THE 31-GENE EXPRESSION PROFILE TEST STRATIFIES RECURRENT-FREE AND MELANOMA-SPECIFIC SURVIVAL IN PATIENTS WITH STAGE IB-IIA AND STAGE IIB CUTANEOUS MELANOMA

Robert W. Cook*, Sonia M. Morgan-Linnell, Brian J. Martin, Christine N. Bailey, Abel Janell, Castle Biosciences, Inc., Friendswood, TX, USA; Northeast Dermatology Associates, P.C., Portsmouth, NH, USA

Background
Patients with stage IB-IIA cutaneous melanoma (CM) account for approximately one quarter of all patients with melanoma, have 20–38% recurrence rates, and 6–12% melanoma-specific mortality rates by 10 years, but they are not eligible for adjuvant immunotherapy. By comparison, immunotherapy is approved for adjuvant treatment of patients with stage IIB CM. Molecular testing of stage IB-IIA patients with the 31-GEP test can identify patients who have a risk of recurrence similar to that seen for stage IIB patients and may benefit from immunotherapy. The 31-gene expression profile test (31-GEP) stratifies patients into low (Class 1A), intermediate (Class 1B/2A), or high (Class 2B) risk of recurrence, metastasis, and death.

Methods
Patients with stage IB-IIA (n=673) and IIB (n=174) CM from previously published prospective and retrospective studies (N=847) were analyzed by the 31-GEP. Five-year RFS and MSS risk stratification was assessed using Kaplan-Meier analysis with the log-rank test.

Results
The 31-GEP stratified 5-year RFS among patients with stage IB-IIA CM (Class 1A=91.8% vs. Class 1B/2A=85.1% vs. Class 2B=64.2%, p<0.001) and those with stage IIB CM (Class 1A=75.0% vs. Class 1B/2A=78.4% vs. Class 2B=55.4%, p=0.02). The 31-GEP also significantly stratified 5-year MSS for those with stage IB-IIA CM (Class 1A=99.2% vs. Class 1B/2A=96.9% vs. Class 2B=87.6%, p<0.001) and those with stage IIB CM (Class 1A=100% vs. Class 1B/2A=94.9% vs. Class 2B=90.4%, p=0.02). Multivariable analysis with the 31-GEP (Class 1A, Class 1B/2A, and Class 2B) and AJCC stage (IB vs. IIA) found that, among stage IB-IIA patients, Class 1B/2A (HR=1.72, p=0.048), Class 2B (HR=3.33, p<0.001), and stage IIA (HR=1.84, p=0.006) were significant predictors of recurrence. Only the 31-GEP Class 2B result was a significant predictor of melanoma-specific mortality in multivariable analysis for patients with stage IB-IIA CM (HR=7.90, p<0.001).

Conclusions
In patients with stage IB-IIA CM, the 31-GEP identified those with a high risk of recurrent disease (64.2% 5-year RFS for Class 2B), which was like that of stage IIB CM (63.4% overall 5-year RFS), for whom adjuvant therapy is approved. The 31-GEP provided significant risk stratification for both recurrence and melanoma-specific mortality in patients with stage IB-IIA CM, a group that can have a nearly 40% recurrence rate but is not currently eligible for adjuvant immunotherapies. The 31-GEP provides personalized, independent risk stratification, which enhances adjuvant therapy selection in future clinical trials in this population.

REFERENCES

Ethics Approval
Each cohort included in the analysis received institutional review board approval at the affiliated institutional IRB.

http://dx.doi.org/10.1136/jitc-2023-SITC2023.0133