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Differential Expression of MicroRNA in Thyroid Cancer Health Disparities

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INTRODUCTION AND OBJECTIVES: Filipino Americans are known to have higher rates of thyroid cancer incidence and disease recurrence than European Americans. They are also known to be 2 times more likely to die of thyroid cancer. Thyroid cancer has been linked to multiple factors, one of them being acculturation stress-induced obesity. Studies have shown that Filipino immigrants have a higher obesity rate than Filipinos who were born in the US, which leads us to the hypothesis that acculturation stress-induced obesity increases microRNAs (miRNAs) that lead to the thyroid cancer health disparities. Acculturation stress increases obesity that can increase exogenous stress that leads to endogenous stress and induces microRNA expressions, which contributes to cancer development. When deregulated, miRNAs can function as tumor suppressant genes or as oncogenes. One of the miRNA families of let is let-7, which is a family of 13 genes that are located on 9 different chromosomes and are one of the most expressed miRNAs in normal thyroid glands. Therefore, the let-7 family carries an important role in thyroid development and functionality. In this study, we expect to see the expression of let-7 and use this gene as a diagnostic, prognostic and predictive biomarker in thyroid cancer.

METHODS: In order to study this, we used QIAGEN's DNA and miRNA extraction kits. Results from these extractions showed high quality and quantity DNA and miRNA obtained from paraffin-embedded thyroid tissues. We then proceeded to do miRNA qPCR assays to profile the let-7 miRNA expression.

RESULTS: We found that lower let-7 expression in Filipino American versus European American thyroid cancer tissues. In the future, we will do a miRNA-array analysis to distinguish miRNA profiles in Filipino Americans versus European Americans thyroid cancer tissues.

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