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 14 mo. 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 medium 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 CT imaging should be obtained as it is sensitive though not reasonable to empirically cover possible CIP with shorter (~1 month) courses of steroids until diagnostic clarity is achieved.

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