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RESEARCH

Treatment of peri-implant mucositis using spermidine and calcium chloride as local adjunctive delivery to non-surgical mechanical debridement: a double-blind randomized controlled clinical trial

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Abstract

Objectives To evaluate the effects of non-surgical mechanical debridement with or without adjunctive application of a gel with spermidine and sodium hyaluronate associated to a sealing gel (i.e. calcium chloride) in the treatment of peri-implant mucositis (PiM).

Materials and methods Forty patients with one implant with PiM were randomly allocated in test and control groups. Test implants were treated with non-surgical mechanical debridement and local unique application of spermidine and calcium chloride gel while control implants were treated using non-surgical mechanical debridement alone. The primary outcome was BOP change. FMPS, FMBS and PD were also assessed. For an Implant the presence of a single bleeding spot (1 site/implant without a continuous line or profuse bleeding) was considered as complete disease resolution.

Results After 3 months, a statistically significant improvement of all parameters were recorded in each group ($p < 0.05$). However, no statistically significant differences were found between test and control procedures ($p > 0.05$). At 3 months, 85% of test implants and 70% of control implants resulted in disease resolution. Residual implants with PiM in control group displayed a greater number of BOP-positive sites when compared with those of test group ($p < 0.05$).

Conclusions Whitin the limitations of the present study, results indicate that the clinical parameters improved following non-surgical mechanical debridement regardless the adjunct of spermidine and calcium chloride gel. Nevertheless complete resolution of PiM was not obtained in both experimental groups.

Clinical relevance Although no statistically significant differences were found between test and control procedures, the adjunctive application of spermidine and calcium chloride gel to non-surgical mechanical debridement may be considered in order to reduce the number of sites with BOP-positive.

Keywords Biofilm · Bleeding on probing · Antiseptic · Inflammation · Mucositis

Introduction

The prosthetic rehabilitations using dental implants are considered standard of treatment of edentulous sites in majority of patients [1, 2]. Data from many studies reported a high survival and success rates greater than 95% [3–5] associated to peri-implant soft tissues stability in patients enrolled in SPIC (Supportive Peri-Implant Care) program with high level of oral hygiene [6]. It was strongly proven that biofilm accumulation at implant sites in association with some risk factors [7] induces peri-implant infections such as peri-implant mucositis (PiM) and peri-implantitis [8]. PiM is an inflammatory lesion in the soft tissues around dental

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