

## ABSTRACT

Background: There is an increased risk of secondary breast cancer following supradiaphragmatic radiation for Hodgkin's disease. We studied the experience, in Northern Region, UK, for treatment parameters, patient characteristics and length of follow up, related to the development of secondary breast cancer after radiation treatment for Hodgkin's disease.

Methods and Materials: We reviewed records of 154 women aged less than 35 years, treated for Hodgkin's disease with supradiaphragmatic radiation, involving part of breast within the field, between January 1961 and August 2004 using the Radiotherapy Diagnostic Index, Cancer Registry and Lymphoma Register. Records were analysed for the development of secondary breast cancer and possible contributing factors like treatment parameters, age at the time of radiation, period of follow up, and history of splenectomy. Secondary breast cancer free survival rates were also analysed with regard to possible contributing factors.

Results: Only three secondary breast cancers occurred in this population. All these 3 patients had mantle field radiation treatment at less than 25 years of their ages. Secondary breast cancer occurred at the shortest latent period was after 14 years of radiation treatment with the breast cancer free survival rate of 98.18%, but only one third of this population were at risk with the same latent period. Two of these patients had been treated with total dose of 40Gy. Trend of prescribing total dose of radiation has changed from 1961 - 2004 from higher towards lower doses. Current trend is in the range of 34 - 36Gy.

Conclusion: Lower incidence of secondary breast cancer in this population may be due to the practice of reduced dose & involved field radiation following initial chemotherapy and insufficient duration of follow up of this cohort, with only 11.5 years of median time of follow up. This cohort of patients should be followed up further and a systematic plan for lifelong screening, surveillance, and prevention should be developed for all survivors.

*Key words:* Hodgkin's disease, Radiation therapy, Secondary breast cancer.