Factors Associated with Access to Immunotherapy and Its Impact on Survival in Mucosal Melanoma

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Introduction: Mucosal melanoma is rare, comprising only 1.4% of all melanomas in the United States. Yet it is associated with a worse prognosis compared to cutaneous melanoma due to aggressive biology and advanced stage at diagnosis with a reported 5-year survival rate of less than 30%. Although there are no established guidelines for the treatment of mucosal melanoma, immunotherapy has been increasingly used for the management of advanced mucosal melanoma.

Objective: This study aims to explore the trends in the early adoption of immunotherapy for mucosal melanoma and whether immunotherapy is associated with an overall survival (OS) benefit.

Methods: Using the National Cancer Database (NCDB), patients diagnosed with mucosal melanoma between 2012-2014 were identified. Univariate and multivariate regression analysis were performed to examine factors associated with the receipt of immunotherapy and its effect on OS. Covariates included age, sex, socioeconomic status (SES), race, treatment facility, and Charlson-Deyo score.

Results: Overall 656 patients with mucosal melanoma were identified, of which 86 patients received immunotherapy. On multivariate analysis, younger patients (age <50 years) (OR 5.05, CI 95% 2.17-11.72, p=0.001) and patients with metastatic disease (OR 2.63, CI 95% 1.54-4.35, p<0.001) were significantly associated with receiving immunotherapy. Male sex (HR 1.5, CI 95% 0.990-2.822, p=0.007) and treatment in an academic facility (HR 1.36, CI 95% 0.649-1.780, p=0.040) were associated with increased risk of death, while age<50 years (HR 0.44, CI 95% 2.11-11.720, p=0.011) was associated with better survival. Race and SES were not associated with the receipt of immunotherapy on univariate analysis (p=0.126, p=0.282 respectively). Of the 156 patients with metastatic mucosal melanoma, 32 patients received immunotherapy with a risk-adjusted median OS of 10.76 months. Patients who did not receive immunotherapy had a risk-adjusted median OS of 6.24 months (p=0.745).

Conclusion: These early data show only a 25% adoption rate of immunotherapy for metastatic mucosal melanoma. Clinical factors such as younger age and tumor stage seem to influence the use of immunotherapy

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Table. Multivariate analysis of factors associated with receiving immunotherapy

Variable (n=656)	OR	C.I. (95%)	*p*-value
Gender			
Female (*ref* male)	1.67	0.99-2.82	0.055
Age (years)			
< 50 (*ref* >70)	5.05	2.17-11.72	0.001
50-70 (*ref* >70	2.04	1.19-3.51	0.720
Facility			
Non–academic (*ref* academic)	1.07	0.65-1.78	0.780
Race			
Non-white (*ref* white)	1.39	0.77-2.51	0.272
Charlson-Deyo			
≥2 (*ref* 0-1)	0.24	0.04-1.64	0.145
Metastatic disease			
No (*ref* yes)	0.38	0.23-0.65	<0.001

more so than SES or race. Although male gender and treatment in an academic facility are associated with a worse prognosis, this may be a reflection of the extent of disease at presentation. The effect on survival of immunotherapy in metastatic mucosal melanoma has yet to be elucidated.