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First Experience with Dinutuximab in Children with High-Risk Neuroblastoma

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Background: Neuroblastoma (NB) is the most common extracranial solid tumor in childhood. High-risk NB still has a poor prognosis and requires complex aggressive therapy. For a decade, immunotherapy with dinutuximab – anti GD2 chimeric monoclonal antibody – was integrated into treatment protocols as a routine part of the treatment. However, drug administration is related to potentially severe adverse effects. Thus, its administration is recommended in experienced centers. We aim to describe the first Lithuanian experience with dinutuximab.

Methods: We performed a retrospective analysis of patients with high-risk NB treated with dinutuximab at our institution in 2020-2022. Toxicity and treatment outcomes were evaluated. The data were retrieved from electronic and paper records.

Results: in 2020-2022, four patients were treated with dinutuximab. Totally, 20 cycles were delivered, 5 cycles in each patient. One patient received dinutuximab as the first-line treatment. In 3 children dinutuximab was administered as second-line therapy with a median of 18 months (range 9-21) after relapse. For the majority of patients, the treatment tolerance was acceptable. The main adverse events were fever (n = 4), vision impairment (n = 1) and capillary leak syndrome (n = 1). The adverse events were 1-2 degrees, so all patients completed the treatment. At the time of analysis, two patients remain in complete remission, one patient achieved stable disease and one patient died because of disease progression. Five-year overall survival was 66.7%

Conclusions: Immunotherapy is currently the standard for first-line maintenance treatment of high-risk neuroblastoma. Dinutuximab administration is associated with a risk of severe adverse events, so the treatment should be performed in an experienced pediatric oncology center.

Keywords: dinutuximab; GD2; immunotherapy; monoclonal antibody; neuroblastoma.