MELANOMA AND MELANOCYTIC NAEVI

PTEN PROMOTER HYPERMETHYLATION ASSOCIATED WITH BRESLOW THICKNESS IN ACRAL MELANOMA ON THE WEIGHT-BEARING PLANTAR FOOT

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Introduction: The frequency of acral lentiginous melanoma (ALM) is higher in Asian than in Caucasian. Although the pathogenesis of ALM is not well understood, the mechanical stress is regarded to induce acral melanoma. The incidence of mutations and promoter hypermethylation has been reported in tumors from Asian melanoma; however, the clinical significance of genetic and epigenetic alterations in Asian ALM remains unclear.

Objective: To investigate the genetic and epigenetic alterations associated with tumor status, mechanical stress and clinical characteristics.

Materials and Method: We included fifty-six Korean patients with plantar ALMs in Severance Hospital from 2001 to 2012. We investigated the clinical characteristics of the patients, tumor status, and tumor location. The BRAF, NRAS, KIT and TERT promoter mutations and PTEN promoter hypermethylation were analyzed in tumors.

Result: Heel (34/56, 60.7%) was the most common anatomical site of tumors. The mutations of BRAF (6/52, 11.5%), NRAS (6/53, 11.3%), KIT (4/41, 9.8%), and TERT promotor (4/37, 10.8%) and PTEN promoter hypermethylation (13/51, 25.5%) were observed in tumors. PTEN promoter hypermethylation was significantly associated with Breslow thickness and ulceration rate on weight bearing area of the plantar foot.

Conclusion: PTEN promoter hypermethylation is associated with Breslow thickness and ulceration of tumors on the weight-bearing plantar foot from Asian ALM.

Keywords: Acral lentiginous melanoma, PTEN promoter hypermethylation, plantar foot, mutation, Asian melanoma