PREVALENCE OF BRAF, K-RAS, H-RAS, N-RAS AND RET-PTC MUTATIONS IN COLOMBIAN PATIENTS WITH PAPILLARY CARCINOMA OF THE THYROID

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Background/Purpose: Mutations in Braf, K-ras, H-ras, N-ras genes and fusion rearrangements in RET direct the carcinogenic process in papillary thyroid cancer (PTC); nevertheless, its prevalence depends on the technique used to identify, the ethnic origin of the population and exposure to radiation. We wanted to know the prevalence of these mutations in Colombian PCT patients.
Methods: Samples taken from 31 malignant tumors with papillary histology during a thyroidectomy were used for molecular analyses. The DNA and RNA were extracted respectively via DNAzol and Trizol methods. PCR and sequence were used to detect BRAF (V600E), K-ras (codons 13, 14 y 61), H-ras (codon 61) and N-ras (codon 61), while RT-PCR for RET-PTC1 (H4), RET-PTC2 (R1alfa) and RET-PTC3 (ELE1) were used for fusions.
Results: *: A BRAF (V600E) mutation was observed in 56%, N-ras in 3.7%, while it was 0% in K-ras, H-ras or RET-PTC fusions. 100% of the cases with lymphovascular invasion were BRAF+ (vs 33%), 80% of the tumors larger than 1cm were BRAF+ (vs. 58%) while 3 male cases were BRAF- (vs. 64%). (*Percentages correspond to cases with information on characteristics).
Discussion & Conclusion: 60% of Colombian patients were positive for BRAF or N-ras mutations; frequency is in accordance with the range reported in literature (29%-83%). The non- detection other mutations would indicate their low frequency and low risk of exposure to radiation in Colombian patients. To research these possibilities, we shall continue evaluating these mutations increasing population size and we shall conduct genomic studies via massive sequence in search of new CPT driver mutations.