

Control Number: 51

Abstract Category: Clinical Science in Cardio-Oncology

Title: Radiation-Induced CAD: Gender Disparities for Patients with Hodgkin's Lymphoma Following Radiation

ABSTRACT BODY

Background

Radiation-induced coronary artery disease (CAD) has become a more increasingly recognized phenomenon. Although the clinical relationship between radiation therapy and CAD risk is well known, there has been very little investigation of the gender relationship to radiation-induced CAD as well as how gender may contribute to increased cardiovascular (CV) mortality. Data comparison between Hodgkin's Lymphoma following treatment with radiation and the subsequent incidence of CAD has shown inconsistent results in terms of the role gender has on mortality. Our clinical hypothesis is that patients with Hodgkin's Lymphoma treated with radiation will have higher incidence of CV mortality in female patients due to the increased the risk of severe atherosclerotic lesions.

Methods

We performed an aggregate data meta-analyses on 10 studies consisting of 13,975 patients with both coronary artery disease and Hodgkin's Lymphoma following radiotherapy on both all-cause mortality and cardiovascular clinical outcomes [(nonfatal myocardial infarction (MI), repeat revascularization, stroke and a composite end-point of all of the above mentioned outcomes i.e. major adverse cardiac and cerebrovascular events (MACCE)] to examine the disparities between genders. We also performed a meta-regression analysis to evaluate the effect of age on mortality for men versus women with both Hodgkin's Lymphoma treated with radiation and CAD. Summary odds ratios (OR) and 95% confidence intervals (CI) were estimated using random-effects model.

Results

In 13975 patients including 41% females and 59% males, cardiovascular mortality was much higher in women compared to men (OR 0.64, 95% CI 0.64-0.93, $p < 0.006$). All-cause mortality was also higher in women compared to men (OR 0.70, 95% CI 0.45-0.96, $p < 0.001$). On meta-regression, when plotting log odds ratio of cardiovascular mortality among males versus females (y-axis) against age (x-axis), females had higher mortality with advancing age as well (coefficient = 0.111, $p = 0.001$).

Conclusion

For patients with both Hodgkin's lymphoma treated with radiation and CAD, women had a markedly higher rate of cardiovascular mortality compared to men. All-cause mortality was also significantly lower in men compared to women. Meta-regression showed a trend towards increased mortality among women with advancing age that reached statistical significance.

Clinical Implications

Going forward, there needs to be increased surveillance and follow-up for female patients that have had Hodgkin's Lymphoma for the development of CAD to prevent higher cardiovascular mortality.