Background

- A substantial number of melanoma-related deaths occur in patients originally diagnosed with early stage disease, suggesting aggressive tumor biology despite having clinicopathologic features associated with low-risk disease.
- A 31-gep expression profile (31-gep) test has been developed and validated1-3 to predict 5-year metastatic risk from primary cutaneous melanoma (CM) tumor tissue with a high degree of technical reliability.4
- The 31-gep test classifies melanoma as Class 1A (lowest risk), Class 1B (low risk), Class 2A (increased risk), and Class 2B (highest risk).

This prognostic information is useful to inform patient management decisions, including frequency of follow-up and surveillance imaging, referrals, sentinel lymph node biopsy guidance, and consideration of adjuvant therapy.5-14

Key Questions:
1. What is the impact on risk prediction when including results from the 31-gep test with AJCC staging? 2. What is the technical reliability for 31-gep testing on clinical samples?

Methods

- Archival formalin-fixed paraffin-embedded CM tumor samples from 18 U.S. centers (n=690, Stage I-III) along with clinical, pathological, and outcomes data for each case were collected under an IRB-approved protocol.3 Stage I-III cases were restaged according to AJCC 8th edition criteria.
- The 31-gep test was performed in a CAP-accredited/CLIA-certified laboratory using high-throughput RT-PCR assays as previously described.14
- The Kaplan-Meier method was used to estimate 5-year recurrence-free (RFS; time to either a regional or distant metastatic event), distant-metastasis free (DMFS; time to any metastatic event beyond the regional nodal basin), and melanoma-specific survival (MSS; time from diagnosis to death documented as a melanoma cause) with significance determined by log-rank test. All non-recurrent cases had at least 5 years of follow-up.
- Class 1A and 2B-predicted melanoma-specific survival (MSS) outcomes for each case were compared to rates associated with AJCC 8th edition stage.3
- Based on National Comprehensive Cancer Network guidelines for surveillance and follow-up, AJCC binary low and high-risk groups are defined as Stage I-IIA and Stage IIB-IV, respectively. Cox multivariate regression analysis for MSS was performed comparing AJCC binary risk and 31-gep test results.
- Technical success was determined for 17,102 clinical orders received between July 1, 2016 to April 20, 2018.

Results

Figure 1. Stage-specific survival rates for the 31-gep cohort align with the AJCC 8th edition database survival rates

Conclusions

- In the 31-gep cohort of Stage I-III melanoma cases1-3 with similar survival outcomes to the 8th edition AJCC cohort, the 31-gep test result was able to add information to further stratify patients with lower and higher risk than predicted by clinicopathologic staging alone. Multivariate analysis demonstrated that a 31-gep Class 2B result was an independent predictor of MSS with a greater hazard ratio than AJCC binary risk.
- Previously reported technical reliability5 has been maintained during the last two years of clinical testing. As accurate risk assessment is important for patient management decisions, use of the 31-gep test can help guide these choices, including follow-up, sentinel lymph node biopsy guidance, surveillance and possible adjuvant therapy, as has been previously published.6-14

References


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