SINGLE-INSTITUTION RETROSPECTIVE REVIEW OF PATIENT’S DIAGNOSED WITH IMMUNE CHECKPOINT INHIBITOR THERAPY-RELATED PNEUMONITIS

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Background Immune checkpoint inhibitor therapy-related (ICI) pneumonitis poses a significant challenge in patients with cancer. There is paucity of data on patient characteristics and outcomes in this population.

Methods This is a retrospective study of patients diagnosed with ICI pneumonitis at the Mayo Clinic from 2014 to 2022. A list of patients was compiled using Mayo Clinic’s informatics tool, Advanced Text Explorer, with keywords ‘pneumonitis’ and ‘immunotherapy’ (n=848). All cases were independently reviewed by our pulmonology specialist (A.E.) to confirm the appropriate diagnosis which yielded 170 patients. Excluded patients were those with alternative diagnoses. The grading of pneumonitis was defined in accordance with ASCO guidelines.

Results 170 patients with ICI pneumonitis were included (median age 67; range 25–87) and 48% were male (table 1). The severity of ICI pneumonitis was as follows: grade 1 (n=17, 10%), grade 2 (n=85, 50%), grade 3 (n=53, 31%), and grade 4 (n=15, 9%). The median time from initiation of immunotherapy to development of ICI pneumonitis was 4 months (interquartile range 2 - 9.5). 47 (28%) had another ICI toxicity. Median overall survival (OS) was 2.5 years (95% CI: 1.8-NR). A higher grade of ICI pneumonitis was associated with inferior outcomes (HR 2.0, 95% CI 1.5–2.8, p<0.001), while PD-L1 expression, age at diagnosis of ICI pneumonitis, and smoking status were not associated with inferior outcomes (p > 0.05). 51 (30%) were rechallenged with immunotherapy after an initial episode of ICI pneumonitis. Among those rechallenged, 23 (45%) developed recurrent pneumonitis (78% grade 2, 22% grade 3–4). Patients rechallenged, had significantly improved outcomes compared to patients who were not rechallenged (HR 0.37, 95% CI 0.2–0.7, p=0.001). On subset analysis, we identified the majority of the benefit was from patients with grade 2 severity (figure 1). The median OS based on grade of ICI pneumonitis was 28 months (95% CI: 28-NR) for grade 1, 52 months (95% CI: 38-NR) for grade 2, 13 months (95% CI: 7.6-NR) for grade 3, and 4 months (95% CI: 2.2-NR) for grade 4.

Conclusions Patients with grade 1–2 ICI pneumonitis do significantly better than patients with grade 3–4 ICI pneumonitis. Rechallenge may result in a high frequency of recurrent pneumonitis (45%); however, patients who were rechallenged had significantly improved outcomes compared to patients who were not rechallenged. Further studies should be done to validate whether all patients with ≤ grade 2 pneumonitis should undergo a rechallenge.

Ethics Approval This study was approved by the Mayo Clinic IRB.

REFERENCE

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