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THE COMPARISON OF PHOTODYNAMIC AND ANTIBIOTIC THERAPY IN PATIENTS WITH AGRESSIVE PERIODONTITIS: PRELIMINARY RESULTS

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Introduction

Agressive periodontitis (AgP) affects a small percentage of the world's population but it's treatment represents a big significance as the disease is characterized by severe destruction of the periodontal tissues in young individuals. Many different protocols have been developed for the treatment of AgP. However, there are no final established guidelines for efficient control of the disease. Several investigators have reported that scaling and root planing alone could not predictably suppress Agregatibacter actinomycetemcomitans (Aa) below detection levels (1, 2, 3). A combination of amoxicillin and metronidazole has shown to be very effective against Aa in vitro (4, 5). Furthermore, some clinical studies have reported good long-term clinical outcomes in patients with AgP when periodontal treatment was completed with adjunctive use of amoxicillin and metronidazole (6). However, the application of systemic antibiotics is not entirely free from side effects.

Aim

There are very limited data on treatment of AgP with photodynamic therapy. The aim of this study was to compare the effect of scaling and root planing in combination with administration of systemic antibiotics (SRP and ATB) to the effect of scaling and root planing in combination with photodynamic therapy (SRP and PDT).

Materials and Methods

Ten subjects, five men and five women, in the age range from 23 years to 35 years, with untreated AgP were included in the study. Patients were randomly divided into 2 groups of which one group received a combination of SRP and ATB (500mg amoxicillin and 400mg metronidazole three times a day for 8 days) and the other group received a combination of SRP and PDT. The photodynamic therapy consisted of two episodes using a laser source with a wavelength of 660 nm and power output of 40 mW/cm^2, associated with a HELBO Blue photosensitizer (Fig. 1). After rinsing (Fig. 2) the photosensitizer, the laser probe tip was placed at the depth of the pocket and moved circumferentially around the tooth for 1 minute (Fig. 3). Clinical parameters of probing depth (PD), clinical attachment level (CAL) and bleeding on probing (BOP) were measured at baseline and 3 months after treatment.

Fig. 1 Applying of the HELBO Blue photosensitizer into the periodontal pocket.

Fig. 2 Rinsing with sterile saline.

Fig. 3 Activating of applied dye with a laser light.

Results

In both groups, all clinical parameters improved after 3 months. The mean PD decreased in the SRP and ATB group from 3.10+/-1.66 mm at baseline to 2.48+/-0.86 mm after 3months ($p < 0.005$), and in the SRP and PDT group from 3.85+/-1.88 mm at baseline to 2.85+/-1.08 mm after 3 months ($p < 0.005$) (Fig. 4). The mean CAL decreased in the SRP and ATB group from 3.40+/-1.84 mm at the baseline to 2.92+/-1.26 mm after 3 months ($p < 0.005$), and in the SRP and PDT group from 4.05+/-2.02mm to 3.20+/-1.40 mm after 3 months ($p < 0.005$) (Fig. 5). A significant reduction of BOP occurred in both groups after 3 months ($p < 0.005$) (Table 1.).

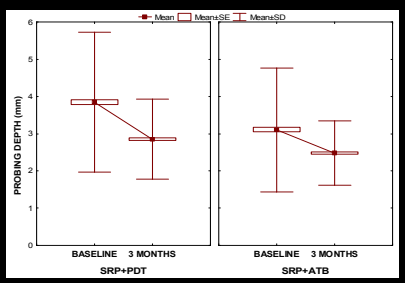

Fig. 4 Reduction of probing depth in both treatment groups after 3 months.

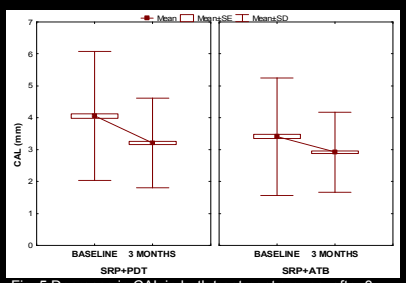

Fig. 5 Decrease in CAL in both treatment groups after 3 months.

Table 1 Reduction of BOP score in both groups after 3 months

THERAPY	TIME	BOP 0	BOP 1
SRP+PDT	BASELINE	456	414
SRP+PDT	3 MONTHS	776	94
SRP+ATB	BASELINE	634	194
SRP+ATB	3 MONTHS	769	58

Conclusions

SRP and ATB in combination and SRP and PDT in combination both showed a significant reduction in all clinical results in the treatment of AgP. Additional studies including a greater number of patients and long-term follow-up are needed to evaluate the potentially beneficial effects of photodynamic therapy in the treatment of AgP patients.

Acknowledgments: The diode laser, photosensitizer, and fiber optic applicator used in this study were donated by HELBO Photodynamic Systems, Greskirchen, Austria.

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