Efficacy of anifrolumab as a first-line therapy for the treatment of thrombocytopenia in systemic lupus erythematosus: a case report

Sirs,

We report the first case of a patient with systemic lupus erythematosus (SLE) and steroid-dependent thrombocytopenia successfully treated with anifrolumab as a first line therapy. Thrombocytopenia is a prognostic marker in SLE, since it is associated with an increased risk of mortality and end-organ damage (1). Despite this, there are not many effective therapies approved for the treatment of haematological involvement in SLE and ACR/EULAR recommendations do not provide additional indications (2). There are few studies that have focused on finding new possible therapeutic approaches for thrombocytopenia, especially using the biotechnological drugs as first line therapy (3, 4). Most of the evidence on their efficacy comes from small cohort studies, and in most of them rituximab and belimumab were used as rescue therapies in refractory cases (5, 6). Furthermore, evidences on the efficacy of anifrolumab (ANI), a monoclonal antibody directed against subunit 1 of the Type-1 IFN receptor (IFNAR1), are emerging for the treatment of SLE with moderate-to-severe disease activity, with the best results on skin and joint (7, 8). However, its efficacy on haematological involvement has not been studied in depth.

A previously healthy 23-year-old female presented to the ER in October 2023, complaining of inflammatory arthralgias and dyspnea. Urgent investigations showed pericardial effusion and pulmonary embolism at CT angiography. Blood tests detected increased C reactive protein (up to 1.6 mg/dl) and thrombocytopenia (45000/ul); antiplatelet antibodies were weakly positive. Screening for thrombophilia revealed double heterozygosis of the MTHFR gene, but no alterations of factor V Leiden, factor II, antithrombin, fibrinogenemia, protein C and protein S and lupus anticoagulant, anti-cardiolipin IgG and IgM and anti-beta2glycoproteinI IgG and IgM antibodies were negative. No associated neoplastic lesions were found. After a multidisciplinary case discussion, given the absence of bleeding signs, it was decided to start low molecular weight heparin (LMWH) in combination with glucocorticoid (GC, 1 mg/kg/die) in the suspicion of immune-mediated thrombocytopenia. A prompt response with rise of platelet count up to 250000/ul occurred. Other tests revealed ANA 1:640 homogenous pattern, hypocomplementaemia and direct Coombs test positivity (IgG+, C3+), anti-ENA, anti-dsDNA, ANCA, anti-C1q, anti-ribosomal P protein, rheumatoid factor were all negative. Diagnosis of SLE was made according to ACR/EULAR 2019 criteria (ANA, thrombocytopenia, pericardial effusion, joint involvement, low C3 and C4), oral GC therapy was continued and hydroxychloroquine was started. Anticoagulant therapy was modified switching from LMWH to apixaban. The patient was discharged with remission of symptoms and no laboratory signs of SLE activity. At the outpatient check-ups, GC was progressively reduced with stable platelets count >100 000/ul. Five months later, when prednisone dose was tapered to 10 mg/day, platelets dropped to 36000/ul, so prednisone was increased up to 12.5 mg/day. In April 2024, to allow the reduction of prednisone, therapy with intravenous ANI 300 mg/4 weeks was started, after microbiological screening and recommended vaccinations. ANI was chosen because of the high SLEDAI-2k values (9) and the patient's young age. Prednisone was reduced to 7.5 mg/day six weeks after the first infusion, with GC discontinuation after two ANI administration and persistent platelet count above 100000/ul. Furthermore, the therapy provided an excellent control of all clinical domains and laboratory tests, at least for the first six infusions (SLEDAI-2K 0). Figure 1 shows the trend of platelet values.

This case report provides anecdotic experience of the efficacy of ANI in SLE-related thrombocytopenia and suggests new therapeutic approaches for the haematological involvement of SLE. Further studies on this topic are needed to ensure effective and safe treatments, especially for haematological involvements, to allow early withdrawal of GC and prevent organ damage.

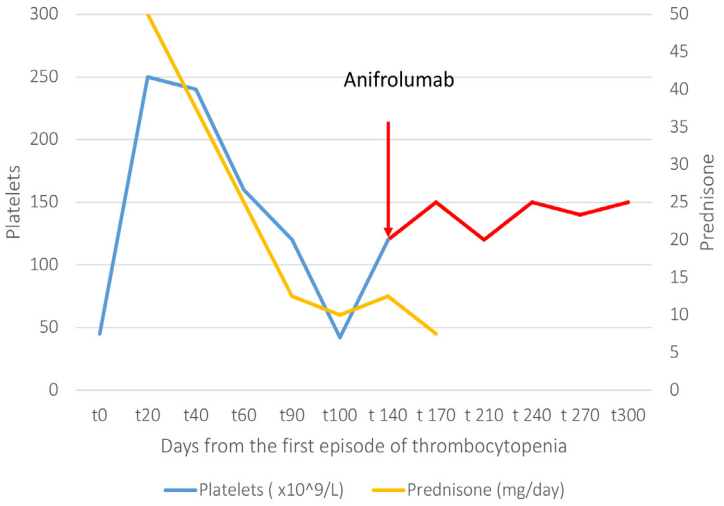

Fig. 1. The graph shows the trend of platelet values (the blue and red line) and the therapeutic changes: the red line indicates platelet values from the first administration of anifrolumab; the yellow line shows the doses of glucocorticoid used.

F. Bottazzi[1,2], *MD*
E. Manna[1,2], *MD*
V. Codullo[1,2], *MD, PhD*
G. Zanframundo[1,2], *MD, PhD*
C. Montecucco[1,2], *MD, Prof.*
L. Cavagna[1,2], *MD, Prof.*

[1]*Department of Internal Medicine and Therapeutics, University of Pavia;*
[2]*Division of Rheumatology, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy.*

Please address correspondence to:
Francesca Bottazzi
S.C. di Reumatologia,
Fondazione IRCCS Policlinico San Matteo,
Piazzale Golgi 2,
27100 Pavia, Italy.
E-mail: francesca.bottazzi01@gmail.com

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