Gene Expression in Hyperparathyroidism: Molecular Differences in the Sporadic Adenomas of Older versus Younger MEN1-Negative Patients

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Primary hyperparathyroidism (HPT) is a relatively common condition affecting 100,000 people annually, and usually affects older women. Younger patients, who have tested negative for MEN1, are a difficult group to diagnose and treat. They make up only a small percentage (0.7%) of HPT cases and appear to present as a clinically separate entity. We have undertaken expression profiling of 5 younger patients (age less than 50 years old) and 5 older patients (age greater than 50 years old) with sporadic parathyroid tumors to better define the molecular genetics of tumors in these groups. Gene expression of vitamin D receptor (VDR) was found to be decreased 1.5 fold (p<0.05) in the younger patient group. Furthermore, other genes in the VDR pathway, such CDKNA1 were also found to be decreased in the younger group. Findings will be confirmed by immunohistochemistry. VDR as a distinguishing gene between the groups may help explain the earlier onset of the disease through the VDR pathway and have potential future diagnostic and treatment implications. These finding provide insights into the molecular pathways involved in parathyroid tumorigenesis in younger patients with hyperparathyroidism.