Genetic Engineering-2013

International Conference on
Genetic Engineering & Genetically Modified Organisms

August 12-14, 2013 Raleigh-North Carolina, USA

Cytochrome P450 1A1 and glutathione s-transferase Pi 1 mutations in pharyngeal and laryngeal carcinoma

Nosheen Masood
Fatima Jinnah women university, Pakistan

Abstract

In the current case control study, 94 pharyngeal, 67 laryngeal cancer cases and 150 cancer free controls were screened via PCR-SSCP assay. Mean ages of pharyngeal, laryngeal cancer patients and control was 48.14 (±16.7), 48.56 (±17.4) and 46 (±17.69) years respectively. Results revealed two novel mutations in CYP1A1 gene, a substitution mutation of $A_{2842}C$ resulting in missense tyrosine to serine formation and frameshift mutation due to insertion of thymidine at nucleotide 2842 resulting in 495 nucleotide sequences to alter. It was found that 3.2% pharyngeal and 2.98% laryngeal cancer patients had these mutations in CYP1A1. In GSTP1 gene exon 7, an $A_{2848}T$ substitution causes a leucine to leucine formation whereas $G_{2849}A$ substitution causes alanine to threonine formation at amino acid 166 and 167 respectively. These exonic mutations were found in 7.4% pharyngeal cancer and 9% laryngeal cancer patients. Two intronic deletions of C at nucleotide 1074 and 1466 were found in 1% pharyngeal and laryngeal cancer patients. Accumulation of mutations in CYP1A1 and GSTP1 genes seem to be associated with increased risk of pharyngeal and laryngeal cancer development.