



Effects of Implant surface treatment on gene expression of Runx-2, osteogenic key marker gene

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Many studies have been directed at attempts to understand the interaction of osteoblasts with various alloplastic biomaterials, such as titanium, that are often used to fabricate dental implants. The transcription factor Cbfa1(runx-2) regulates osteoblast differentiation and expression of genes necessary for the development of a mineralized phenotype. We studied the effect of various surface treatments of titanium surface on the expression of Cbfa1 in vitro.

Human Osteosarcoma TE-85 cells were cultured on machined, sandblasted, anodic oxidized cpTi discs. After 1day, 3days, 5days cells were harvested, and then total cellular RNA was extracted. Reverse transcription PCR was used for relative comparative analysis of Cbfa1 gene expression.

The results showed more expression of Cbfa1 in cells grown on sandblasted surface at 1day culture, on anodic oxidized surface at 3days culture, on machined surface at 5days culture. The patterns of the gene expression of different surface treatment were noted different along the time table. These results suggest that gene expression is affected by implant surface micro-topographies during osseointegration of dental implant.

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