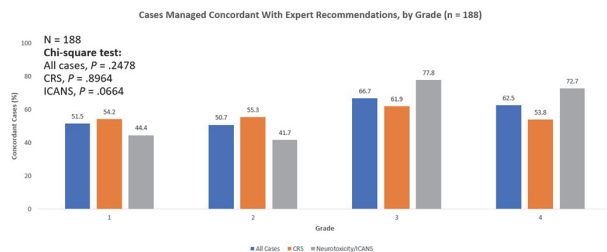
<http://dx.doi.org/10.1136/jitc-2020-SITC2020.0654>

655

## CONCORDANCE BETWEEN HEALTHCARE PROVIDERS AND EXPERT CONSENSUS RECOMMENDATIONS IN THE MANAGEMENT, MONITORING, AND MITIGATION OF ADVERSE EVENTS ASSOCIATED WITH CAR T-CELL THERAPY: AN UPDATED ANALYSIS

<sup>1</sup>Matthew Frigault\*, <sup>2</sup>Megan Cartwright, <sup>2</sup>Krista Marcello, <sup>2</sup>Timothy Quill, <sup>3</sup>Daniel DeAngelo, <sup>3</sup>Ilene Galinsky, <sup>4</sup>Shilpa Paul, <sup>5</sup>Jae Park. <sup>1</sup>Massachusetts General Hospital, Somerville, MA, USA; <sup>2</sup>Clinical Care Options, LLC, Reston, VA, USA; <sup>3</sup>Dana-Farber Cancer Institute, Boston, MA, USA; <sup>4</sup>MD Anderson Cancer Center, Houston, TX, USA; <sup>5</sup>Memorial Sloan Kettering Cancer Center, New York, NY, USA

**Background** Chimeric antigen receptor (CAR) T-cell therapy has been a major innovative breakthrough for hematologic malignancies. These therapies are associated with unique and potentially serious toxicities, including cytokine release syndrome (CRS) and immune effector cell-associated neurotoxicity (ICANS), that require vigilance, prompt recognition, and appropriate management to ensure patient safety and optimal therapeutic benefit. We developed an online tool to give



**Abstract 655 Figure 1** Planned management of HCPs compared with expert recommendations, by grade

healthcare providers (HCPs) case-specific, evidence-based expert guidance on the management of adverse events (AEs) from CAR T-cell therapy. Here, we report an updated analysis comparing CAR T-cell toxicity management among HCPs using the tool vs the expert consensus recommendations.<sup>1</sup>

**Methods** In March 2019, 5 experts provided consensus guidance for the screening, prophylaxis, monitoring, and management of CRS and ICANS in patients considering or receiving CAR T-cell therapy. This information was used to build the interactive online tool. To use this tool, HCPs enter the AE of interest, the severity of the event,<sup>2</sup> and their planned management approach. The HCPs were then shown the expert recommendation for that specific scenario. After viewing the expert recommendation, HCPs were asked if it affected their intended approach.

**Results** Between May 2019 and July 2020, 282 HCPs entered 431 unique case scenarios into the tool. Of the entered cases, 56% were HCPs seeking expert recommendations on pretreatment screening and prophylaxis/monitoring strategies for patients not yet experiencing an AE. Of 188 cases entered for patients who received CAR T-cell therapy and experienced an AE, 67% were CRS and 33% were neurotoxicity/ICANS. Overall the planned toxicity management strategy of HCPs matched the expert recommendations in 57% of cases, with a similar rate of concordance for both CRS and ICANS events. There was no significant difference in concordance rates with expert recommendations by toxicity severity (figure 1) nor among HCPs who indicated they practiced at authorized centers vs those who did not (P = 0.7184). Among HCPs who answered the optional survey on the impact of the tool on their management plan, 30% indicated that the expert recommendations changed their approach.

**Conclusions** These data suggest that many HCPs are challenged to optimally manage CAR T-cell therapy toxicities in concordance with expert recommendations. Use of an online tool providing easy access to evidence-based consensus expert recommendations may improve care and safety in patients treated with CAR T-cell therapy. A detailed analysis of the tool including planned management vs expert recommendations for each toxicity and grade will be presented.

## REFERENCES

1. Frigault MJ, Cartwright M, Marcello K, Quill T, DeAngelo DJ, Galinsky IA, Paul S, Park JH. Management of CAR T-Cell toxicities: concordance and divergence between healthcare providers and expert recommendations. *Blood* 2019;**134**:2199.
2. Lee DW, Santomasso BD, Lock FL, Ghobadi A, Turtle CJ, Brudno JN, Maus MV, Park JH, Mead E, Pavletic S, Go WY, Eldjerou L, Gardner RA, Frey N, Curran KJ, Peggs K, Pasquini M, DiPersio JF, van den Brink MRM, Komanduri KV, Grupp SA,

Neelapu SS. ASTCT Consensus grading for cytokine release syndrome and neurologic toxicity associated with immune effector cells. *Biol Blood Marrow Transplant* 2019;25:625–638.

<http://dx.doi.org/10.1136/jitc-2020-SITC2020.0655>

656

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

Eric Olson \*, Andrew Faucheu, JiaHao Liang, Janardhana Ponnathapura, Jeffrey Lantz, Nathan Roberts, Andy Dothard, Thomas Lycan. *Wake Forest Baptist Medical Center, Winston Salem, NC, USA*

**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

<http://dx.doi.org/10.1136/jitc-2020-SITC2020.0656>

657

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

<sup>1</sup>Chantal Saberian\*, <sup>2</sup>Faisal Fa'ak, <sup>3</sup>Jean Tayar, <sup>4</sup>Maryam Buni, <sup>4</sup>Sang Kim, <sup>4</sup>Huifang Lu, <sup>4</sup>Maria Suarez-Almazor, <sup>4</sup>Stephen Gruschkus, <sup>4</sup>May Daher, <sup>4</sup>Kaysia Ludford, <sup>5</sup>Daniel Johnson, <sup>4</sup>Noha Abdel-Wahab, <sup>4</sup>Adi Diab. <sup>1</sup>The University of Texas MD Anderson Cancer Center, Bellaire, TX, USA; <sup>2</sup>Piedmont Athens Regional Medical Center, Athens, GA, USA; <sup>3</sup>MD Anderson Cancer Center, Houston, TX, USA; <sup>4</sup>MD Anderson Cancer Center, Bellaire, TX, USA; <sup>5</sup>Louisiana State University, New Orleans, LA, USA

**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 institution's Ethics Board, approval number PA19-0089

<http://dx.doi.org/10.1136/jitc-2020-SITC2020.0657>