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Abstract

Prognostic Modeling in Desmoplastic Melanoma Using Different Cutpoints for the Proportion of Desmoplasia

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Currently, desmoplastic melanomas are commonly divided into “pure” desmoplastic melanoma (at least 90% desmoplasia histologically) and “mixed” (<90%), with pure having a better prognosis, but our understanding of the relationship between percent desmoplasia and prognosis is incomplete. We sought to determine whether a more refined grading system that examined extent of desmoplasia by percent in 10% increments would be a better prognostic model. We also sought to determine the optimal cutpoint for percent desmoplasia if a single cutpoint were used.

We analyzed 103 patients with desmoplastic melanoma confined to the skin at diagnosis and who were followed for at least 6 months. Desmoplasia proportions ranged from 10% to 100%, with forty patients (38.4%) having 100% desmoplasia. Overall, eighteen patients (17.5%) eventually developed metastases. Those with 100% desmoplasia had a statistically significantly decreased likelihood of metastasis compared to those with <100% desmoplasia (OR=0.15, p=0.017). However, there was no trend towards decreased likelihood of metastasis with decreasing percentages below 100% (p=0.658), implying a graduated system did not appear to be a better model than a single cutpoint. We also found that a model for predicting metastasis that incorporated Breslow thickness and the presence or absence of 100% desmoplasia (Akaike information criterion (AIC) = 84.64) was better than a model using 90% desmoplasia as the cutpoint (AIC = 89.35). We determined that a single cutpoint is sufficient in modeling prognosis for desmoplastic melanoma, and that 100% desmoplasia is a better cutpoint than the 90% cutpoint found in the “pure/mixed” model currently in use.