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Abstract Topic: - Cancer

Abstract Title: - Molecular screening of genes associated with differentiated thyroid cancer in the South Indian population: A case control study.

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Aims: - In the last few years, there has been a significant increase in the incidence of thyroid cancer worldwide, making it the most common malignant tumor in the human endocrine system. Together, papillary thyroid cancer (PTC) and follicular thyroid cancer (FTC), which make up 85–90% and 5–10% of cases, respectively, are the most common histological forms of thyroid cancer and are sometimes referred to as well-differentiated thyroid carcinoma. Even though the impact of ionising radiation (IR) on differentiated thyroid cancer (DTC) aetiology is well established, genetic and environmental factors may also play a major role. Single nucleotide polymorphisms (SNPs) in the BRAF gene were considered to be one of the known risk factors for PTC development. The genesis and advancement of diverse forms of cancer, including DTC are primarily influenced by mutations in the genes encoding KRAS, HRAS, NRAS, and BRAF. The current prospective cohort study aims to explore the association between genetic variants of the genes (BRAF, TERT, TG, HRAS, NRAS) related to differentiated thyroid cancer and its susceptibility in a South Indian population.

Methods: - 200 DTC patients and 172 age- and gender-matched controls of South Indian descent participated in a case-control study. “cBioportal”; “Ensembl”; and “NCBI-dbSNP” databases were used to retrieve SNPs. Five SNPs of (BRAF-rs11762469, HRAS-rs3134613, NRAS-rs14804, TERT-rs2736100 and TG-rs2076740) were genotyped using polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP).

Results: - Based on initial finding, we hypothesise that a genetic predisposing factor for DTC might be associated with genetic variations of the BRAF and RAS family genes.

Conclusions: - Further investigation is needed to validate these findings and determine the importance of these SNPs as DTC genetic susceptibility biomarkers.

Keywords: - Based on initial finding, we hypothesise that a genetic predisposing factor for DTC might be associated with genetic variations of the BRAF and RAS family genes.