Supplementary Table 1. *CTCAE V4 list of definitions for toxicity phenotypes.* *Activities of Daily Living (ADL). Instrumental ADL refer to preparing meals, shopping for groceries or clothes, using the telephone, managing money, etc. Self-care ADL refer to bathing, dressing and undressing, feeding self, using the toilet, taking medications, and not bedridden. Body Surface Area (BSA).*

Supplementary table 2. *Results of multivariable stepwise regression for each dichotomized toxicity. A generalized linear model was fitted with clinical/treatment variables including co-treatments, patient co-morbidities, body mass index (BMI) and age as well as radiotherapy dose, regimen and technique to estimate the residuals for each toxicity phenotype.*

Supplementary Table 3. *Previously published SNPs in association with breast radiation toxicity.*

Supplementary Table 4. *Association of previously published candidate SNPs with individual dichotomised toxicity endpoints ranked by p-value from smallest to largest for each phenotype (REF = reference allele, ALT = alternative allele, A1 = risk allele). A Bonferroni correction for the number of SNPs tested was applied to correct for multiple testing (p = 0.05/90 = 5.6 x 10^{-4}).*

Supplementary Figure 1. *Pearson Correlation between toxicity residuals. The correlation plot shows weak correlation between the different toxicity endpoint residuals (after adjusting for the clinical and treatment factors used in the logistic regression for each toxicity endpoint). As expected, there is slightly stronger association between the same toxicity endpoints but different grades, such as Atrophy G1 and Atrophy G2, Induration tumour G1 and Induration G2 as well as Oedema G1 and Oedema G2.*

Supplementary Figure 2. *Manhattan plots for late toxicity endpoints with no significant GWAS associations.*