Prognostic Value of Interim and End of Treatment PET-CT Scan Results in Pediatric Hodgkin Lymphoma

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Introduction

Treating Hodgkin lymphoma (HL) among children involves a tradeoff between cure and reducing long term radiotherapy toxicity like secondary malignancies, cardiac and endocrine dysfunction. Fluorodeoxyglucose positron emission tomography (PET) combined with computed tomography (CT) identifies patients with early response to chemotherapy, for whom radiotherapy may be avoided. The prognostic role of PET-CT in response–adapted treatment is evaluated in this study.

Methods

Patients with HL of all treatment groups, who were younger than 18 years, were included. Interim PET-CT was performed after two chemotherapy cycles. Patients were stratified into three risk groups: group 1 (stage I or II with no unfavorable features); group 2 (stage I or II with bulky disease/B symptoms); and group 3 (stage III/IV). A vincristine,etoposide,prednisone and doxorubicin –based regimen was used in early disease. A Cyclophosphamide, Oncovin , Predinsone,Dacarbazine–based regimen was used in advanced disease.Patients who achieved complete response by interim PET-CT will avoid radiotherapy .

Results

Sixty-five patients were included. Sixteen (24.6%), 27 (41.5%), and 22 (33.9%) patients were included in treatment groups 1, 2, and 3, respectively. On the basis of negative interim PET responses, 43 (66.1%) patients were treated without radiotherapy. The 5-year event-free survival for the entire cohort was 96 % and overall survival was 99%. Most of the PET-CT scans at the end of treatment were done in positive interim PET-CT cases, while in early responders; only CT scans were done.

Conclusion

The number of pediatric HL patients who need to be treated with the expensive radiotherapy devices can be decreased in limited resources countries and replace it with the less costly modality like interim PET-CT. We can decrease the burden on PET-CT machines especially at the end of treatment after achieving CR by interim PET-CT.