

THE INFLUENCE OF PATIENT AGE ON THE INCIDENCE OF SENTINEL NODE METASTASES AMONG 28,000 MELANOMA PATIENTS

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Background/Hypothesis: We postulated that patient age would be a significant predictor of distant metastases and microscopic nodal metastases.

Materials and Methods: The AJCC melanoma staging database is comprised of over 28,000 melanoma patients. Standard statistical methods were used; melanoma-specific survival curves were generated by the Kaplan-Meier product-limit method and compared using the log rank test, and multivariate analyses were based on the Cox proportional hazards model.

Results: With increasing age by decade, primary melanomas were thicker, exhibited higher mitotic rates, and were more likely to be ulcerated. In a multivariate analysis of patients with localized melanoma, thickness and ulceration were highly significant predictors of outcome at all decades of life (except for patients less than 20 years). Mitotic rate was significantly predictive in all age groups except patients < 20 years and >80 years. For patients with Stage III melanoma, there were four independent variables associated with patient survival: number of nodal metastases, patient age, ulceration, and mitotic rate.

Patients under 20 years of age had primary tumors with slightly more aggressive features, a higher incidence of sentinel lymph node metastasis, but, paradoxically, more favorable survival than all other age groups. In contrast, patients >70 years old had primary melanomas with the most aggressive prognostic features, were more likely to be head and neck primaries, and were associated with a higher mortality rate than the other age groups. Surprisingly, however, these patients had a lower rate of sentinel lymph node metastasis per T stage. Among patients between the two age extremes, clinicopathologic features and survival tended to be more homogeneous. .

There was a significant decline in the incidence of sentinel node metastasis as patient age increased. The highest incidence overall was 25.8% in patients under 20 years of age, and then dropped by one-third to 15.5% in patients 80 years and older, despite these older patients having primary tumor features associated with more aggressive biology.

With Clinical Stage I melanoma, the incidence of sentinel node metastases declined from 14.8% for those 20-30 years down to 3.6% for those 80 years of age or older. With Clinical Stage II melanoma, the incidence decreased from 35.6% for those 20 years and under to 20.2% for those 80 years of age or older.

A paradox was observed when this decline in sentinel node incidence with advancing age

was correlated with melanoma mortality rate. Thus, patients under 20 years of age experienced a 0% five year mortality, while five year mortality rates increased from about 20% for those 20-40 years of age up to 38% for those over 70 years of age.

Conclusions: Melanomas in patients at the extremes of age have a distinct natural history. These results might explain why older melanoma patients were less likely to have a survival benefit from lymphadenectomy compared to those <60 years of age. The incidence of nodal micrometastases is clearly higher in younger patients, and lower in older patients who might be spared the extra morbidity of the procedure, especially if they have additional risk factors or co-morbidities.