INITIAL STRATEGY OF CORTICOSTEROIDS-IMMUNOSUPPRESSANT TREATMENT AND THE CONSEQUENT CLINICAL OUTCOME AMONG NON- Small CELL LUNG CANCER PATIENTS WITH SEVERE CHECKPOINT INHIBITOR PNEUMONITIS

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Background This study was designed to explore the optimal doses and timing of corticosteroids and the benefits of immunosuppressant administration when managing severe (grade 3+) cases of checkpoint inhibitor pneumonitis (sCIP).

Methods A retrospective analysis of corticosteroid and immunosuppressant use among non-small cell lung cancer (NSCLC) patients diagnosed with sCIP at West China Hospital between 2019 and 2023 was conducted. The 90-day survival rates for these patients were analyzed using Kaplan-Meier curves. The X-tile procedure was used to assess the optimal timing of corticosteroid use, while patient treatment progress and associated outcomes were presented with Swimmer plots and Sankey diagrams.

Results Approximately 2.2% (48/2,185) of analyzed NSCLC patients developed sCIP following immunotherapeutic treatment, and 39.6% (19/48) of these cases were steroid-refractory. Steroid-refractory sCIP patients exhibited a significantly worse 90-day survival rate than that of individuals with non-steroid-refractory disease (40.4 vs. 63.5 days, p = 0.038). Relative to the other analyzed dose groups, significantly prolonged survival was observed for patients administered a 1–2 mg/kg corticosteroid dose (64.2 vs. 43.7 days, p = 0.038).

The addition of pirfenidone further improved 90-day survival outcomes in treated patients (71.8 vs. 45.7 days, p = 0.021). The X-tile program calculated the optimal corticosteroid treatment duration to be 8–10 weeks, and survival curves confirmed that patients treated for 8–10 weeks exhibited the longest survival. Both Swimmer plots and Sankey diagrams underscored the importance of adding immunosuppressants at as early a time point as possible following sCIP patient failure to respond to corticosteroid treatment, and suggested that infliximab may be the best therapeutic option for these patients. ROC curves further demonstrated that a combination of three hematological indicators (PCT, lactic acid, and creatinine) at the time of new-onset sCIP diagnosis can effectively predict patient 90-day survival rates, with an area under the curve of 0.946.

Conclusions These results suggest that the optimal corticosteroid dose and duration for use when treating patients with sCIP are 1–2 mg/kg and 8–10 weeks, respectively. In addition, immunosuppressive treatment should be initiated as quickly as possible following the onset of steroid-refractory CIP, and infliximab may be a promising therapeutic option for these patients.

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