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Thyroid cancer metabolism: A review

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Metabolic dysregulation within the tumor microenvironment (TME) is critical to the process of tumorigenesis in various cancer types. Thyrocyte metabolism in papillary and anaplastic Thyroid cancer, however, remains poorly characterized and studies analyzing the role of multi-compartment metabolism in thyrocyte oncogenesis are sparse. We present a review of the current knowledge on cellular metabolism in non-cancerous and cancerous Thyroid tissues, focusing on the monocarboxylate transporters MCT1 and MCT4 and on a transporter of the outer mitochondrial membrane TOMM20. Understanding the metabolic phenotype of tumor cells and associated stromal cells in Thyroid cancer can have profound implications on the use of biomarker staining in detecting subclinical cancer, imaging as it relates to expression of various transport proteins and therapeutic interventions that manipulate this dysregulated tumor metabolism to halt tumorigenesis and eradicate the cancer. Future studies are required to confirm the prognostic significance of these biomarkers and their correlation with existing staging schemas such as the AGES, AMES, ATA and MACIS scoring systems.

Biography

Kurren Gill completed his BA in Neuroscience from University of Virginia. He is a medical student at The Commonwealth Medical College in Scranton, PA and is currently conducting a year-long research fellowship in Otolaryngology-Head and Neck Surgery at Thomas Jefferson University Hospital.

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