

Improving the Treatment of Antiphospholipid Syndrome in Pregnant Women: Results of A Clinical Study

 Mamasiddikov Akmaljon Anvarovich
Assistant, Tashkent State Medical University, Uzbekistan

 Rakhmonov Doston Norbekovich
Assistant, Tashkent State Medical University, Uzbekistan

Received: 22 July 2026 | Received Revised Version: 18 August 2026 | Accepted: 10 September 2026 | Published: 07 October 2026

Volume 08 Issue 10 2026 | Crossref DOI: 10.37547/tajmspr/Volume08Issue10-02

Abstract

Background: Antiphospholipid syndrome (APS) in pregnancy is a complex and clinically important problem. The venous and arterial thromboses characteristic of the syndrome, caused by circulating antiphospholipid antibodies, lead to a range of pregnancy complications and adverse outcomes, which calls for improved treatment strategies.

Objective: to optimize the treatment of antiphospholipid syndrome in pregnant women.

Materials and Methods: The study included 56 pregnant women with APS, who were divided into two groups. The groups were comparable in age, parity, and obstetric and somatic pathology but differed in the treatment received. The comparison group (conventional management) comprised 18 pregnant women with APS, all of whom received standard APS therapy, including anticoagulants, antiplatelet agents, and glucocorticoids. The main group comprised 38 pregnant women with APS, all of whom received systemic enzyme therapy and plasmapheresis in addition to standard therapy. A separate control group consisted of 30 women with uncomplicated pregnancies.

Results: After 30 days, the conventional therapy group showed elevations compared with controls in von Willebrand factor (by 17.7%), the platelet aggregation index (by 24.1%), the total platelet aggregation index (by 26.2%), soluble fibrin monomer complexes (SFMC; by 55.3%), and early fibrin degradation products (EFDP; by 45.6%) ($p < 0.05$). The platelet disaggregation index decreased by 18.5% and antithrombin III activity by 14.3% ($p > 0.05$). Under conventional therapy, hemostatic parameters changed in different directions during treatment; overall, however, these changes aggravated the disturbances present at baseline. In the main group, treatment produced a more pronounced shift toward normalization of the studied parameters. Significant differences from conventional therapy were found for SFMC (29.7%), EFDP (23.3%), and prothrombin time (14.0%) ($p < 0.05$).

Conclusion: Systemic enzyme therapy combined with plasmapheresis and low-molecular-weight heparin in pregnant women with APS results in near-complete normalization of hemostatic parameters.

Keywords: Antiphospholipid syndrome (APS), pregnancy, systemic enzyme therapy (SET), plasmapheresis.

© 2026: Mamasiddikov Akmaljon Anvarovich, & Rakhmonov Doston Norbekovich. This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). The authors retain copyright and allow others to share, adapt, or redistribute the work with proper attribution.

Cite This Article: Mamasiddikov Akmaljon Anvarovich, & Rakhmonov Doston Norbekovich. (2026). Improving the Treatment of Antiphospholipid Syndrome in Pregnant Women: Results of A Clinical Study. The American Journal of Medical Sciences and Pharmaceutical Research, 8(10), 13–16. <https://doi.org/10.37547/tajmspr/Volume08Issue10-02>

1. Introduction

Antiphospholipid syndrome (APS) is a clinical and laboratory condition characterized by the persistent presence of antiphospholipid antibodies (aPL) and the development of associated complications, including venous and arterial thrombosis and adverse pregnancy outcomes [1]. APS is underpinned by a specific vasculopathy involving thrombotic vascular occlusion in the absence of significant inflammatory or degenerative changes in the vessel wall [4].

Autoantibodies against phospholipids disrupt the normal mechanisms of hemostasis and thrombus formation. As their activity increases, the physiological protein C anticoagulant system is suppressed, which leads to an imbalance of coagulation factors V and VIII and promotes venous and arterial thrombosis [2].

Pregnancy complications associated with APS include preeclampsia, fetal growth restriction, preterm birth, and spontaneous miscarriage. Critical conditions include placental abruption, hemolytic uremic syndrome, and HELLP syndrome [6].

These conditions require timely diagnosis of APS and the refinement of therapeutic approaches.

Objective: to optimize the management of pregnant women with antiphospholipid syndrome.

2. Methods

Given the expected potentiation of the effects of systemic enzyme therapy (SET), plasmapheresis, and low-molecular-weight heparins (LMWH), a combined treatment regimen for APS using these methods simultaneously was developed.

To achieve the objectives of the study, 56 pregnant women with APS were divided into two groups. The main group (n=38) consisted of pregnant women who received SET and plasmapheresis in addition to standard therapy [3]. The comparison group (n=18) included patients who received conventional treatment consisting of anticoagulants, antiplatelet agents, and glucocorticoids [5]. The groups were comparable in age, parity, and obstetric and somatic pathology but differed in the treatment received.

In addition, a control group (n=30) of women with physiological pregnancies was formed.

Results

Systemic enzyme therapy is a treatment method based on combined enzyme preparations containing highly purified proteinases [7].

Indications for plasmapheresis included marked autoimmune activity, manifestations of chronic disseminated intravascular coagulation, allergic reactions to antiplatelet agents and anticoagulants, activation of bacterial and viral infections, and exacerbation of gastric or duodenal ulcer disease, in which the use of prednisolone is limited or impossible.

Plasmapheresis has detoxifying, rheology-correcting, coagulation-correcting, and immunomodulatory effects. Its inclusion in the comprehensive treatment of APS is pathogenetically justified and enhances the effect of drug therapy. In patients with a predisposition to thrombosis, heparins are used to prevent thrombosis of the placental vessels.

When obstetric complications were identified (threatened miscarriage, preeclampsia, placental insufficiency, etc.), they were treated alongside baseline APS therapy.

In the conventional treatment group, antiplatelet agents, anticoagulants, and glucocorticoids were used without SET or plasmapheresis. In the main group, courses of SET and plasmapheresis were additionally administered intermittently every two weeks under monitoring of hemostatic parameters.

During follow-up, parameters of the various components of the hemostatic system were assessed.

At baseline, von Willebrand factor in the conventional therapy group was 17.2% higher than in the control group. It decreased by day 10 of treatment; however, by day 30 it had risen again to 17.7% above control values.

The platelet aggregation index (PAI) initially decreased but rose again by day 30, exceeding the control value by 24.1% ($p < 0.05$).

The platelet aggregation rate was elevated at the beginning of the study and then decreased by day 30.

The total aggregation index followed a similar pattern: an initial decrease was followed by an increase by day 30, when it exceeded control values by 26.2% ($p<0.05$).

The platelet disaggregation index declined throughout follow-up and became significantly lower than in the control group only by day 30 (by 18.5%; $p<0.05$), indicating a deterioration in hemostatic parameters.

Levels of soluble fibrin monomer complexes (SFMC) and early fibrin degradation products (EFDP) were elevated at baseline and continued to rise. By day 30, they exceeded control values by 55.3% and 45.6%, respectively ($p<0.05$).

Prothrombin time increased, did not differ significantly from the control group on day 10, and had almost normalized after one month.

The international normalized ratio (INR) tended to decrease in the comparison group (hypercoagulability), whereas in the main group it had normalized by the end of treatment.

Antithrombin III activity was lower than in the control group (by 12.6% at baseline and by 14.3% after 30 days; $p>0.05$).

3. Discussion

Previous studies in women of reproductive age with antiphospholipid syndrome have focused on developing methods of preconception preparation for a planned pregnancy and on evaluating their clinical effectiveness. The present study provides a comparative analysis of the effectiveness of comprehensive APS therapy during pregnancy.

With conventional therapy, hemostatic parameters changed in different directions during treatment, and overall these changes tended to aggravate the pre-existing disturbances. At the same time, in the group receiving the comprehensive approach (systemic enzyme therapy, plasmapheresis, and anticoagulant therapy), significant differences from the control group in a number of hemostatic parameters were already observed at baseline [8].

The therapy resulted in more pronounced positive dynamics, with a trend toward normalization of the studied parameters. At the start of follow-up, significant differences from healthy pregnant women were found in von Willebrand factor, the platelet aggregation index (PAI), the platelet aggregation rate (PAR), prothrombin time, SFMC, EFDP, antithrombin III activity, and XIIa-dependent fibrinolysis. After 10 days, differences persisted only in the platelet aggregation rate and prothrombin time, at 28.0%

and 15.7%, respectively ($p<0.05$).

By day 30, the main group and the conventional treatment group no longer differed significantly in a number of parameters. However, significant differences between comprehensive and conventional therapy persisted: SFMC levels were 29.7% lower, EFDP levels were 23.3% lower, and prothrombin time differed by 14.0% ($p<0.05$).

4. Conclusion

Analysis of hemostatic parameters shows that systemic enzyme therapy combined with plasmapheresis and low-molecular-weight heparins provides near-complete normalization of the hemostatic profile in pregnant women with antiphospholipid syndrome.

This comprehensive therapeutic approach is of high clinical value, as it contributes to a more favorable course of pregnancy and a lower risk of adverse obstetric outcomes.

References

1. Balbi GGM, Pacheco MS, Monticelo OA, Funke A, Danowski A, Santiago MB, Staub HL, Rêgo J, de Andrade DCO. Position statement of the Brazilian Society of Rheumatology Antiphospholipid Syndrome Committee on the use of direct oral anticoagulants (DOACs) in antiphospholipid syndrome (APS). *Advances in Rheumatology*. 2020;60(1):29.
2. Cohen H, Cuadrado MJ, Erkan D, Duarte-Garcia A, Isenberg DA, Knight JS, Ortel TL, Rahman A, Salmon JE, Tektonidou MG, Williams DJ, Willis R, Woller SC, Andrade D. 16th International Congress on Antiphospholipid Antibodies Task Force Report on Antiphospholipid Syndrome Treatment Trends. *Lupus*. 2020;29(12):1571–1593.
3. Cohen H, Efthymiou M, Devreese KMJ. Monitoring of anticoagulation in thrombotic antiphospholipid syndrome. *Journal of Thrombosis and Haemostasis*. 2021;19(4):892–908.
4. Devreese KMJ, Zuily S, Meroni PL. Role of antiphospholipid antibodies in the diagnosis of antiphospholipid syndrome. *Journal of Translational Autoimmunity*. 2021;4:100134.
5. Kosmuratova ShB, Bitemirova ShK, Zhakieva ShS, Zhylykajdar GM, Kajsazhanova GA. Clinical and anamnestic risk factors for the development of preeclampsia. *Reproductive Medicine (Central Asia)*. 2024;2:80–87. (In Russian)
6. Khamashta M, Taraborelli M, Sciascia S, Tincani A. Antiphospholipid syndrome. *Best Practice & Research*

- Clinical Rheumatology. 2016;30(1):133–148.
7. Moore GW.
Analytical challenges in the detection of lupus
anticoagulant. Exploration of Immunology.
2023;3(4):300–324.
 8. Sciascia S, Khamashta MA, D’Cruz DP.
Targeted therapy in antiphospholipid syndrome.
Current Opinion in Rheumatology. 2014;26(3):269–
275.