

Hypothyroidism in children treated with Chemotherapy and Radiotherapy: A single institution study from Kuwait

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Abstract

Objectives: This retrospective study was undertaken to evaluate the cases of thyroid related complications, with emphasis on hypothyroidism in children with Hodgkin's disease who were treated with combined modality protocols.

Methods: Sixty three children with Hodgkin's disease, who were treated at the pediatric oncology unit of Kuwait Cancer Control Centre from January 1998 to December 2007, were included in the study. Forty children were treated on combined modality protocol (chemotherapy + involved field radiotherapy). After treatment, they were followed with serial measurement of thyroid function test (TFT) and neck ultrasound (US). Patients with two consecutive reading of high TFT were started on replacement therapy with L-Thyroxin.

Results: In our series 40 children received combined modality therapy. ABVD (Adriamycin, Bleomycin, Vinblastin, Dacarbazine) chemotherapy was used in 39 children and 37 children received radiotherapy to the neck and chest. The radiotherapy dose varied from 15 Grays to 25 Grays. At a median follow-up of 6 years, 21 children (56.7%) developed hypothyroidism at a median duration of 24 months (range: 5 months – 57 months). There was no correlation between age and dose to the development of hypothyroidism. All children received replacement therapy with L-thyroxin. We did not find any case of hyperthyroidism, or thyroid malignancy.

Conclusions: Significant number of children developed hypothyroidism after receiving radiation to the neck and chest area and chemotherapy, necessitating lifelong replacement therapy. It will be interesting to see if elimination of radiation with the help of risk and response adapted protocols using FDG- PET may reduce the event of hypothyroidism in treated Hodgkin's disease cases.