MELANOMA AND MELANOCYTIC NAEVI

ABERRANT EXPRESSION OF AQUAPORINS IN DYSPLASTIC NEVI, PRIMARY CUTANEOUS MELANOMA AND MELANOMA METASTASIS

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Introduction: Aquaporins (AQPs) represent integral membrane protein acting as osmotic water channels; they also play a crucial role in malignancy, modulating proliferation, apoptosis, differentiation, angiogenesis, migration, and metastasis. An abnormal AQPs expression has been reported in several human cancers.
Melanocytes physiologically express AQP-1, and its inhibition reduces angiogenesis and metastatization in melanoma mouse models. AQPs expression pattern in dysplastic nevi (DN) and cutaneous melanoma (CM) is actually unexplored, as well as a possible correlation with histological subtypes and metastatic progression.

Objective: To investigate the expression of AQPs-1/3/5/8/10 in DN, CM and CM metastasis (MM).

Materials and Methods: We examined five DN, five CMs with their corresponding cutaneous and/or lymph-node metastasis and five CMs with analogous histological and clinical features but without metastatic progression after an identical follow-up. Immunohistochemistry was performed with rabbit polyclonal and mouse monoclonal antibodies anti-AQP-3/5/10 antibodies anti-76AQP-1 and 8.

Results: DN expressed both AQP-1 and AQP-3. AQP-1 was expressed by 70% of CMs. All these cases were nodular CMs or presented MM progression; AQP-1 expression was conserved also in cutaneous and lymph-node metastasis. Contrarily, all CMs negative for AQP-1 were superficial spreading CMs (SSM) and did not develop MM progression.
AQP-8 was expressed in about 50% of primary CMs and in all cutaneous metastasis, but not in lymph node localization. All CM and MM tested were negative for AQP-3/5/10.

Conclusions: Our data suggest an aberrant expression of AQP-1 and AQP-8 in CM and MM, with a putative prognostic role. The lack of AQP-1 in SSM seems to be correlated with a better prognosis; contrariwise, MM conserved AQP-1 expression. These data agree with the recent experimental findings that AQP1 knock-down strongly inhibited metastatic

formation on melanoma mouse model. Conversely, over-expression of AQP-3 and AQP-8 may be a specific gain of function of DN and cutaneous MM, respectively.