

Investigating Wnt pathway in South Indian oral squamous cell carcinoma patients

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Background: Oral cancer is the eighth most prevalent cancer in the world but in India, it accounts for 30% of cancer deaths. In this study we focus on the possible role of Canonical Wnt signalling pathway in oral cancer in patients of South Indian origin. Although literature says that there are several components of this pathway altered in oral cancer, not many studies have been done on Indian population where the burden of this disease is on a high.

Objectives: To understand the role of WNT pathway genes in oral squamous cell carcinoma and to correlate the molecular findings with clinical behaviour.

Methods: A prospective study of 33 patients with oral cancer who reported to Saveetha University between July 2014 and January 2016 is done. Oral cancer tissues from surgically resected specimen of these patients, were processed for molecular study. Gene and protein expression: SFRP-1, WNT-3a, β -catenin, c-MYC and Cyclin-D are investigated in 33 oral cancer patients and 3 normal oral tissue samples using qRT-PCR and western blotting. Statistical analyses were performed using GraphPad Prism 6 (GraphPad software Inc., La Jolla, CA, USA) for validating gene expression. Data were analyzed by the Mann-Whitney test. All tests were two tailed and $p < 0.05$ was considered significant.

Results: We observed a high expression in all genes analyzed (SFRP-1, WNT-3a, β -catenin and Cyclin-D) by both real-time and western blot in the oral cancer tissues of these patients. Interestingly the mRNA levels of c-MYC in cancer tissues were lower compared to normal tissues, while c-MYC protein levels was found to be higher in cancer tissues. Continuous follow up of these patients are being done.

Conclusion: The decreasing expression levels of β catenin with progressing stages and increased levels of its target genes Cyclin D and C-myc can be useful markers and molecular targets for diagnostic and therapeutic intervention.

Further validation is needed with IHC and epigenetic studies, which are ongoing.

Biography:

Dr. Madhulaxmi Marimuthu has completed her Masters in Oral Surgery and is currently pursuing her PhD in Saveetha University, India. Her research interest is Oral Cancer, its molecular biology and its clinical implications.