Acquired Inhibitors of Coagulation in a Patient With Systemic Lupus Erythematosus and Antiphospholipid Antibodies: Response to Rituximab

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Introduction

Acquired inhibitors of coagulation in patients with no previous abnormalities in the coagulation process are the result of the spontaneous development of autoantibodies directed against factors of the coagulation cascade or other membrane glucoproteins. Although in approximately 50% of cases the etiology is unknown, conditions that are frequently associated with the development of acquired inhibitors of coagulation are puerperium, autoimmune diseases, drug reactions, cancer, and infections. With the objective of reducing the titers of antibodies against coagulation factors, different treatment strategies such as plasmapheresis, immunoglobulin immunosorption, steroids, and immunosuppressants, such as cyclophosphamide and azathioprine, have been employed. We describe the case of a woman with SLE and antiphospholipid antibodies who presented Evans syndrome and then developed a severe hemorrhage, associated to a reduction in the activity of multiple coagulation factors, without a response to plasma infusions, high-dose steroids and azathioprine, and finally responded to rituximab.
Clinical Case

A 26-year-old woman, without any important history, was hospitalized in the Hospital General de Durango for malaise, fever, arthritis, spontaneous ecchymoses, gum, and nose bleeding. Her blood count showed hemoglobin 10.7 g/dL, leukocytes 1300/µL, and thrombocytes 69 000/µL, with an elevated reticulocyte count and an increase in the numbers of indirect bilirubin and lactate dehydrogenase (LDH), as well as a positive Coombs test, positive antinuclear antibodies, low C3 and CH50, proteinuria, positive anticardiolipin antibodies, both IgG and IgM (36 U and 54 U GPL and MPL, respectively), and a false positive VDRL. On that occasion she was treated with pulse methylprednisolone in 3 doses of 1 gr followed by a 1 mg/kg/day daily dose of prednisone, with a normalization in the hemoglobin levels and the platelet count, as well as improvement in symptoms, with the exception of the hemorrhage and an increase in the coagulation time (PTT, 47°/29°) which did not correct with plasma. Because of this, azathioprine and cloroquine were added, without a response after 4 months of treatment. A determination of the plasma activity of the coagulation factors showed a descent in the activity of all of them. Considering the poor response to the therapy employed up until that moment, we opted for the use of rituximab, 2 doses of 1 g with a 2 week interval between administrations. Three weeks after the second dose, the patient reported the hemorrhage ceasing, with the blood count and the PTT resulting normal and a new determination of the different coagulation factors (Figure), showed a clear normalization in the activity of the coagulation factors which persisted up to 2 months, with clinical improvement of the rest of the symptoms such as joint pain and photosensitivity.

Discussion

Systemic lupus erythematosus is an autoimmune disease that is characterized by the presence of antibodies directed against multiple autoantigens. There are multiple hematologic manifestations of lupus, described classically as hemolytic anemia, thrombocytopenia, leucopenia, and lymphopenia. On the other hand, in up to a quarter of patients with lupus it is possible to detect antiphospholipid antibodies, basically anticardiolipin antibodies, lupus anticoagulant and anti-β2 GP-1, although the importance of other autoantibodies in the physiopathology of this syndrome has recently been described, such as antibodies against phosphatidylcholine and annexin V, which unfortunately were not determined in this patient; however, the presence of these has also been associated to the development of predominantly thrombotic events, not hemorrhage.\(^6\) The hemorrhagic manifestations of lupus are infrequent and have been attributed to the development of antiprothrombin antibodies.\(^6\)

The clinical case we have presented is interesting, because acquired inhibitors of coagulation or circulating anticoagulants represent an infrequent entity with hemophilia A being the most frequent of all of them with an incidence of 0.2 to 1 case per million persons per year and the coexistence of multiple coagulation inhibitors has not been described. Although in this case it was not possible to confirm the presence of inhibitor antibodies, the reduction in the percentage of activity of the different factors with normal controls is an indirect indicator of its presence. An alternative to them should be an insufficient production or an increase in the consumption of coagulation factors, something that can be seen in liver failure or disseminated intravascular coagulation, which was ruled out in the case of this patient.

With respect to treatment, there are no concrete management recommendations and the current information is derived from case reports. Plasmapheresis, immunoglobulin immunoabsorption, steroids, and immunosuppressants have been employed as treatment alternatives, with the objective of reducing the antibody titers and whose most serious side effects are consequences of generalized immunosuppression.\(^7\)\(^-\)\(^9\) Anti-CD20 therapy has been explored in multiple autoimmune diseases, among them SLE and rheumatoid arthritis, and there are case reports of acquired hemophilia treated with rituximab, achieving good results.\(^10\)\(^-\)\(^17\) Therefore, it is attractive to assume that anti-CD20 therapy is an alternative of more limited immunosuppression and could represent a treatment option in patients with acquired inhibitors.\(^6\)
inhibitors of coagulation, resistant to conventional immunosuppressants or in whom their use is not recommended.

References