

Correlation between the DCIS Score and traditional clinicopathologic features in the prospectively-designed Ontario population-based validation study.

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Background: In the Ontario population based study, the DCIS Score was significantly associated with 10 year risk of an ipsilateral local recurrence (LR - in situ or invasive carcinoma) in women treated with breast conserving surgery (BCS) without radiation (RT) ($P < 0.001$). Here we evaluate correlation between DCIS Score and clinicopathologic (CP) features in the same cohort, and whether DCIS Score provides independent recurrence risk information.

Methods: The study population included 571 women diagnosed with DCIS in the province of Ontario from 1994 – 2003 prospectively selected for treatment with BCS without RT. CP variables examined included age at diagnosis, DCIS tumor size, DCIS nuclear grade, comedo necrosis (absent, focal, or extensive), histologic type, multifocality, and surgical margin width. The association between DCIS Score and CP variables was examined by spearman rank correlation, and proportional hazards regression models were used to determine variables significantly associated with LR.

Results: Tumor size ($p = 0.002$), multifocality ($p < 0.001$), histologic type ($p = 0.005$), and nuclear grade ($p = 0.04$) were significantly associated with LR. In a multivariable analysis, including significant CP covariates, the DCIS Score was statistically significantly associated with LR ($p = 0.02$). DCIS Score was moderately correlated with grade ($r_s = 0.47$; 95% CI 0.41,0.54), comedo necrosis ($r_s = 0.43$; CI 0.36,0.50), tumor size ($r_s = 0.24$; CI 0.13,0.35), and multifocality ($r_s = 0.11$; CI 0.03,0.19) but not other features. All CP subgroups showed a wide range of DCIS Scores in each subgroup.

Conclusions: DCIS Score is only moderately correlated with grade, comedo necrosis, tumor size, and multifocality. DCIS Score provides recurrence risk information independent of CP features, and quantifies risk of local recurrence in individuals treated by BCS alone, validating previous findings from the E5194 clinical trial