A COMMON POLYMORPHISM WITHIN THE IGF2 IMPRINTING CONTROL REGION IS ASSOCIATED WITH PARENT OF ORIGIN SPECIFIC EFFECTS IN INFANTILE HEMANGIOMAS

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Introduction: Infantile hemangioma (IH) is the most common tumor of the pediatric age group, affecting up to 4% of newborns ranging from inconsequential blemishes, to highly aggressive tumors. Following well defined growth phases (proliferative, plateau involutional) IH usually regress into a fibro-fatty residuum. Despite the high prevalence of IH, little is known regarding the pathogenesis of disease. A reported six fold decrease in IGF2 expression (correlating with transformation of proliferative to involuted lesions) prompted us to study the IGF-2 axis further.

Methods and Results: We demonstrate that IGF2 expression in IH is strongly related to the expression of a cancer testes and suspected oncogene BORIS (paralog of CTCF), placing IH in the unique category of being the first known benign BORIS positive tumor. IGF2 expression was strongly and positively related to BORIS transcript expression. Furthermore, a stronger association was made when comparing BORIS levels against the expression of CTCF via either a percentage or difference between the two. A common C/T polymorphism at CTCF BS6 appeared to modify the correlation between CTCF/BORIS and IGF2 expression in a parent of origin specific manner. Moreover, these effects may have phenotypic consequences as tumor growth also correlates with the genotype at CTCF BS6.

Conclusion: This may provide a framework for explaining the clinical variability seen in IH and suggests new insights regarding CTCF and BORIS related functionality in both normal and malignant states.

UTILIZING THE SPY-ELITE SYSTEM TO IMPROVE IDENTIFICATION OF SENTINEL LYMPH NODES IN CUTANEOUS melanoma

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Background: Nodal status, utilizing sentinel lymph node biopsy (SLNB), is the most important prognostic indicator in localized cutaneous melanoma. Preoperative lymphoscintigraphy with Tc-99m labeled sulfur colloid and intra-operative hand-held gamma-probe guidance and/or intraoperative injection of dye (methylene blue or 1% lymphazurin) are currently utilized for SLNB, but have a false negative rate of 13% (0-34%). Recent studies indicate that the addition of indocyanine green (ICG) to SLNB may help detect occult sentinel nodes and reduce false negatives. The SPY-Elite system (LifeCell Corp. Branchburg, NJ), initially developed to evaluate tissue perfusion utilizing ICG, has been used concurrently with Tc-99m labeled sulfur colloid at our institution in an effort to identify occult sentinel lymph nodes.

Methods: A review of consecutive melanoma patients treated at Cleveland Clinic Foundation with SLNB performed with guidance of ICG/SPY-elite and Tc-99m from April 2012 through September 2012 was performed. Data collected included patient age, lesion location, Breslow depth, type of melanoma, number of nodes identified by each modality, and final nodal pathology. Each patient served as their own control. SAS (v9.2) software was used for statistical analysis.

Results: Over a 7 month period, 23 consecutive melanoma patients (5 head and neck, 7 trunk, 6 upper extremity, and 5 lower extremity) were treated with SLNB using both modalities. Sentinel lymph nodes were identified in 23 of 23 patients (100%) utilizing the ICG-SPY and Tc-99m from April 2012 through September 2012 was performed. Data collected included patient age, lesion location, Breslow depth, type of melanoma, number of nodes identified by each modality, and final nodal pathology. Each patient served as their own control. SAS (v9.2) software was used for statistical analysis.

Conclusions: Intra-operative ICG and SPY-elite guidance is effective at identifying sentinel lymph nodes in localized cutaneous melanoma and may offer increased sensitivity in node identification for SLNB. This increased sensitivity could hypothetically correlate with a lower false negative SLNB rate though long-term follow-up is necessary.