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Evaluation of surface roughness and adhesion capability of titanium after argon plasma-jet surface treatment: A pilot study

Basak Kusakci Seker, Emre Seker and Suat Pat
Eskisehir Osmangazi University, Turkey

Six titanium (Ti Grade 5) discs were machined and smoothed with silicon polishing discs. The surface roughness was evaluated in a control group and in groups with different plasma-jet exposure application times [15-30-60-90-120 seconds (s.)]. The average surface roughness (Ra) and contact angle (CA) measurements were recorded via an atomic force microscope (AFM) and tensiometer, respectively. Data were analyzed with one-way analysis of variance (ANOVA) and the Tukey HSD test ($\alpha=0.05$). According to the results, the argon plasma-jet surface treatment significantly affected the roughness and wettability properties ($P<0.05$). With an increase in the application time, an apparent increment was observed for Ra and a remarkable reduction in CA was observed in all groups. It concluded that the argon plasma-jet technology could enhance the roughening and wetting performance of Grade 5 Titanium.

Biography

Basak Kusakci Seker has completed her undergraduate education and PhD from Hacettepe University and Near East University respectively. She served as a Lecturer and Clinical Specialist and is currently working as an Assistant Professor at Eskisehir Osmangazi University Faculty of Dentistry Department of Periodontology. She has published more than 20 papers and presentations and continues to study on dental implant surgery, dental laser applications, plasma disinfection and wound healing and bone regeneration techniques.

basakusakci@hotmail.com

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