IMMUNOTHERAPY IN HIGH RISK NEUROBLASTOMA – TREATMENT ALGORITHM OF COMPLICATIONS

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We report our center experience in immunotherapy of high risk neuroblastoma, in particular concerning the most common side effects and their management.

Multidisciplinary team approach will be discussed as well, as it is especially important in care for these patients.

Retrospective review of hospital medical data basis High risk neuroblastoma patients receive intensive multimodal therapy that includes induction, consolidation, and postconsolidation phases. The postconsolidation or maintenance phase implies immunotherapy with anti-GD2 monoclonal antibody dinutuximab beta, applied with the purpose of eliminating any residual tumor cells that may exist after induction and consolidation treatment (multigagent chemotherapy, surgery, high-dose chemotherapy and autologous stem cell transplant).

During the 3-year period (2017 – 2019) 8 high risk neuroblastoma patients received immunotherapy with dinutuximab beta in our center. Patients were in remission confirmed by different methods of investigation. Dinutuximab beta was applied in hospital conditions, as a 10-day continuous infusion, with premedication and concomitant medications that included crystalloid fluids, various pain medications, antihistamines, antiemetics and antipyretics, requiring double lumen central venous catheter and continuous monitoring of vital functions.

Most of our patients achieved adequate pain control with gabapentin and titrated doses of opioids. Fever was a common side effect easily managed by NSAIDs. In case of allergic reaction the rate of dinutuximab beta was decreased by half and restored to its full rate after resolution of symptoms. In the meantime additional doses of antihistamines, oxygen, salbutamol and racemic epinephrine were applied depending on the clinical condition.

Special care was dedicated to fluid balance supervision due to the risk of capillary leak syndrome. Although 5 of our patients had some degree of capillary leak, only one patient developed significant hypotension which was recognized and treated in timely manner with fluid boluses and epinephrine titrated to effect. Upon resolution of hypotension, the drug infusion was restarted at 50% rate during 2 hours and after that in the absence of recurrent hypotension increased to the full rate.

Postconsolidation immunotherapy with dinutuximab beta has become the standard of care for high-risk neuroblastoma patients. The benefits of this kind of therapy do not come without risks. Having front-line providers who are familiar with immunotherapy and its associated toxicities is critical to the safe and consistent administration of this complex therapy. The team includes physicians of different specialties, nurse practitioners, physician assistants and bedside nurses.