

LAK-THERAPY WITH WHOLE BODY HYPERTHERMIA IN THE MANAGEMENT OF REFRACTORY PEDIATRIC MALIGNANT TUMORS

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Objective

The prognosis of patients (pts) with refractory and metastatic solid tumors is very poor. Clinical and experimental studies have shown antitumor effect of hyperthermia alone and in combination with chemotherapy and immunotherapy.

Methods

Six children (boys-4, girls-2, median age 12) with relapsed and refractory diseases (germ-cell tumor GCT-3, renal-cell carcinoma RCC-1, mesenchymal liver tumor MLT -1 and PNET-1) have been treated with thermochemobiotherapy. WBH, 42-43°C, 120-160 min was induced by 13,56 MHz electro-magnetic energy and carried out concurrently with hyperglycemia (20-26 mmol/l) and chemotherapy (depending on type of tumor) under general anesthesia. At the end of WBH session when temperature decreases to 40,5°C, LAK-cells ($0,5-1 \cdot 10^9$ cells) obtained after incubation PBMC in vitro with IL-2 for 2-3 days, infused i.v. over 3-4 hours. Second infusion of LAK-cells was given the next day without WBH.

Results

All the children well tolerated WBH as well as LAK-therapy. In the first pt with RCC we achieved partial response with follow-up 20 months. She is well. In the second pt with thoracic GCT (second relapse) complete response of lung mts was registered after 2 weeks but he relapsed again 5 months later. The third pt with relapsed MLT partially responded to therapy. The rest two pts with disseminated GCT were in CR after thermochemobiotherapy. One of them remains in CR, another boy developed brain metastasis. Last pts with second relapse of PNET achieved CR

Conclusion

WBH with LAK-therapy is well tolerated and might be one of the approaches for overcoming chemotherapy resistance in refractory pts. The optimal choice of treatment in this poor prognostic group of pts still merits further investigation.