INFECTIOUS COMPLICATIONS IN PATIENTS WITH NON-SMALL CELL LUNG CANCER TREATED WITH ANTI-PD(L)1 IMMUNE CHECKPOINT INHIBITORS

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Background Immune checkpoint inhibitors (ICI) are standard treatment for stage III/IV non-small cell lung cancer (NSCLC). ICIs may cause immune-related adverse events (irAEs) often requiring corticosteroids or other immunosuppressive therapy and are associated with increased risk of opportunistic infections.^{1 2} The burden of infectious complications in NSCLC patients (pts) treated with ICIs is poorly described.

Methods We retrospectively reviewed NSCLC pts treated with ICIs between 2016–2020 at a large tertiary academic center. An infectious complication related to ICIs was defined as a pathogen-confirmed or clinically diagnosed infection requiring antimicrobials during or within 3 months of ICI discontinuation. High-grade infections were defined as those requiring IV antibiotics (grade 3), life-threatening or requiring ICU stay (grade 4), or resulting in death (grade 5). irAEs were defined by the treating provider and treated according to standard guidelines. Patient demographics, treatment data, cancer outcomes, infectious complications, and irAE details were annotated in an IRB-approved database. An AE treated as both an infection and/or irAE with antibiotics and immunosuppression was coded as a concomitant irAE/infection event. The association between patient features and infectious complications was examined using logistic regression. Treatment and disease characteristics for concomitant irAE with infection were also described.

Results 302 ICI-treated NSCLC pts were included. 211 pts received PD-1 monotherapy and 91 received PD-1 therapy with CTLA-4 therapy, chemotherapy, or other investigational therapy. The majority (175/302, 57.9%) had a documented infection (bacterial=138, viral=17, fungal=19, mycobacterial=1) during or within 3 months of ICI discontinuation. Grade ≥ 3 infections occurred in 33.4% of pts (101/302). Pulmonary infections were most common (35.4%), followed by gastrointestinal, urinary, and skin (<10%, each). A subset of pts were treated as having concomitant irAE/infection events (63/302, 20.9%). Among 63 pts who experienced irAEs, pneumonitis occurred most commonly (47/63, 74.6%) followed by colitis (7/63, 11.1%); other irAEs (hepatitis, myocarditis, thyroiditis) occurred in <3 patients each. A concomitant event was associated with a trend toward higher odds of hospitalization (OR 3.91, CI 0.5–30.76) when adjusted for grade ≥ 3 infection. Similarly, steroid use within one month prior to infection, was also associated with a trend toward higher odds of hospitalization (OR 8.88, CI 0.81–97.15), adjusted for grade ≥ 3 infection.

Conclusions In this retrospective study of NSCLC pts treated with ICIs, the majority experienced infections during or within 3 months of ICI discontinuation. The most common infections were bacterial pulmonary in origin. Concomitant irAE/infection was associated with trend toward higher odds of hospitalization.

REFERENCES

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Ethics Approval This retrospective chart review study has obtained ethics approval from the Institutional Review Board at the Johns Hopkins School of Medicine (number: IRB00129424).

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