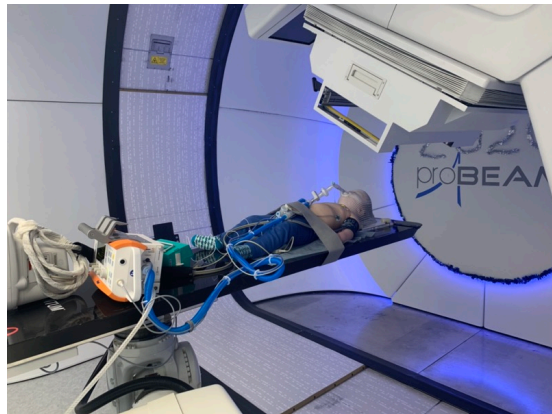


Results

Mean anesthetics number - 23 (20-32) per day. In 2 stem tumors patients during propofol anesthesia desaturation revealed and mechanical ventilation started. In 24 children radiation treatment was interrupted due to radiation-induced hydrocephalus, patients transferred to neurosurgery department for ventriculoperitoneal shunting and started again with radiotherapy. In 56 patients (15.5%), due to tumor decreasing and strong clinical psychologist support, on 15-20 fractions, we were able to refuse anesthesia and children continued proton therapy without sedation.

Fig 2. Treatment room



Conclusion

Implementation of pediatric anesthesia during proton therapy characterized by strong infrastructure creation (anesthesia rooms, awakening wards, patient trolleys with oxygen, monitoring and ventilator etc). For optimal treatment room time management it's critical to implement revolver-style patient anesthesia clinical way.

PO-1569 Radiation-induced lymphopenia in pediatric high-risk neuroblastoma

E. Gomis Selles¹, Ó. Muñoz Muñoz¹, B.D. Delgado León¹, P. Cabrera Roldán¹, A.M. Burgueño Caballero¹, J.L. López Guerra¹

¹Virgen del Rocio University Hospital, Radiation Oncology, Sevilla, Spain

Purpose or Objective

The main objective of this study is to assess the impact of radiation therapy (RT) on hematological function in high-risk neuroblastoma pediatric patients and analyzed its relation with overall survival.

Materials and Methods

Retrospective cohort study selecting all pediatric patients with adrenal high-risk neuroblastoma treated with radical intention with RT from October 2008 until august 2021. A comparison of bloodlines recount prior to RT, at a month over RT, and at the end of follow-up was performed and related to overall survival.

Results

Forty-two children with a median age of 3.24 years at diagnosis and 4.24 years of follow-up were selected.

We found a significant decrease in the recount of lymphocytes at a month over RT (median 1.28×10^3 cell/ml vs 0.84×10^3 cell/ml; p-value < 0.001). No significant increase was observed in any bloodline. We grouped the patients according to whether more than 73 days had elapsed from the transplant to the treatment (median for this interval) or if they were older or younger than 4 years (median age), without finding significant differences in the grade of lymphopenia post-RT.

The survival analysis revealed an association of near significance between risk of death (overall survival) and acute drop in lymphocyte recount at one-month post-RT (HR = 1.68; p-value = 0.10; CI95% [0.894; 3.151]) (Figure 1). For patients who experimented a drop in lymphocytes higher than 50% (n=10) of the previous value, we found a significant increase in risk of death during follow-up (HR = 2.97; p-value = 0.04; CI95% [1.046; 8.432]) (Figure 2). Six deaths occurred in this group, they were related in 5 cases in the context of relapse (3 of them in less than 120 after RT) and another was due to pulmonary edema and acute respiratory failure during infusion of anti-GD2 (antiganglioside type 2). Moreover, this group of patients presented more relapses during or after immunotherapy too (80% vs 43%; odds ratio = 1.82; p = 0.045; CI95% [1.109; 3.012]).

At the end of the follow-up, it was appreciated a significant increase in all bloodlines except in hemoglobin.

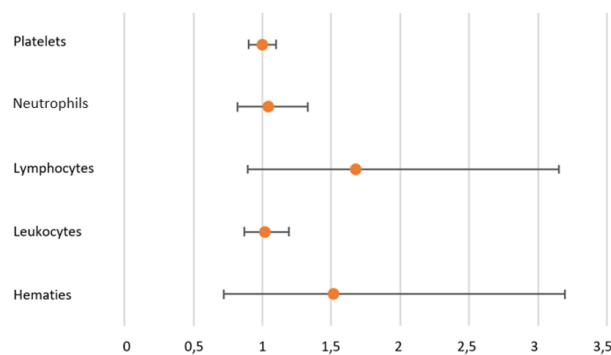


Figure 1. Cox regression of overall survival (hazard ratio and confidence interval 95%) comparing lymphocyte values before RT and one month over RT.

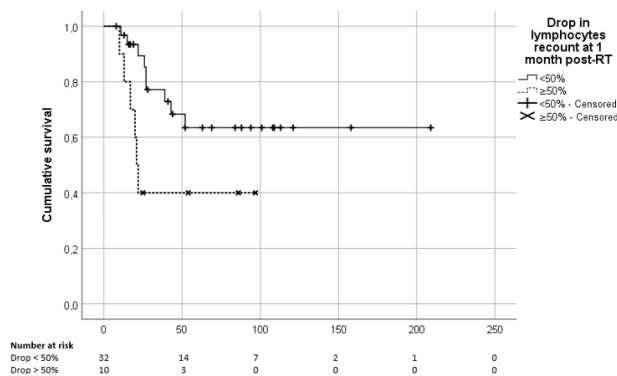


Figure 2. Kaplan-Meier cumulative survival plots comparing the drop in lymphocytes recount at month over RT (p = 0.031, log-rank test).

Conclusion

Our data suggest that these patients experiment a significant acute decrease in lymphocytes after RT which could impact in the prognosis. A drop higher than 50% of previous lymphocyte values is related to a significant decrease in overall survival. In accordance with long-term analysis, all bloodlines were in the physiological range. Our study is limited by a relatively small sample, a long observation period, and the presence of different RT techniques. Future studies should aim for a prospective and multicenter analysis of toxicities and therapeutic strategies in these patients.

PO-1570 Proton beam therapy in treating rhabdomyosarcoma in children: a systematic review.

T. O'Donovan¹, L. Noonan², A. Devine¹, P.M. McEntee¹, P.A. Barry^{1,2}, D.A. England¹