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Quality and quantity of bone at intraoral graft donor sites in type 2 diabetic patients versus healthy controls: A cone-beam computed tomography study

Objectives: This study aimed to compare the quality and quantity of bone at intraoral autogenous graft donor sites in type II diabetes mellitus (DM) patients versus healthy controls using cone-beam computed tomography (CBCT).
Materials and methods: This case-control study was conducted on CBCT scans of 50 DM patients and 50 healthy controls between 20-70 years. Maximum height, width, length, and volume of harvestable bone at the symphysis, ramus, palate, and tuberosity were measured bilaterally. The Hounsfield unit (HU) was also calculated to assess bone quality. The two groups were compared regarding the quality and quantity of harvestable bone using an independent t-test. The effect of confounders was analyzed by the regression model (alpha = 0.05).
Results: DM patients had significantly lower harvestable bone volume at the symphysis, ramus, and tuberosity than healthy controls ($p < 0.001$) but this difference was not significant at the palate ($p = 0.957$). Also, bone quality was significantly lower at the symphysis, ramus, palate, and tuberosity in DM patients ($p < 0.001$).
Conclusion: Diabetic patients had significantly lower bone quality and quantity at intraoral graft donor sites than healthy controls. Mandibular symphysis had higher bone volume and density than ramus, palate, and tuberosity for graft harvesting in diabetic patients.

Mini Review **Published Date:- 2023-04-14**

Current and emerging trends in oro-dental healthcare and cranio-maxillo-facial surgery

Dentistry is an ever-evolving field that has seen significant advances in recent years. This article sheds light on some of the current and emerging trends in oral health care, including digital dentistry, regenerative medicine, and the use of lasers. For example, digital dentistry involves the use of computer-aided design and manufacturing technology, which enables more accurate and efficient production of dental devices. On the other hand, regenerative medicine and nanoDentistry can be considered promising area that combines the use of stem cells, growth factors, biomaterials, and nanotechnology to regenerate damaged tissue and improve treatment outcomes. Lasers are increasingly being used in dentistry for a range of applications, including the treatment of gum disease and teeth whitening. Other developing technologies such as 3D printing and artificial intelligence are also being increasingly incorporated into dentistry, providing improved treatment options for our patients. Last yet definitely would/will not least, controlled drug delivery systems are being developed to deliver drugs to specific target sites in a localized and sustained manner, reducing the risk of adverse effects. Currently, these emerging trends are transforming the landscape of odontology and beyond. Hence, in this mini-Review, we explore such trends in oro-dental and cranio-maxillo-facial indications to highlight the potential benefits, advancements, and opportunities of applications for improved patient care.