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Management of oral lichen planus lesions using intralesional platelet rich fibrin and triamcinolone acetonide injection – A comparative clinical study

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Introduction

lichen planus is a chronic inflammatory mucocutaneous disease which frequently involves the oral mucosa.[1] This disease has most often been reported in middle-aged patients 30- 60 years of age and is more common in females than in males [2] .

Clinically, oral lichen planus (OLP) can present six different patterns: papule, reticular, plaque, atrophic, erosive and bullous. each showing specific characteristics and appearing in either isolated or associated forms.[3]

Among those, the reticular is the most prevalent type characterized by the presence of Wickham striae, which are typically symmetric, bilateral, symptomatic, and predominantly found in the buccal mucosa. [4] The erosive form, although less frequent, presents greater clinical significance as the lesions are usually symptomatic, ranging from a slight discomfort to episodes of intense pain [4] Oral lichen planus can be diagnosed clinically in conventional cases, but a biopsy is necessary to confirm the diagnosis [5] The aetiology of the OLP remains uncertain [4]

The most commonly employed and useful agents for the treatment of OLP are topical corticosteroids. However, their prolonged use should be avoided due to the associated side effects : secondary candidosis; nausea; oral use not tolerated; refractory response; mucosal atrophy; oral dryness; sore throat; bad taste; and delayed healing [6]

Consequently, alternative treatments are needed to overcome these problems Therefore, treatments and techniques are being approached with no side effects.

Recently, the concept of regenerative medicine has emerged, including platelet-rich plasma injection and platelet-rich fibrin Whereas, the platelet-rich properties of fibrin, supported by the scientific literature in both dentistry and other medical fields, have guided its use in clinical treatments, especially in some chronic diseases that need a specific treatment, especially when patients do not respond to conventional treatments or when there is a contraindication to conventional treatment or side effects , so we tend to use it to reduce the symptoms and the possibility of treating lichen.

The technique of rich platelet fibrin is a modern and new technology that was first developed in the seventies of the last century and this method is considered completely safe and without side effects at all in the long term because it depends on the injection of autologous substances from the same patient and therefore there is no fear of rejection of the body or Transmission of any bacterial infection [7]

Is it possible for platelet rich fibrin to be effective compared to and superior to primary line corticosteroid therapy ?!

Aim of the study

- A comparative study between injection of platelet rich fibrin and triamcinolone acetonide in the treatment of oral lichen lesions.
- Study the effectiveness of platelet rich fibrin in relieving pain in patients with oral lichen.
- Study the effectiveness of platelet rich fibrin in healing oral lichen ulcerations.

Materials and methods

Study Design

Randomized split-mouth controlled study

Randomization: coin flipping

Study Sample:

This study will include 12 patients with clinical and histopathological proven Oral lichen planus . Sample Size (n=24) The two bilateral oral lichen planus lesions were distributed by simple randomization (coin flipping) to first and second groups .

group 1 n=12 Triamcinolone acetonide injection technique

group 2 n = 12 platelet rich fibrin injection technique .

Place of study

Damascus University, Faculty of Dentistry

Oral Medicine Department

Inclusion criteria

The participants in this study will be male and female (over 18 years of age) diagnosed with reticular, atrophic and erosive OLP, based on the clinical and histopathological criteria

Exclusion criteria

- Patients with systemic disease
- A history of topical therapy for OLP in the last 2 weeks , or systemic treatment for OLP in the last 3 months

- Pregnancy or lactation (breastfeeding)
- Patients who had taken immunodepressant drugs the past 3 months

In both groups , The injection is placed in several sites directly into the subepithelial connective tissue just underlying the lesion adjacent to normal mucosa.

The patients are asked not to eat, drink, or smoke for at least 30 minutes after application

Follow up

During the treatment , Participants will be assessed at weeks 0, 1, 2, 3, 4 , and then once a month for three months

Primary outcome measures

Pain

Pain will be assessed by applying a visual analogue scale (VAS), Pain self-assess by the patient using an 11-point (0-10) numerical rating scale, in which (0 = no pain) and (10 = worst possible pain)

Secondary outcome measures

- Surface areas of erythema and ulceration will be measured with a sterile flexible periodontal scale probe
- Photographs will be taken during all periods of evaluation

Assessment of clinical presentation of OLP

Clinical appearance of lesions will be valued by REU scoring system

Reticular/hyperkeratotic: 0 (no white striations) , 1 (presence of white striations or keratotic papules)

Erosive/erythematous: 0 (no lesion) , 1 (lesions <100 mm2) , 2 (lesions from 100 to 300 mm2),3 (lesions >300 mm2)

Ulcerative: 0 (no lesion), 1 (lesions <100 mm2), 2 (lesions from 100 to 300 mm2), 3 (lesions >300 mm2)

Clinical resolution

Clinical resolution will be evaluated at the end of treatment (day 30)

Complete resolution will be considered when patients present absence of symptoms and remission of atrophic/erosive lesions regardless of the presence of any persisting hyperkeratotic lesions. Partial resolution will be considered when a decrease, but not acomplete remission of atrophic/erosive areas and symptoms, is observed. No response to treatment will be considered when OLP lesions present the same clinical, or worse, presentation in relation to the baseline condition .

Treatment response

According to xia et al

The response of lesion to treatment will be evaluated on the basis of resolution in erythematous and ulcerative areas. It is classified as

no response (NR; <20% reduction), partial response (PR; 20–49% reduction),

good response (GR; 50–80% reduction), almost complete or complete response (CR; 81–100% reduction) and worsening

Quality of life : Oral health impact profile OHIP 14

Quality of life will be measured by means of the Oral Health Impact Profile (OHIP-14).

Health-related quality-of-life measures are especially useful for assessing efforts to prevent disabling chronic diseases and evaluating their effectiveness

Each patient will complete the questionnaire at baseline, at the end of treatment and 30 days

The OHIP-14 is a self-administered questionnaire that evaluates quality of life using 14 items to measure 7 dimensions: functional limitation, physical pain, psychological discomfort physical disability, psychological disability, social disability, and handicap. Each dimension is measured by 2 questions.

Subjects will be asked how often they had had negative impacts in these dimensions during the preceding 1 month. Responses to the questions will be recorded using a 5-point Likert scale: 0, never; 1, hardly ever; 2, occasionally; 3, fairly often; and 4,very often. The overall score for the OHIP-14 will be achieved by summing all responses (range, 0-56 points)

Recurrence rate

The recurrence rate will be evaluated 30 days and 60 days after treatment (follow-up) in comparison with the patient's clinical conditions at the end of treatment. No recurrence will be considered when the patient's lesion presents the same clinical aspect as presented at the end of treatment and recurrence when the patient presents a new atrophic/erosive lesion at the same site during the follow-up period.

Data Analysis

Data will be analyzed using SPSS version 20 software

The Kolmogorov-Smirnov test will be performed to study the normal distribution of the values of each of the measured parametric variables , If the result is that the distribution of the values was normal, then a T-test will be performed for independent samples to compare the two studied groups in each of the studied time periods. T-test will be used for correlated samples for comparison of time periods in each group

If the distribution of the values is abnormal, then the Mann - Whitney U test will be used to compare the two groups, and the Wilcoxon test for the algebraic ranks will be used for the double comparison between the time periods in each group

For the nominal variables (presence of pain, presence of clinical symptoms, success / failure of treatment ..), the chi-square test will be used for comparison in the frequencies of the categories of each of the mentioned variables between the two groups in each time period, and the McNemar test will be used for a bilateral comparison between the time periods in each Collection

References

1. Al-Hashimi, I., et al., Oral lichen planus and oral lichenoid lesions: diagnostic and therapeutic considerations. Oral Surg Oral Med Oral Pathol Oral Radiol Endod, 2007. 103 Suppl: p. S25 e1-12.

2. Sugerman, P.B., et al., The pathogenesis of oral lichen planus. Crit Rev Oral Biol Med, 2002. 13(4): p. 350-65.

3. Ismail, S.B., S.K. Kumar, and R.B. Zain, Oral lichen planus and lichenoid reactions: etiopathogenesis, diagnosis, management and malignant transformation. Journal of oral science, 2007. 49(2): p. 89-106.

4. Mollaoglu, N., Oral lichen planus: a review. British Journal of oral and maxillofacial surgery, 2000. 38(4): p. 370-377.

5. Lavanya, N., et al., Oral lichen planus: An update on pathogenesis and treatment. J Oral Maxillofac Pathol, 2011. 15(2): p. 127-32.

6. Thongprasom, K. and K. Dhanuthai, Steriods in the treatment of lichen planus: a review. J Oral Sci, 2008. 50(4): p. 377-85.

7. Choukroun, J., et al., Platelet-rich fibrin (PRF): a second-generation platelet concentrate. Part IV: clinical effects on tissue healing. Oral Surg Oral Med Oral Pathol Oral Radiol Endod, 2006. 101(3): p. e56-60.