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Do Largest Basal Tumor Diameter and the American Joint Commission Cancer Staging Influence Prognostication by Gene Expression Profiling in Choroidal Melanoma?

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Abstract

Purpose: To evaluate the prognostication of choroidal melanoma (CM) by the gene expression profiling (GEP) test

Design: Cohort study

Methods: Retrospective review of 293 CM patients from 2 centers

Results: Of 293 patients, 132 (45%) were class 1A by GEP, 63 (22%) were class 1B, and 98 (33%) were class 2. Class 2 tumors had more ciliary body involvement, greater largest basal dimension (LBD), and were thicker. GEP results and increasing LBD were independently predictive of time to metastasis. Kaplan-Meier survival analysis estimated the probability of 3-year metastasis-free survival (MFS) of 0.99 in class 1A, 0.90 in class 1B, and 0.60 in class 2. The probability of 3-year MFS was 0.49 in class 2 patients with LBD ≥12mm versus 1.00 in those with LBD <12mm, 0.89 in class 1B with LBD ≥12mm versus 0.93 in those with LBD <12mm, and 0.99 in class 1A with LBD ≥12mm versus 1.00 in those with LBD <12mm. In AJCC stage I CMs, the probability of 3-year MFS was 1.0 for class 1A and 1B, and 0.79 for class 2. In stage II CMs, the probability of 3-year MFS was 0.99 for class 1A, 0.89 for class 1B, and 0.61 for class 2. In stage III CM, the probability of 3-year MFS was 1.0 for class 1A, 0.60 for class 1B, and 0.41 for class 2.

Conclusions: GEP testing provided significant prognostic information for CM. Class 2 tumors with LBD≥12mm and class 2 and 1B tumors with AJCC stage III showed significantly worse prognosis.