



READ IT BEFORE YOUR PATIENTS

Hodgkin lymphoma

Predicted Risks of Cardiovascular Disease Following Chemotherapy and Radiotherapy in the UK NCRI RAPID Trial of Positron Emission Tomography-Directed Therapy for Early-Stage Hodgkin Lymphoma.

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PURPOSE

The contemporary management of early-stage Hodgkin lymphoma (ES-HL) involves balancing the risk of late adverse effects of radiotherapy against the increased risk of relapse if radiotherapy is omitted. This study provides information on the risk of radiation-related cardiovascular disease to help personalise the delivery of radiotherapy in ES-HL.

METHODS

We predicted 30-year absolute cardiovascular risk from chemotherapy and involved field radiotherapy in patients who were positron emission tomography (PET)-negative following three cycles of doxorubicin, bleomycin, vinblastine, and dacarbazine chemotherapy within a UK randomized trial of PET-directed therapy for ES-HL. Cardiac and carotid radiation doses and chemotherapy exposure were combined with established dose-response relationships and population-based mortality and incidence rates.

RESULTS

Average mean heart dose was 4.0 Gy (range 0.1-24.0 Gy) and average bilateral common carotid artery dose was 21.5 Gy (range 0.6-38.1 Gy), based on individualised cardiovascular dosimetry for 144 PET-negative patients receiving involved field radiotherapy. The average predicted 30-year radiation-related absolute excess overall cardiovascular mortality was 0.56% (range 0.01%-6.79%; < 0.5% in 67% of patients and > 1% in 15%), whereas average predicted 30-year excess incidence was 6.24% (range 0.31%-31.09%; < 5.0% in 58% of patients and > 10% in 24%). For cardiac disease, the average predicted 30-year radiation-related absolute excess mortality was 0.42% (0.79% with mediastinal involvement and 0.05% without) and for stroke, it was 0.14%.

CONCLUSION

Predicted excess cardiovascular risk is small for most patients, so radiotherapy may provide net benefit. However, for a minority of patients receiving high doses of radiation to cardiovascular structures, it may be preferable to consider advanced radiotherapy techniques to reduce doses or to omit radiotherapy and accept the increased relapse risk. Individual assessment of cardiovascular and other risks before treatment would allow personalised decision making about radiotherapy in ES-HL.