Cutaneous melanoma patients with minimal SN tumor burden: CP-GEP (Merlin Assay) may guide decision-making beyond nodal assessment

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Nodal pathological assessment via sentinel lymph node biopsy (SLNB) is important for primary cutaneous melanoma risk-stratification. However, the prognosis of patients with minimal sentinel node (SN) tumor burden - defined by the Rotterdam Criteria as a tumor burden of 0.1 mm or less - is often uncertain and the optimal treatment approach unclear. CP-GEP is a commercially available molecular assay that assesses the risk of SLNB metastasis at diagnosis. CP-GEP considers the patient age at diagnosis, Breslow thickness and the expression of eight genes in the primary tumor. Combination of these variables results in two risk labels: CP-GEP Low Risk or High Risk. Previously, the prognostic ability of CP-GEP has also been shown. CP-GEP prognostic performance was analyzed in four previous independent cohorts in the US, the Netherlands, and Sweden: totaling 1684 patients, 79 of whom had minimal SN tumor burden. The proportion of patients with minimal SN tumor burden was comparable in the cohorts, 3-5%. Patients with minimal SN tumor burden from Sweden had a relapse risk comparable to SLNB positive patients, whereas Dutch and American patients had a relapse risk comparable to SLNB negative patients. We speculate that this discrepancy is caused by differences in histopathologic workup and measurement of SN tumor burden. The stratification of CP-GEP in the combined cohorts resulted in ~20-30% CP-GEP Low Risk patients, which is similar for the minimal SN tumor burden subgroup. Within 79 patients with minimal SN tumor burden, we observed 2 recurrences in 17 CP-GEP Low Risk patients and 19 recurrences in 62 CP-GEP High Risk patients with a median follow-up time of 5.6 years. Further analyses with CP-GEP in larger minimal SN tumor burden patient cohorts are required to confirm the observed trends.

Nodal pathological assessment via sentinel lymph node biopsy (SLNB) is important for primary cutaneous melanoma risk-stratification. The prognosis of patients with minimal sentinel node (SN) tumor burden - defined by the Rotterdam Criteria as a tumor burden of 0.1 mm or less – can be diverse. Therefore, optimal treatment for these patients is the subject of an ongoing debate. CP-GEP is a commercially available molecular assay that assesses the risk of SLNB metastasis at diagnosis. CP-GEP considers the patient age at diagnosis, Breslow thickness and the expression of eight genes in the primary tumor. Combination of these variables results in two risk labels: CP-GEP Low Risk or High Risk. Previously, the prognostic ability of CP-GEP has also been shown. CP-GEP prognostic performance was analyzed in four previous independent cohorts in the US, the Netherlands, and Sweden: totaling 1684 patients, 79 of whom had minimal SN tumor burden. The proportion of patients with minimal SN tumor burden was comparable in the cohorts, 3-5%. Patients with minimal SN tumor burden from Sweden had a relapse risk comparable to SLNB positive patients, whereas Dutch and American patients had a relapse risk comparable to SLNB negative patients. We speculate that this discrepancy is caused by differences in histopathologic workup and measurement of SN tumor burden. The stratification of CP-GEP in the combined cohorts resulted in ~20-30% CP-GEP Low Risk patients, which is similar for the minimal SN tumor burden subgroup. Within 79 patients with minimal SN tumor burden, we observed 2 recurrences in 17 CP-GEP Low Risk patients and 19 recurrences in 62 CP-GEP High Risk patients with a median follow-up time of 5.6 years. Further analyses with CP-GEP in larger minimal SN tumor burden patient cohorts are required to confirm the observed trends.