Can prophylactic breast irradiation contribute to cardiac toxicity in patients with prostate cancer receiving androgen suppressing drugs?

BACKGROUND: Androgen suppression treatment (AST) might increase the risk of cardiac morbidity in prostate cancer patients. Possible explanations were provided, however, they disregard the potential contribution of prophylactic radiotherapy to the mamillary regions (PMRT, prescribed to avoid gynecomastia). METHODS: We studied the exposure of the heart in a typical electron beam PMRT setting by evaluating computed tomography (CT) scans in 40 non-cancer patients (age 65 and 75 years in 50% each) and 17 prostate cancer patients. Five of the younger, 7 of the older and 4 of the cancer patients had significant cardiac disease. RESULTS: The median distance between skin and outer heart contour decreased with age. In all three groups, patients with cardiac morbidity had smaller distances. When using the CT-determined PMRT beam energy, 10% of the younger, 15% of the older and none of the prostate cancer patients would receive approximately 50% of the prescription dose to a part of the heart (2 had no history of cardiac disease). When using the clinically rather than CT-determined beam energy, as often done in daily practice, an additional 12.5% of the non-cancer and 12% of the prostate cancer patients would be exposed to comparably high doses. CONCLUSION: The present data provide preliminary evidence that PMRT might be a factor that contributes to cardiac side effects.
Previous studies that established a relationship between AST and cardiac morbidity did not include information on delivery of PMRT.