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IMMUNE-RELATED ADVERSE EVENTS OF IMMUNE CHECKPOINT INHIBITORS: THE DEBRECEN EXPERIENCE

Zoltán Szekanecz[1], Enikő Sebestyén[2], Nóra Major[2], Levente Bodoki[1], Attila Makai[3], Ingrid Balogh[2], Gábor Tóth[4], Zsuzsanna Orosz[3], Péter Árkosy[2], Attila Vaskó[3], Katalin Hodosi[1], Éva Szekanecz[2]; Hungarian Onco-Rheumatology Network (HORN) initiative

[1]*University of Debrecen, Faculty of Medicine, Departments of Rheumatology, Debrecen, Hungary*
[2]*University of Debrecen, Faculty of Medicine, Departments of Oncology, Debrecen, Hungary*
[3]*University of Debrecen, Faculty of Medicine, Departments of Pulmonology, Debrecen, Hungary*
[4]*University of Debrecen, Faculty of Medicine, Departments of Laboratory Medicine, Debrecen, Hungary*

Objectives. Immune checkpoint inhibitors (ICIs) stimulate the antitumor immune response. In parallel, they might trigger autoimmune mechanisms. Here we review recent information on this topic. In addition, we present our recent data on immune-related adverse events (irAE) of ICI treatment at the University of Debrecen.
Patients and methods. Between June 2017 and May 2021, 207 patients started ICI treatment. A total of 157 patients received nivolumab and 50 received pembrolizumab. We looked for correlations regarding factors related to immunological side effects. We performed a logistic regression analysis in order to determine the prognostic factors of irAEs.
Results. At the time of data analysis, the mean duration of treatment was 2.03 ± 0.69 years. A total of 125 patients received 8 or more treatment cycles. Three times more patients received nivolumab than pembrolizumab ($p<0.01$). Of the 207 patients, 66 (32%) had 103 irAEs. Thirty-six patients (55%) developed one, 23 (35%) developed 2, while 7 (10%) developed 3 irAEs. The most common irAEs were thyroid (33 cases), dermatological (25 cases), pneumonia (14 cases) and gastrointestinal complications (13 cases). When patients with irAEs (n=66) and patients without irAEs (n=141) were compared, patients with complications received significantly more treatment cycles and were younger at the start of treatment ($p<0.05$). The number of side effects correlated with the number of treatment cycles ($R=0.227$; $p=0.001$). Binary regression analysis showed that 9 or more treatment cycles resulted in an increased risk of irAEs with an odds ratio (OR) of 3.3 (95% CI: 1.008–1.042; $p=0.004$). More frequent but less severe irAEs were associated with pembrolizumab treatment compared to nivolumab (OR: 1.88; 95%CI: 0.980–3.599; $p=0.058$).
Conclusions. With ICI treatment, irAEs may occur. These may be related to the number of treatment cycles, the underlying disease and the type of medication chosen.

Keywords: checkpoint inhibitors, immune-related, adverse events
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