Efficacy of Alb-PRF as Adjunctive to Non-surgical Periodontal Therapy in Management of Stage II Periodontitis

Abstract

Background:

This research evaluates the clinical effectiveness of local subgingival delivery of injectable Alb-PRFcompared with mechanical debridement (MD) alone for the treatment of stage II periodontitis.

Methods:

Thirty patients diagnosed with stage II periodontitis through clinical and radiographic screening were randomly divided into two groups (n=15 each). Group I received mechanical debridement (MD) combined with Alb-PRF as a local drug delivery (LDD), while group II received MD alone. In group I, Alb-PRF was locally applied two weeks after the completion of mechanical debridement.

Periodontal measurement including plaque index (PI), gingival index (GI), bleeding on probing (BOP), probing depth (PD), and clinical attachment level (CAL) were recorded at baseline, three months and six months post treatment.

Results:

The Alb-PRF group demonstrated significantly greater clinical improvements than the MD alone group. At six months, the mean PD reduction was more substantial in the Alb-PRF group (from 3.77 ± 0.33 mm to 2.13 ± 0.21 mm) compared to the MD group (from 3.81 ± 0.28 mm to 2.65 ± 0.47 mm), with the difference being statistically significant ($P < 0.001$). Likewise, the Alb-PRF group achieved a significantly greater CAL gain demonstrating a reduction(from 4.13 ± 0.37 mm to 2.20 ± 0.15 mm) than the MD group (which improved from 4.22 ± 0.37 mm to 2.78 ± 0.40 mm) ($P < 0.001$).

Conclusion:

The adjunctive use of Alb-PRF with MD shows promising clinical benefits in the treatment of stage II periodontitis, contributing to significant reductions in PD and gains in CAL over a six-month period compared to MD alone.

Keywords:Alb-PRF, Stage II Periodontitis, Local drug delivery, Mechanical debridement, Platelet concentrates.

Introduction

Periodontitis is a complex, multifactorial chronic inflammatory disease initiated by dental plaque biofilm, leading to progressive destruction of the periodontal ligament and alveolar bone.(1) This microbial challenge triggers an exaggerated host immune-inflammatory response.(2) Clinically, periodontitis manifests through bleeding on probing (BOP), gingival inflammation, increased probing depth (PD), clinical attachment loss (CAL), and radiographic alveolar bone resorption.(3) While typically slow, periods of accelerated tissue breakdown can occur.The primary objective of periodontal therapy is to arrest the progression by effectively reducing the microbial burden.(4)

This is achieved through various therapeutic modalities, with scaling and root planing (commonly referred to as mechanical debridement, MD) representing the most widely endorsed non-surgical approach for subgingival biofilm removal..(4, 5) Despite their common use as an adjunct to phase one therapy for targeting residual pathogens, systemic antimicrobial agents exhibit considerable pharmacological obstacles. While systemic antimicrobials play a supportive role in periodontal treatment, their clinical utility is compromised by site-specific inefficacy linked to hepatic transformation and a higher susceptibility to systemic complications.(6, 7)

Moreover, conventional MD has inherent limitations, particularly in accessing deep and intricate anatomy of tooth surfaces.(8, 9)Consequently, to overcome these limitations and enhance treatment outcomes, the combined application of MD with localized subgingival drug delivery has emerged as a synergistic approach. This strategy aims to improve treatment responses in periodontitis and facilitate periodontal tissue health.(10) While a substantial proportion of individuals diagnosed with periodontitis achieve favorable and enduring therapeutic outcomes through MD alone, many cases exhibit an insufficient response to initial treatment. Furthermore, if surgical interventions are not viable, the strategic integration of adjunctive local therapies becomes crucial.(11)

Therefore, local drug delivery approaches have been proposed to fulfill two primary objectives: to afford a mechanism for the protracted and precise delivery of pharmaceutical agents or therapeutic biomolecules, and concurrently, to decrease the dosing regimen, thereby

fostering enhanced patient compliance and an improved quality of life.(12, 13)Effective personal oral hygiene is fundamentally dependent upon the prior elimination of pre-existing dental plaque and calculus. Consequently, professional oral prophylaxis and scheduled recall appointments for professional mechanical plaque removal are essential components of comprehensive oral care.(14)

Enhanced periodontal treatment outcomes can also be achieved through the adjunctive use of local drug delivery systems. These modalities—including antimicrobial agents, host-modulating compounds and autologous platelet concentration are administered directly into periodontal pockets, providing targeted therapeutic effects that complement conventional MD procedures.(15)Hence autologous platelet concentrates (APCs) have emerged as promising biologically active agents in periodontal therapy, offering regenerative and anti-inflammatory properties that enhance both surgical and non-surgical treatment outcomes.(16)

Among the various types of autologous platelet concentrates, platelet-rich fibrin (PRF) stands out for its capacity to stimulate healing. This PRF contains platelets, stem-like cells, cytokines, and growth factors within a structured fibrin network that supports targeted cell migration and differentiation, leading to improved tissue repair.(17-19)

While platelet-rich fibrin (PRF) offers notable regenerative advantages, its clinical efficacy in procedures requiring long-term scaffoldingsuch as guided bone regeneration (GBR)is often limited by its rapid degradation, typically occurring within 2–3 weeks. To overcome this limitation and expand its therapeutic effect, an advanced formulation known as albuminplatelet rich fibrin (Alb-PRF), has been developed. This novel biomaterial involves the thermal denaturation of the liquid portion of autologous plasma, primarily albumin, through a heated process, resulting in the formation of a biocompatible, denser fibrin matrix. This structural enhancement significantly prolongs the functional lifespan of the concentrate and enhances its biological activity, making Alb-PRF a promising scaffold for sustained regenerative applications in periodontal and bone therapies.(20, 21)

While various autologous platelet concentrates have been explored, the clinical potential of Alb-PRF as a sustained-release scaffold in non-surgical periodontal therapy remains to be fully elucidated. Therefore, the primary aim of this randomized controlled clinical trial was to evaluate the clinical effectiveness of local subgingival delivery of Alb-PRF as an adjunct to MD compared to MD alone in the treatment of patients with Stage II periodontitis.

Materials and Methods

Patients who attended the Department of Oral Medicine and Periodontology at Mansoura University, were screened for eligibility to participate in the study. The study protocol was

approved by the institutional ethics committee (Ref: A0401024OM) and registered on ClinicalTrials.gov (ID: NCT07080294).

Initially, the study included 30 patients diagnosed clinically and radiographically with stage II periodontitis according to the 2017 World Workshop classification.(22) Patients were randomly allocated into two equal groups (n=15 each): group I (test group): MD with Alb-PRF injection, while group II (control group): MD only.

Exclusion criteria

(a) Periodontitis patients with stage I, III, IV.
(b) pregnant or lactating women.
(c) Systemic disease which could influence the outcome oftherapy.
(d) Smoking.
(e) Patients with a history of periodontal treatment or oral infections for at least three months.

Inclusion criteria

(a) Patients with stage II (pockets less than 5 mm and CAL 3-4 mm).
(b) Systemically healthy individuals aged between 30 and 50 years.
(c) Good compliance of plaque control instructions following phase I therapy.
(d) Access to follow-up care and maintenance program.

Sample Size Calculation:

Sample size calculation was performed using G*Power software (version 3.1.9.7). The primary outcome was the intergroup difference in PD reduction at 6 months. Based on a previous randomized clinical trial with a similar design (23)an effect size of 0.25 was assumed. Using an independent t-test, with a significance level of 0.05 and a power of 90%, the required total sample size was calculated to be 30 patients (15 per group).

Randomization, blinding, and allocation:

Participants were randomly assigned to either the test or control group using a computer-generated randomization sequence obtained from an external web-based tool (www.randomizer.org). Allocation concealment was ensured by keeping the randomization sequence inaccessible to both the operator and the participants until the time of intervention.

Due to the nature of the intervention, blinding of the operator and participants was not feasible. However, all clinical periodontal measurements were performed by a single calibrated examiner who was blinded to group allocation (single-blind design). Prior to the commencement of the study, the examiner underwent calibration training to ensure intra-examiner reliability, achieving an intraclass correlation coefficient (ICC) greater than 0.85, indicating excellent reproducibility.

Preoperative Phase: Participants who fulfilled all inclusion criteria received comprehensive full-mouth phase I periodontal therapy. Treatment was performed under local anesthesia, when it was necessary, and was completed in two visits within a 15-day period. The therapy included both ultrasonic and manual instrumentation, with supragingival mechanical debridement performed using a piezoelectric ultrasonic scaler (Woodpecker Medical Instrument Co., Guilin, China).

Following initial therapy, participants were provided with standardized oral hygiene instructions. These included training in the modified Bass tooth brushing technique using a soft-bristled toothbrush and regular toothpaste twice daily. Interdental cleaning was also emphasized, and patients were instructed to perform it daily using dental floss or interdental brushes.

GelAdministration: A total of 10 ml of whole blood was collected from each participant using sterile plastic tubes (Vacutest Kima, Arzergrande, Italy) and centrifuged at 700 g for 8 minutes in horizontal centrifuge (DLAPDM2424, China). Following centrifugation, the upper yellow plasma layer was identified as the liquid plasma component. The uppermost portion of this layer, corresponding to platelet-poor plasma (PPP), was aspirated into a sterile syringe. PPP was heated at 75°C for 10 minutes to denature plasma proteins, cooled for approximately 2 minutes andthen mixed with the intermediate plasma fraction containing the buffy coat, rich in platelets and leukocytes (liquid-PRF), using a sterile female–femaleluer lock connector to obtain a homogenized injectable Alb-PRF, which was immediately applied at the treatment site in group I.(20)Injection was administered using a 3 ml syringe with a blunt tip into the deepest periodontal pocket after two weeks of thesecond MD visit, this timeframe was chosen to ensure that initial post-instrumentation bleeding and acute inflammation had subsided, providing a more stable subgingival environment for optimal gel retention. Patients were instructed to avoid brushing or flossing at the treated sites for the first 48 hours to permit gel stabilization and retention. Gentle brushing away from treated areas is acceptable.

Clinical Periodontal Assessment

At baseline, a comprehensive **fullmouth periodontal examination** was performed at six sites per tooth for all present teeth (excluding third molars) using a standardized periodontal

probe (UNC-15). **Target sites** were subsequently selected based on specific inclusion criteria, which required PD less than 5 mm and CAL 3 - 4 mm. While PI, GI, and BOPwere monitored **fullmouth** to assess the patient's overall compliance and response, the primary clinical outcomes (PD and CAL) were recorded **sitespecifically** for the treated and control teeth at 3 and 6-month follow-up intervals. This approach was adopted to evaluate the localized therapeutic efficacy of the injected materials within the specific sites.(24-30)

Statistical analysis

All statistical procedures were conducted using IBM SPSS Statistics, version 27.0 (IBM Corp., Armonk, NY, 2020).

Categorical variables are reported as frequencies (n) and corresponding percentages (%). Inter-group comparisons for categorical data were performed using the Chi-square test. When the assumption for the Chi-square test was not met (specifically, if more than 20% of the cells had an expected count less than 5), the Fisher's exact test was applied.

Quantitative data were summarized using the mean and standard deviation (SD). The normality of continuous variables was assessed using the Shapiro–Wilk test for sample sizes of 50 or fewer. For normally distributed quantitative variables, the Student's t-test was employed to compare the two study groups. Comparisons involving more than two time points or periods were analyzed using Analysis of Variance (ANOVA) with repeated measures.Statistical significance for all tests was determined at a two-sided p-value < 0.05.

Results

The study was included thirty participants 4 participants (26.7%) were male and 11 (73.3%) were female for group I, while group II consisted of 5 males (33.3%) and 10 females (66.7%). The mean age was 39.20 ± 5.80 years for group I and 41.87 ± 8.04 years for group II.

Statistical analysis of this demographic data, presented in **Table 1**, indicated no significant differences between the two groups in terms of sex distribution ($p = 1.000$) or mean age ($p = 0.306$). These findings confirm that both groups were comparable in their baseline characteristics, ensuring a well-balanced foundation for the clinical evaluation of the two treatment modalities.The clinical parameters for both groups were evaluated at baseline, three months, and six months, with a comparative analysis presented in **Table 2.**

Baseline analysis revealed no significant differences between group I and group II across all parameters ($P > 0.05$). Post-intervention, both groups exhibited significant intra-group improvements in all clinical indices at 3 and 6 months ($P < 0.001$). Inter-group comparisons showed that group I achieved significantly lower full mouth PI at 3 months ($P = 0.007$) and superior full mouth BOP reduction at 6 months ($P = 0.011$), with no significant differences in GI. Notably, group I demonstrated markedly superior outcomes in site-specific PD reduction and CAL gain at both follow-up intervals compared to Group II ($P < 0.001$).

Discussion

The primary objective of the study was to assess the clinical efficacy of Alb-PRF as an adjunct to MD in the management of stage II periodontitis. It is important to note that since Alb-PRF is a relatively recent innovation in the field of regenerative dentistry, the clinical comparisons in this discussion involve various generations of platelet concentrates. These include traditional PRF, L-PRF andi-PRF, all of which share the foundational biological principle of using concentrated autologous growth factors to enhance periodontal healing, similar to the Alb-PRF used in this study.

Regarding the PI, Alb-PRF group showed a significant decrease from 2.13 ± 0.47 at baseline to 0.71 ± 0.15 atsix months. Parallel to this, the GI demonstrated a superior reduction from 2.03 ± 0.36 to 0.69 ± 0.20 during the same period. These results were statistically superior to the control group, which recorded higher mean scores for both PI (0.96 ± 0.49) and GI (0.80 ± 0.18) at the end of the study. While both groups showed significant intragroup improvements, intergroup analysis at six months revealed no statistically significant difference in PI ($p = 0.073$) or GI ($p = 0.108$) betweengroup I and group II.This synchronized full mouthsuggests that the overall patient compliance and the reduction in PD provided by Alb-PRF facilitated better plaque control and reduced the niche for microbial colonization across the entire dentition. Our findings align with the trends reported by Youssef et al. (2024)(31) regarding the benefits of platelet concentrates in soft tissue healing. However, this study offers a distinct advantage over Alghannam et al. (2024)(32), who observed a non-significant increase in PI and GI scores after 3months followed by statistically significant decrease again after 6 months. The sustained stability observed in the present study may be attributed to the thermal denaturation of albumin, which results in the formation of a denser and more stable biological scaffold. This modified structure has been shown to prolong the biological activity of the concentrate compared to conventional PRF formulations(20), potentially allowing for a more sustained release of growth factors and enhanced tissue healing.BOP resolution was further confirmed by the significant reduction in fullmouth bleeding measures. In group I, the mean BOP score dropped from 0.85 ±

0.26 at baseline to 0.23 ± 0.17 at three months, eventually reaching a low of 0.19 ± 0.19 at six months. In contrast, group II showed significantly higher bleeding scores (0.37 ± 0.17) at the end of the study ($p < 0.001$). These results are in harmony with Gürbüz and Yıldıran (2025)(33), suggesting that the concentrated growth factors in the Alb-PRF matrix accelerate vascular maturation and reduce tissue fragility more effectively than mechanical therapy alone, even in challenging periodontal environments.

PD reduction at the target siteswas a pivotal finding, with group Iimproving from 3.77 ± 0.33 mm to 2.13 ± 0.21mm atsix months, significantly outperforming the control group. These results are consistent with Parwani et al(2024)(34), who used PRF derivatives to enhance MD. The physical presence of Alb-PRF as a biological plug provides a mechanical advantage, preventing the early collapse of the pocket wall and allowing for more stable healing of the periodontal tissues.

Group I exhibited a highly significant gain in CALat the treated sites, improving from 4.13 ± 0.37 mm at baseline to 2.20 ± 0.15mm atsix months. This outcome supports the regenerative potential of Alb-PRF. The thermal processing of albumin creates a three-dimensional scaffold that provides superior space-maintenance. This protects the blood clot and provides a protected niche for the proliferation of periodontal ligament cells, explaining the absence of the "rebound effect" often noted in studies using short-acting concentrates(i-PRF) like those investigated by Alghannam et al. (2024).(32)

Limitation

Despite the significant clinical improvements observed, certain limitations of this study should be acknowledged. First, the sample size was relatively small (N=30), which, although statistically powered for clinical parameters, may limit the generalizability of the findings to a broader population. Second, while a six-month follow-up period provided valuable short-term data, longer-term studies are necessary to evaluate the long-term stability of Alb-PRF results. Furthermore, the inclusion of microbiological analyses and radiographic assessments would have provided a more comprehensive evaluation.

Conclusion

The application of Alb-PRF as an adjunct to MD shows promising clinical benefits compared to MD alone in the treatment of stage II periodontitis.

Ethical Approval and Informed Consent

The study was approved by the Institutional Ethics Committee of Mansoura University (Ref: A0401024OM). All participants provided written informed consent before participation.

Funding

No funding was received for this study.

Conflict Of Interest

The authors affirm that there are no conflicts of interest to disclose regarding the publication of this paper.

References

1. Papapanou PN, Sanz M, Buduneli N, Dietrich T, Feres M, Fine DH, et al. Periodontitis: Consensus report of workgroup 2 of the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions. J Periodontol. 2018;89 Suppl 1:S173-s82.doi:10.1002/jper.17-0721
2. Graetz C, Dörfer CE, Kahl M, Kocher T, Fawzy El-Sayed K, Wiebe JF, et al. Retention of questionable and hopeless teeth in compliant patients treated for aggressive periodontitis. J Clin Periodontol. 2011;38(8):707-14.doi:10.1111/j.1600-051X.2011.01743.x
3. Ray RR. Periodontitis: An Oral Disease with Severe Consequences. Applied Biochemistry and Biotechnology. 2023;195(1):17-32.doi:10.1007/s12010-022-04127-9
4. Niemczyk W, Matys J, Wiench R, Żurek J, Dominiak M. The Use of Hyaluronic Acid in the Non-Surgical Treatment of Periodontitis—An Umbrella Review. Biomedicines [Internet]. 2025; 13(4).
5. Kwon T, Lamster IB, Levin L. Current Concepts in the Management of Periodontitis. Int Dent J. 2021;71(6):462-76.doi:10.1111/idj.12630
6. Trindade D, Carvalho R, Machado V, Chambrone L, Mendes JJ, Botelho J. Prevalence of periodontitis in dentate people between 2011 and 2020: A systematic review and meta-analysis of epidemiological studies. J Clin Periodontol. 2023;50(5):604-26.doi:10.1111/jcpe.13769
7. Addy M, Martin MV. Systemic antimicrobials in the treatment of chronic periodontal diseases: a dilemma. Oral Dis. 2003;9 Suppl 1:38-44.doi:10.1034/j.1601-0825.9.s1.7.x
8. Polizzi A, Donzella M, Nicolosi G, Santonocito S, Pesce P, Isola G. Drugs for the Quorum Sensing Inhibition of Oral Biofilm: New Frontiers and Insights in the Treatment of Periodontitis. Pharmaceutics. 2022;14(12).doi:10.3390/pharmaceutics14122740
9. Herrera D. Scaling and Root Planning is Recommended in the Nonsurgical Treatment of Chronic Periodontitis. J Evid Based Dent Pract. 2016;16(1):56-8.doi:10.1016/j.jebdp.2016.01.005
10. Gaddam D, Nagarakanti S, Sravya Sri P, Chiruvella B, R R, Gudur T. A Randomized Controlled Trial Assessing Full-Mouth Versus Quadrant-Based Scaling and

Root Planing for Non-surgical Periodontal Therapy. Cureus. 2025;17(4):e82336.doi:10.7759/cureus.82336
11. Tan OL, Safii SH, Razali M. Clinical Efficacy of Repeated Applications of Local Drug Delivery and Adjunctive Agents in Nonsurgical Periodontal Therapy: A Systematic Review. Antibiotics [Internet]. 2021; 10(10).
12. Goodson JM. Gingival crevice fluid flow. Periodontol 2000. 2003;31:43-54.doi:10.1034/j.1600-0757.2003.03104.x
13. Budală DG, Luchian I, Tatarciuc M, Butnaru O, Armencia AO, Virvescu DI, et al. Are Local Drug Delivery Systems a Challenge in Clinical Periodontology? J Clin Med. 2023;12(12).doi:10.3390/jcm12124137
14. Graziani F, Karapetsa D, Alonso B, Herrera D. Nonsurgical and surgical treatment of periodontitis: how many options for one disease? Periodontol 2000. 2017;75(1):152-88.doi:10.1111/prd.12201
15. Amato M, Santonocito S, Polizzi A, Tartaglia GM, Ronsivalle V, Viglianisi G, et al. Local Delivery and Controlled Release Drugs Systems: A New Approach for the Clinical Treatment of Periodontitis Therapy. Pharmaceutics. 2023;15(4):1312
16. Lipovec T, Kapadia N, Antonoglou GN, Lu EMC, El-Sayed KMF, Nibali L. Autologous platelet concentrates as adjuncts to non-surgical periodontal therapy: a systematic review and meta-analysis. Clinical Oral Investigations. 2025;29(1):74.doi:10.1007/s00784-024-06128-w
17. Al-Rihaymee S, Sh. Mahmood M. The efficacy of non-surgical platelet-rich fibrin application on clinical periodontal parameters and periostin level in periodontitis: Clinical trial. Journal of Cellular and Molecular Medicine. 2023;27(4):529-37.doi:https://doi.org/10.1111/jcmm.17675
18. Sherif MA, Anter E, Graetz C, El-Sayed KF. Injectable platelet-rich fibrin with vitamin C as an adjunct to non-surgical periodontal therapy in the treatment of stage-II periodontitis: a randomized controlled clinical trial. BMC Oral Health. 2025;25(1):772.doi:10.1186/s12903-025-06115-x
19. Parwani SR, Thakare KS, Kawadkar KP, Soni NJ, Parwani R, Dadlani H, et al. Platelet-Rich Fibrin in Non-Surgical Periodontal Therapy: A Split-Mouth Randomized Controlled Clinical Trial. Dentistry Journal [Internet]. 2024; 12(5).
20. Fujioka-Kobayashi M, Schaller B, Mourão C, Zhang Y, Sculean A, Miron RJ. Biological characterization of an injectable platelet-rich fibrin mixture consisting of autologous albumin gel and liquid platelet-rich fibrin (Alb-PRF). Platelets. 2021;32(1):74-81.doi:10.1080/09537104.2020.1717455
21. Vadiati Saberi B, Khalighi Sigaroudi A, Kamani M, Rafiei E. Comparison of the effect of albumin with platelet-rich fibrin (Alb-PRF) gel and hyaluronic acid gel injection on interdental papilla reconstruction: A randomized clinical trial. J Adv Periodontol Implant Dent. 2024;16(2):109-15.doi:10.34172/japid.2024.018
22. Tonetti MS, Greenwell H, Kornman KS. Staging and grading of periodontitis: Framework and proposal of a new classification and case definition. J Periodontol. 2018;89 Suppl 1:S159-s72.doi:10.1002/jper.18-0006
23. Abdel-Fatah R, Mowafey B, Baiomy A, Elmeadawy S. Efficacy of curcumin gel as an adjunct to scaling and root planing on salivary procalcitonin level in the treatment of patients with chronic periodontitis: a randomized controlled clinical trial. BMC Oral Health. 2023;23(1):883.doi:10.1186/s12903-023-03512-y

24. Silness J, Loe H. PERIODONTAL DISEASE IN PREGNANCY. II. CORRELATION BETWEEN ORAL HYGIENE AND PERIODONTAL CONDTION. Acta Odontol Scand. 1964;22:121-35.doi:10.3109/00016356408993968
25. Loe H, Silness J. PERIODONTAL DISEASE IN PREGNANCY. I. PREVALENCE AND SEVERITY. Acta Odontol Scand. 1963;21:533-51.doi:10.3109/00016356309011240
26. Lang NP, Adler R, Joss A, Nyman S. Absence of bleeding on probing An indicator of periodontal stability. Journal of Clinical Periodontology. 1990;17(10):714-21.doi:https://doi.org/10.1111/j.1600-051X.1990.tb01059.x
27. Newman MG TH, Klokkevold PR, Carranza F, Carranza F, Camargo. The Periodontal Pocket. Academia Mental Health and Well-Being, ed. Periodontology2006. p. 434-51.
28. Ramfjord SP. The Periodontal Disease Index (PDI). Journal of periodontology. 1967;38(6):Suppl:602-10.doi:10.1902/jop.1967.38.6.602
29. The Clinical Attachment Revisited: A Clinical Opinion Introducing the (A-LEVEL), (A-GAIN), and (A-LOSS). Aous Dannan2024.
30. Turesky S, Gilmore ND, Glickman I. Reduced plaque formation by the chloromethyl analogue of victamine C. J Periodontol. 1970;41(1):41-3.doi:10.1902/jop.1970.41.41.41
31. Youssef E KI, Abdelhafez M, Elmeadawy S. Evaluation of clinical effects of PRP as an adjunctive to non-surgical periodontal therapy in treatment of periodontitis patients: A randomized controlled clinical trial. Mansoura Journal of Dentistry. 2025;2025; 12(2):
32. Alghannam K, Elkady M, el destawy mt. Role of Platelet-rich fibrin in non-surgical treatment of periodontal pockets. Al-Azhar Journal of Dental Science. 2024;27(2):225-31.doi:10.21608/ajdsm.2022.121715.1310
33. Çağıran Gürbüz T, Meracı Yıldıran B. The clinical efficacy of injectable platelet-rich fibrin (i-PRF) as an adjunct to nonsurgical periodontal therapy in smokers with periodontitis. BMC Oral Health. 2025;25(1):618.doi:10.1186/s12903-025-06019-w
34. Parwani SR, Thakare KS, Kawadkar KP, Soni NJ, Parwani R, Dadlani H, et al. Platelet-Rich Fibrin in Non-Surgical Periodontal Therapy: A Split-Mouth Randomized Controlled Clinical Trial. Dent J (Basel). 2024;12(5).doi:10.3390/dj12050135

Table (1): Demographic characteristics of study populations

	Group I	Group II	p
Gender			1.000
Male, N (%)	4 (26.7)	5 (33.3)	
Female, N (%)	11 (73.3)	10 (66.7)	
Age (years)			
Range (min – max)	33.0 – 48.0	32.0– 64.0	0.306
Mean ± SD.	39.20± 5.80	41.87 ± 8.04	

Data was expressed using Mean ± SD. SD: Standard deviation
p: p value for comparing between the two studied groups

Table (2): Comparison between the two studied groups according to clinical parameters in each period:

Clinical Parameters	Periods	MD+Alb-PRF (n = 15)	MD alone (n = 15)	*P*
Plaque Index (PI)	**Baseline**	2.13 ± 0.47	2.09 ± 0.35	0.823
	After 3M	0.76 ± 0.11	0.92 ± 0.18	0.007*
	After 6M	0.71 ± 0.15	0.96 ± 0.49	0.073
	P0	<0.001*	<0.001*	
		*p*1=0.001*,*p*2=<0.001*,*p*3=1.000	*p*1=0.001*,*p*2=0.001*,*p*3=1.000	
Gingival Index (GI)	**Baseline**	2.03 ± 0.36	1.98 ± 0.32	0.710
	After 3M	0.74 ± 0.14	0.85 ± 0.21	0.117
	After 6M	0.69 ± 0.20	0.80 ± 0.18	0.108
	P0	<0.001*	<0.001*	
		*p*1=0.001*,*p*2=<0.001*,*p*3=<1.000	*p*1=0.001*,*p*2=<0.001*,*p*3=<1.000	
Bleeding On Probing (BOP)	**Baseline**	0.85 ± 0.26	0.83 ± 0.15	0.825
	After 3M	0.23 ± 0.17	0.40 ± 0.21	0.825*
	After 6M	0.19 ± 0.19	0.37 ± 0.17	0.011*
	P0	<0.001*	<0.001*	
		*p*1=0.001*,*p*2=<0.001*,*p*3=<1.000	*p*1=0.001*,*p*2=<0.001*,*p*3=<1.00	

			0	
Pocket Depth(PD)	**Baseline**	3.77 ± 0.33	3.81 ± 0.28	0.681
	After 3M	2.18 ± 0.19	2.82 ± 0.41	<0.001*
	After 6M	2.13 ± 0.21	2.65 ± 0.47	0.001*
	P0	<0.001*	<0.001*	
		*p*1<0.001*,*p*2<0.001*,*p*3=1.000	*p*1<0.001*,*p*2<0.001*,*p*3=0.891	
Clinical Attachment Level (CAL)	**Baseline**	4.13 ± 0.37	4.22 ± 0.37	0.498
	After 3M	2.27 ± 0.14	2.96 ± 0.34	<0.001*
	After 6M	2.20 ± 0.15	2.78 ± 0.40	<0.001*
	P0	<0.001*	<0.001*	
		*p*1<0.001*,*p*2<0.001*,*p*3=0.805	*p*1<0.001*,*p*2<0.001*,*p*3=0.834	

Data was expressed using Mean ± SD. SD: Standard deviation
p: p value for Student t-test for comparing between the two studied groups
p0: p value for Post Hoc test (adjusted Bonferroni) for ANOVA with repeated measures for comparison between three periods
p1: p value for comparing between the Baseline and After 3m
p2: p value for comparing between the Baseline and After 6m
p3: p value for comparing between the After 3m and After 6m
*: Statistically significant at $p \leq 0.05$

Group I:MD with Alb-PRF injection group
Group II: MD only.