Outcome of Azithromycin with Non-Surgical Periodontitis Therapy at Dental Hospital University of health Sciences Lao PDR.

ABSTRACT

Objective: To describe the outcome of Azithromycin with non-surgical periodontitis therapy.

Methods: Is a cross-sectional descriptive study**,** the subjects were divided into two equal groups (Group study and Group control). At baseline, patients received a full mouth supra scaling with an ultrasonic, scaling and root planning in PD>4 mm and were placed on a systemic antibiotic regimen: Azithromycin 250 mg (Group study) and doxycycline 250 mg (Group control) all groups one times a day for 5 days the subjects were recalled at day 5, day 30 and day 90.

Results: The comparison of outcome periodontitis treatment by Azithromycin 250 mg and doxycycline 250 mg evaluated by plaque index and clinical attachment loss were significant difference between groups and clinical parameters was different from baseline values.

Conclusion: Azithromycin 250 mg with non-surgical periodontitis therapy was significant.

Key words: Azithromycin 250 mg with non-surgical periodontitis therapy, Lao PDR.

INTRODUCTION

Periodontitis is an infectious disease affected the periodontal tissue as periodontal ligament, cementum and alveolar bone [1].

Periodontitis is a type of periodontal disease characterized by rapid loss of alveolar bone support [2]. Even its prevalence is low, but is still made the problem in dentistry issue because of the etiology, treatment and prognosis of this type of disease have undergone quite difficult and considerable changes [3]. It has a complex etiology, both clinical and microbiological pathogenesis in periodontal destruction [4,5]. The subgingival microflora is one of the most important reasons for periodontal destruction [6]. The oxidative killing mechanisms of PMNs are not completely effective under anaerobic conditions. Therefore, antimicrobial agents are used to control these periodontal infections, which include azithromycin, doxycycline, ciprofloxacin, metronidazole and synthetic penicillin, such as amoxicillin [7, 8, 9]. The main reason for choosing these antibiotics is their activity against anaerobic flora, availability in higher concentrations in gingival crevicular fluid, long duration in the tissues and anticollagenolytic properties [10]. In addition to administration of azithromycin in the treatment of periodontal infections, azithromycin is greatly effective in inhibition of gram negative facultative anaerobes [12]. The mentioned that antimicrobial strategies for treatment of periodontitis had a good response and azithromycin has also been used in therapy of periodontitis [13], Rao, Deepika Pawar Chandrashekara, et al, 2023 studied on the treatment of periodontitis with azithromycin and doxycycline outcome that the doxycycline was better than azithromycin [14], Povšič, Katja, et al, 2021 has studied on the treatment of periodontitis with doxycycline and azithromycin outcome all the groups were significant [15], Kerdmanee, Kunchorn, 2023 has studied on the treatment of

periodontitis with doxycycline and azithromycin outcome the doxycycline was better than azithromycin [16], Report monthly Faculty of Dentistry, Laos 2023 has studied on the treatment of periodontitis with doxycycline and azithromycin outcome the doxycycline was better than azithromycin [17].

METHODOLOGY

The present study was a cross-sectional descriptive study at Dental hospital, Faculty of Dentistry, University of Health Sciences, Lao PDR. From August 2023- February 2024. Inclusion criteria: aged between 16 to 30 years when first diagnosis with periodontitis, systemically healthy, absence of any medication for the last 6 months, and no periodontal therapy for the previous 12 months were asked to and willing to participate in the study. Exclusion criteria: presence of systemic diseases or having experience drug allergies, patients on long-term anti-inflammatory therapy, patients having partially erupted or impacted teeth and those not willing to give the consent for the study, were excluded out of the research. The patients were purposively selected and divided into two groups. **Group study:** - At baseline, patients received a full mouth supra debridement with an ultrasonic scaler, scaling and root planing in PD>4mm and prescribing: - azithromycin 250 mg - 1 table a day for 5 days and follow up. **Group control:** - At baseline, patients received a full mouth supra debridement with an ultrasonic scaler, scaling and root planing in PD>4mm and were prescribed: - doxycycline 250 mg – 1 tablet a day for 5 days and follow up and collection the treatment information.

All groups received Ibuprofen 400 mg for 1 tablet at every 8 hours for 5 days and recalled at 5^{th} day, 30^{th} day, and at 90^{th} day for periodontal examination and the finding were recorded in using the data collection form as Plaque Index (Silness and Loe, 1964) [18], Gingival Margin was measured from the margin to CEJ, Probing Pocket Depth (PPD): Was measured from the crest of the gingival margin to the base of the pocket by using a graduated manual probe (UNC-15 mm probe), Clinical Attachment Loss (CAL) was calculated from two measurements included as follows: CAL = PPD – distance from free gingival margin to CEJ [19].

The mean values of plaque index (PI) and clinical attachment level (CAL) were calculated and compared using the 'Paired T Test, Spearman's Test was performed to obtained the statically analysis at 95% confident interval (95% CI).

RESULTS AND DISCUSSION

1. **The therapeutic efficacy in periodontitis treated by azithromycin evaluated by PI describing as below** As showing in the table 1

Table 1: Comparison of PI value between study group and control group

	Follow up of PI clinical parameter

The patient (N = 20)	Baseline		Day 10		Day 30		Day 90		P value
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Group I (n=10)	2.2	0.16	1.04*	0.27	0.56*	0.28	0.19*	0.11	0.02**
Group II (n=10)	2.34	0.44	0.97*	0.24	0.45*	0.10	0.23*	0.09	0.04**
P value	0.56		0.002**		< 0.001**		< 0.001**		

Paired T Test * Significant difference between groups (P<0.05)

Spearman's Test ** significantly different from baseline values (P<0.05)

2. **The CAL level showed the difference of therapeutic efficacy in both group's treatment and follow-up** Please seeing in the table 2.

Table 2: Comparison of CAL value between study group and control group

The patient (N = 20)	Follow up of CAL clinical parameter				
	Baseline		Day 90		P value
	Mean	SD	Mean	SD	
Group I (n=10)	3.87	1.23	2.68*	0.30	0.01**
Group II (n=10)	4.26	1.49	2.56*	1.07	0.01**
P value	0.15		< 0.001**		

Paired T Test * Significant difference between groups (P<0.05)

Spearman's Test ** significantly different from baseline values (P<0.05)

All patients were given detailed oral hygiene instructions during 90 days of follow-up treated patients demonstrated a pattern of decrease in their PI scores during the entire study period compared to baseline PI and CAL values. Furthermore, patients treated with azithromycin on PI scores to compare the PI scores of doxycycline all groups showed a statically significant at the day 5, 30, 90. This decrease in PI scores can be attributed to the improved oral hygiene methods of the patients. This is in accordance with the results of studies by Povšič, Katja, et al, 2021 [15], failed to report any changes in PI scores variation in the results may be due to the differences in the study population.

Terms of their socioeconomic status, education level, and oral hygiene awareness. It was seen that azithromycin and doxycycline treated patients demonstrated a pattern of decrease in their CAL values during the entire study period compared to baseline CAL values. Furthermore, patients treated with azithromycin values compared to the CAL with doxycycline CAL values that all groups showed a statistically significant at the day and 90. This decrease in CAL values in both groups can be attributed to the administration of antibiotics in addition to scaling and root planning. This is different from Kerdmanee, Kunchorn, 2023 [16] and different from report monthly (Faculty of Dentistry, Laos 2023) [17].

LIMITATION

A limitation of this study was that it did not include the socioeconomic status of the participating subjects. Also, there was no comparison with an 'only SRP' group and systemic antibiotic.

CONCLUSION

The finding study was positive effect of periodontitis non-surgical treatment with azithromycin 250 mg improves clinical parameter as clinical attachment level at the day 90.

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