Paper 21

PROGNOSTIC VALUE OF CIRCULATING TUMOR CELL DYNAMICS IN MELANOMA

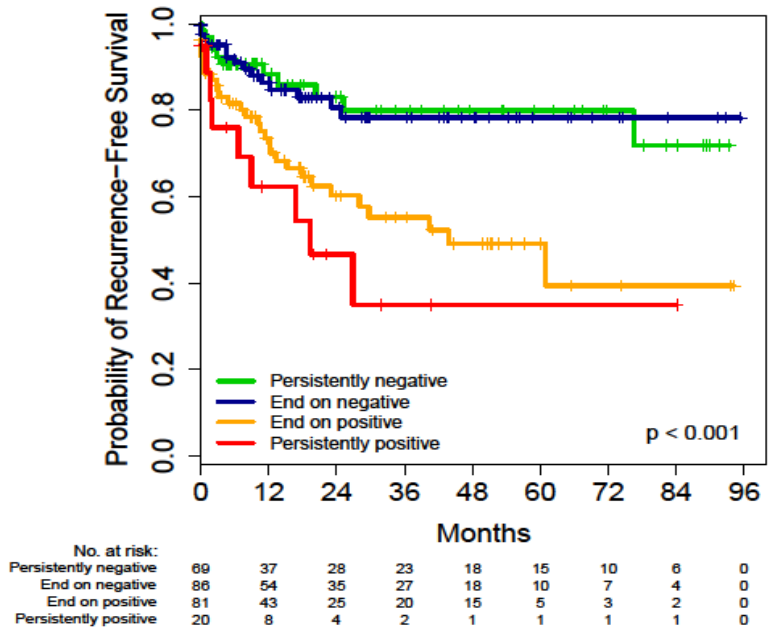
Jennifer H. Chen[1], Denai Milton[2], Vanessa N. Sarli[1], Salyna Meas[1], Joshua Upshaw[1], Anthony Lucci[1]
[1] Department of Breast Surgical Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX
[2] Department of Biostatistics, The University of Texas MD Anderson Cancer Center, Houston, TX

Background: Longitudinal monitoring of circulating tumor cells (CTC) may provide more accurate portrayal of disease status compared to a single timepoint. We evaluated association of CTC dynamics with relapse in melanoma.

Methods: All patients underwent ≥2 blood draws (BD) q6-12 months (2009-2024). CTC ≥1 was considered positive (CellSearch). CTC dynamic was categorized as persistently negative, last BD negative or positive, or persistently positive.

Results: Of 396 patients, majority were non-Hispanic White (355, 92%), male (252, 64%), with median age of 61.3 years (IQR 19.2-87.4). Clinical stage ranged from 13% stage II, 72% stage III, and 15% stage IV. 33% received neoadjuvant therapy, 90.4% underwent primary tumor resection, and 75.5% underwent nodal dissection. 1203 BDs were performed with a median of 3 BDs per patient (IQR 2-6). CTC dynamics consisted of 22.5% (89) persistently negative, 36.1% (143) last BD negative, 33.1% (131) last BD positive, and 8.1% (32) persistently positive. At a median follow-up of 4.7 years (95% CI 0.3-58.4), persistently negative and last BD negative cohorts had significantly longer recurrence-free survival compared to those persistently positive or last BD positive (log rank $p<0.001$, Figure 1). On multivariable analysis adjusted for age and pathologic nodal burden, persistently positive or last BD positive cohorts had higher risk of relapse (HR 3.0, 95% CI 1.5-6.1, $p=0.002$, HR 4.0, 95% CI 1.6-9.7, $p=0.003$, respectively) compared to those persistently negative.

Figure 1. Recurrence-Free Survival by CTC Dynamic Cohort



Conclusion: Unfavorable CTC dynamics portended higher risk of melanoma relapse. Serial monitoring of CTC dynamics is necessary for more accurate risk stratification among melanoma patients.

Word count: 250/250