

## Therapeutic outcomes of immune checkpoint inhibitors in recurrent or metastatic mucosal melanoma

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**Background/Aims:** Mucosal melanoma is a rare and aggressive malignancy with limited treatment options. Although immune checkpoint inhibitors (ICIs) are commonly used as a standard treatment for recurrent or metastatic mucosal melanoma, their therapeutic outcomes are often unsatisfactory. This study aimed to investigate the treatment outcomes of ICIs and analyze prognostic factors in patients with mucosal melanoma in the real world.

**Methods:** This is a single center retrospective study analyzing 49 cases of recurrent or metastatic mucosal melanoma. All patients were treated with ICIs therapy between 2014 and 2022. Cox proportional hazards model was used to assess prognostic variables.

**Results:** Among 49 patients, 40 (81.2%) underwent ICIs monotherapy, and 13 (2.6%) received a combination of ICIs and investigational drugs. The ORR for total population was 14.3%. There were 6 (12.8%) BRAF mutation cases. The median progression-free survival (PFS) was 2.8 months [95% confidence interval (CI) 2.07 – 4.13 months], with median follow up time of 13.5 months. In multivariate analysis, the presence of brain metastasis, BRAF mutation, and NLR (Neutrophil to Lymphocyte Ratio) greater than or equal to 4.5 was an independent prognostic factor of PFS.

**Conclusions:** In the real-world setting, ICIs demonstrated modest therapeutic outcomes in patients with recurrent or metastatic mucosal melanoma. The presence of brain metastasis, BRAF mutation, and high NLR ( $\geq 4.5$ ) was identified as a significant prognostic factor for PFS. Further studies are required to develop effective treatment strategies for this challenging disease.

**Table. Cox proportional hazard model for PFS**

Parameter (univariate)	HR	95% CI	p-value	Reference Category
Age	0.8	0.41-1.50	0.46	<65
ECOG performance score	4.0	0.55-29.41	0.17	0
BRAF mutation	2.3	0.96-5.68	0.061	Wild type
Lung metastasis	1.6	0.84-3.00	0.16	No
Liver metastasis	1.7	0.89-3.23	0.11	No
Brain metastasis	4.1	0.94-18.06	0.059	No
NLR	3.4	1.55-7.47	0.0022	< 4.5
Parameter (multivariate)	Adjusted HR	95% CI	p-value	
BRAF mutation	3.3	1.31-8.36	0.0114	Wild type
Brain metastasis	7.5	1.60-35.17	0.0118	No
NLR	4.3	1.90-9.97	0.0005	< 4.5