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Association of *Candida albicans* in development of oral cavity infection with reference to oral carcinoma in North Indian population

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Presently, cancer one of the most prevalent types of disease is a growing health problem around the world and is one of the leading causes of death. Oral cancer is the sixth most common cancer which occurs worldwide and continues to be the most prevalent cancer which develops in multistep process from pre-existing potentially malignant lesions. The most common pre-cancer is leukoplakia which represents 85% of such lesions and 95% of oral cancers are squamous cell carcinomas (OSCC). In India the incidence of oral submucous fibrosis (OSMF) and OSCC is also increasing like an epidemic and vast majority of OSCC arises from pre-existing Leukoplakia. Several studies have reported that 1-18% of premalignant oral lesions will develop into malignant form. C. albicans has also been identified as a possible factor in the development of oral leukoplakia and its malignant transformation. Candida species, dimorphic harmless eukaryotic organism are members of phylum Ascomycota. In healthy individuals it mostly resides as a part of normal commensal microbial flora on mucosal surfaces of oral cavity. C. albicans grows as a filamentous form, capable of forming true hyphae and is one of the only Candida species. Hyphae play important roles in adhesion and invasion into epithelium. It contributes many virulence attributes like adherence to host tissue and release of some hydrolytic enzymes. It is still unclear, how an increased amount of C. albicans in oral cavity influence the progression of pre-cancer to malignancy. A higher level of C. albicans is present in precancerous and OSCC patients. C. albicans is most pathogenic and significantly more successful pathogen in oral malignancy transformation. There are no drugs which can effect extremely to treat oral cancers. There is a general call for new emerging drugs that are highly effective towards cancer, possess low toxicity, and have a minor environment impact. Novel natural products offer opportunities for innovation in drug discovery. Natural compounds isolated from medicinal plants, as rich sources of novel anticancer drugs, have been of increasing interest. The alarming reports of cancer cases increase the awareness amongst the clinicians and researchers pertaining to investigate newer drug with low toxicity.

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Analysis of *MTHFR* gene C.677C>T and C.1298A>C polymorphisms in Iranian patients with non-syndromic cleft lip and palate

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N on-syndromic cleft lip with or without cleft palate (nsCL/P) is one of the most common congenital abnormalities of the orofacial region with a multifactorial etiology. The present study aimed to investigate the association of two common polymorphisms of *Methylene tetrahydrofolate reductase* (*MTHFR*) gene (c.677C>T and c.1298A>C) with the occurrence of nsCL/P in an Iranian population. Forty-five nsCL/P patients, 43 mothers of patients, and 101 unrelated controls participated in the present study. Analysis of c.677C>T and c.1298A>C polymorphisms in *MTHFR* gene was conducted using polymerase chain reaction and restriction enzyme digestions. There was no statistical difference in genotype and allele frequencies for c.677C>T variants between patients or their mothers and the control group. However, differences in the frequencies of alleles and genotypes of c.1298A>C polymorphism were statistically significant between patients and control group (P=0.01 for alleles and P=0.005 for genotypes). The odds ratios (OR) for the CC versus AA homozygotes were 6.1 (95% CI 1.8-20.5) and 4.2 (95% CI 1.1-15.4), in patients and mothers, respectively. We found no association between genetic polymorphism of *MTHFR* gene may be a risk factor for the occurrence of nsCL/P in the Iranian population.

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