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Early onset of immunotherapy in high risk Neuroblastoma

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ABSTRACT

Neuroblastoma is the most common extracranial solid tumor in children, accounting for 15% of all pediatric cancer deaths. High-risk neuroblastoma (HRNB) is a particularly difficult-to-treat form of the disease that requires aggressive therapy. According to the International Society of Paediatric Oncology European Neuroblastoma group (SIOPEN), the standard of care for patients with HRNB is intensive induction therapy with rapid COJEC (time-intensive cisplatin, carboplatin cyclophosphamide, vincristine, etoposide) ± TVD (topotecan, vincristine, doxorubicin) followed by consolidation therapy with high-dose busulfan/ melphalan and autologous stem cell transplant, and maintenance therapy with dinutuximab beta (five cycles)+/- 13-cis retinoic acid. In the last decade, different induction chemotherapeutic regimens are used in order to improve the results, but still due to the lower toxicity rates, Rapid Cojec protocol remains the best option. Despite treatment advances, the prognosis of these patients remains poor. As a better response to induction therapy has been associated with prolonged survival in patients with HRNB, we hypothesized that early use of dinutuximab beta – post induction therapy – may improve patient outcomes. We describe here our experience of administering at least one cycle of dinutuximab beta post induction in three children with HRNB who did not achieve a complete response to induction chemotherapy.

From the start of that treatment modality, we treated 12 patients for the last three years- just 2 patients have relapsed after achieving remission(2-year and 3-year OS- 100%, 2 year- and 3-year EFS-83%) and still on treatment, which is better in comparison to the results, recorded in SIOPEN study by Ladenstein et al in 2019.

11 of this patients are with HRNB with MYCN amplification and just one patient is with HRNB without MYCN amplification.

From the MYCN amplified group just 1 patient(8.3%) experience a late relapse as the other patients all achieved remission and have 3-year EFS.

11/12 patients achieved full remission and just the patient with MYCN non-amplified tumor did not achieve full remission at any stage.

Dinutuximab beta given post induction therapy has therefore the potential to improve responses in patients with HRNB who do not achieve a complete response with induction therapy and therefore to improve the 3-year OS and EFS in these patients. Further evaluation will be done after another two year follow up period.

BIOGRAPHY

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