The Effect of Antibiotic Therapy on Bacterial Accumulation Adjacent to Implant Surgical Site: Microbiologic Study

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Background & Objectives: Whereas cost and adverse effects of antibiotics, necessity of its prescription in simple implant surgery remained poorly documented and studies yielded contradictory results.The purpose of this study was to evaluate the effect of Amoxicillin on bacterial colonization adjacent to implant surgical site.

Methods: This randomized controlled clinical trial was included 20 patients (10 patients in control group and 10 patients in test group). Patients in each group were given 500 mg amoxicillin or placebo every 8 hours for 7 days postoperatively. Samples were collected with paper points inserted to peri-implantitis sulcus 30 minutes after surgery and seven days later, before suture removal. Then samples were transferred to microbiological laboratory for microbiological analyses to evaluate differences in bacterial colonization and bacterial species (with regard to resistance, metabolism, gram staining and morphology). Mann-whiteny test and wilcoxon-test were used to access statistical significance.

Results: In amoxicillin group the number of sensitive facultative species decreased significantly (p=0. 10) and resistant anaerobic species increased significantly (p==0.005) after 7 days. Decrease of the sensitive facultative species and increase of resistant anaerobic species were statistically greater in amoxicillin group in comparison with placebo group (p=0.025 and p=0.005, respectively). Increase of sensitive anaerobic species was statistically higher in placebo group (p=0.011). Decrease of facultative gram positive cocci was statically higher (p=0.035) in amoxicillin group in comparison with placebo group.

Conclusion: According to results of the present study, after simple implant surgeries, administration of Amoxiciline leaded to increase of resistant anaerobic species and decrease of sensitive facultative species.

Keywords: Amoxicilin; Bacterial Colonization; Bacterial Species; Imp Lant Surgery; Antibiotic Therapy