PRAME (PREFERENTIALLY EXPRESSED ANTIGEN IN MELANOMA) EXPRESSION IN CUTANEOUS MELANOCYTIC LESIONS

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Introduction

Melanocytic lesions are heterogeneous entities that occasionally exhibit subtle differences between benign and malignant subtypes . The incidence and mortality of melanoma are rising rapidly. Despite ongoing research and the introduction of new therapeutic methods, advanced melanoma is still considered incurable. Numerous histologic criteria are used to diagnose melanoma, but none alone are sufficient to establish this diagnosis. Therefore, differentiating between benign melanocytic lesions and melanoma may be difficult.In some cases PRAME is targeted as a potential biomarker for diagnosis of melanocytic lesions therefore there is a need to study PRAME expression by immunohistochemistry (IHC).

Aim of the work

To detect the expression of PRAME in cutaneous melanocytic lesions and its utility to differentiate between melanoma and benign melanomcytic lesions.

Methods

This study was carried out on fifty cases with melanocytic lesions both sexes and age from 4 to 70 years. Twenty cases were newly diagnosed cases recruited from the Outpatient Clinic of Dermatology, Venereology and Andrology Department, Alexandria Main University Hospital and thirty cases retrospectively retrieved from the archives of Dermatology and pathology Departments, Faculty of Medicine, University of Alexandria

Five micrometer thick tissue sections were cut from formalin-fixed and paraffin-embedded tissue blocks. A commercially antibody to PRAME (201r-5709; SRB laboratories, swiss prot :P78395) was used . The staining result was recorded as the percentage of immunoreactive tumor cells with nuclear labeling per total number of tumor cells. Zero indicated no staining at all. Staining of 1% to 25% of tumor cells was scored as 1+. Labeling of 26% to 50% of tumor cells was scored as 2+. If 51% to 75% of tumor cells were positive, it was designated as 3+. If 76% or more of the tumor cells were positive, it was recorded as 4+ or "diffuse."

Results

Out of 50 benign melanocytic lesions and melanoma studied for PRAME nuclear expression, 97.6% (n=40) of benign melanocytic lesions are negative for PRAME nuclear expression. However only one case of cutaneous nevi 2.4% showed focal nuclear PRAME immunoreactivity. Regarding melanoma 88.9% (n=8) of them were nuclear immunoreactive for PRAME and 11.1%(n=1) lacked nuclear staining. There was statistically significant difference between them (p<0.001). Results of PRAME nuclear staining were studied for specificity and sensitivity. Sensitivity of the stain was 88.89 and specificity was 97.56 as demonstrated in table (1)

Table (1): Relation between H&E diagnosis and PRAME nuclear immunostaining (n=50)

Nuclear	Benign melanocytic lesions (n=41)		Melanoma (n=9)		AUC	P	95% CI	Sensitivity	Specificity	PPV	NPV	Accuracy
	No.	%	No.	%								
Negative	40	97.6	1	11.1	0.932	<0.001*	0.808 – 1.056	88.89	97.56	88.89	97.56	96.0
Positive	1	2.4	8	88.9								
c^2 ($^{FE}p_0$)	37.368* (<0.001*)											

Conclusion

PRAME's accuracy in predicting malignancy remains unclear; further study is needed to assess the precision to which PRAME immunohistochemistry can separate benign borderline lesions from their malignant counterparts.