World Academy of Science, Engineering and Technology
International Journal of Materials and Metallurgical Engineering
Vol:9, No:07, 2015

Relation between Initial Stability of the Dental Implant and Bone-Implant Contact Level

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Abstract : The objectives of this study were to measure the initial stability of the dental implant (ISQ and PTV) in the artificial foam bone block with three different quality levels. In addition, the 3D bone to implant contact percentage (BIC%) was measured based on the micro-computed tomography images. Furthermore, the relation between the initial stability of dental implant (ISQ and PTV) and BIC% were calculated. The experimental results indicated that enhanced the material property of the artificial foam bone increased the initial stability of the dental implant. The Pearson's correlation coefficient between the BIC% and the two approaches (ISQ and PTV) were 0.652 and 0.745.

Keywords : dental implant, implant stability quotient, peak insertion torque, bone-implant contact, micro-computed tomography
Conference Title : ICEMA 2015 : International Conference on Engineering Materials and Applications
Conference Location : Athens, Greece
Conference Dates : July 20-21, 2015