

Prediction of Posterior Maxilla Residual Alveolar Bone Height after Dental Extractions

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Introduction

The tooth provides an excellent system for deciphering the molecular mechanisms of organogenesis, and has thus been of longstanding interest to developmental and stem cell biologists studying embryonic morphogenesis and adult tissue renewal. In recent years, analyses of molecular signaling networks, together with new insights into cellular heterogeneity, have greatly improved our knowledge of the dynamic epithelial-mesenchymal interactions that take place during tooth development and homeostasis. I review recent progress in the field of mammalian tooth morphogenesis and also discuss the mechanisms regulating stem cell-based dental tissue homeostasis, regeneration and repair. These exciting findings help to lay a foundation that will ultimately enable the application of fundamental research discoveries toward therapies to improve oral health.

There In spite of many advances in diagnostics and therapeutics in the field of medicine and dentistry, malignancy remains as one of the most common causes for death of the individual worldwide, of which head and neck carcinomas are sixth most frequent type of human cancer globally, among which oral squamous cell carcinoma is common type. Morbidity rate remains high and five years survival rate is moderately improved. One of the most important therapeutic modalities for cancer includes radiotherapy. During radiotherapy, exposure of the normal tissue to these ionizing radiations, results in mutagenesis and cell death. Several modalities and clinical approaches have been made to reduce these early and late complications of the radiotherapies and one among them is, by the means of pharmacological agents also known as radio protective agents. Many experimental and clinical studies have given rise to new concepts of chemical and molecular pharmacological agents, that could be effective in protection and treatment of radiation damage to surrounding normal tissues. To reduce the significant complications in irradiated patients, the clinical implication of these radioprotective agents have emerged as potential drugs and with anti-tumour effect in the radiotherapy of various cancers including oral carcinomas. This presentation highlights the significance of these radioprotective agents with their mechanism of action in radiotherapy.

Despite many advances in the field of therapeutics for oral cancers, morbidity rate remains high and five years survival rate is moderately improved. As it is known that, head and neck carcinomas are sixth most frequent type of human cancer globally, among which oral squamous cell carcinoma is common type. Role of EGFR has gained much important in head and neck squamous cell carcinoma as a potential target for new therapies. EGFR consists of an extracellular N-terminal ligand-binding domain, a hydrophobic transmembrane region, and an intracellular C-terminal tyrosine kinase (TK) domain. The EGFR gene can be mapped to chromosome 7p11.2 and encodes a 170-kDa transmembrane glycoprotein. Alterations in the function of EGFR have been linked with oncogenic transformation, autonomous cell growth, invasion, angiogenesis, and development of metastases in several cancers and are key characteristics of tumors. In recent years, EGFR has been considered a promising target for monoclonal antibody targeted therapy in conjugation with nanotechnology. The objective of the presentation is to highlight the significance of EGFR as targeted therapy for the oral squamous cell carcinomas.

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