SWISS ONCOLOGY & HEMATOLOGY CONGRESS

Achieving remission with the second generation BTK-inhibitor zanubrutinib in a male patient with steroid-refractory recurrence of immune-mediated thrombotic thrombocytopenic purpura

Hemostasis, transfusion medicine, vascular, laboratory medicine

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INTRODUCTION

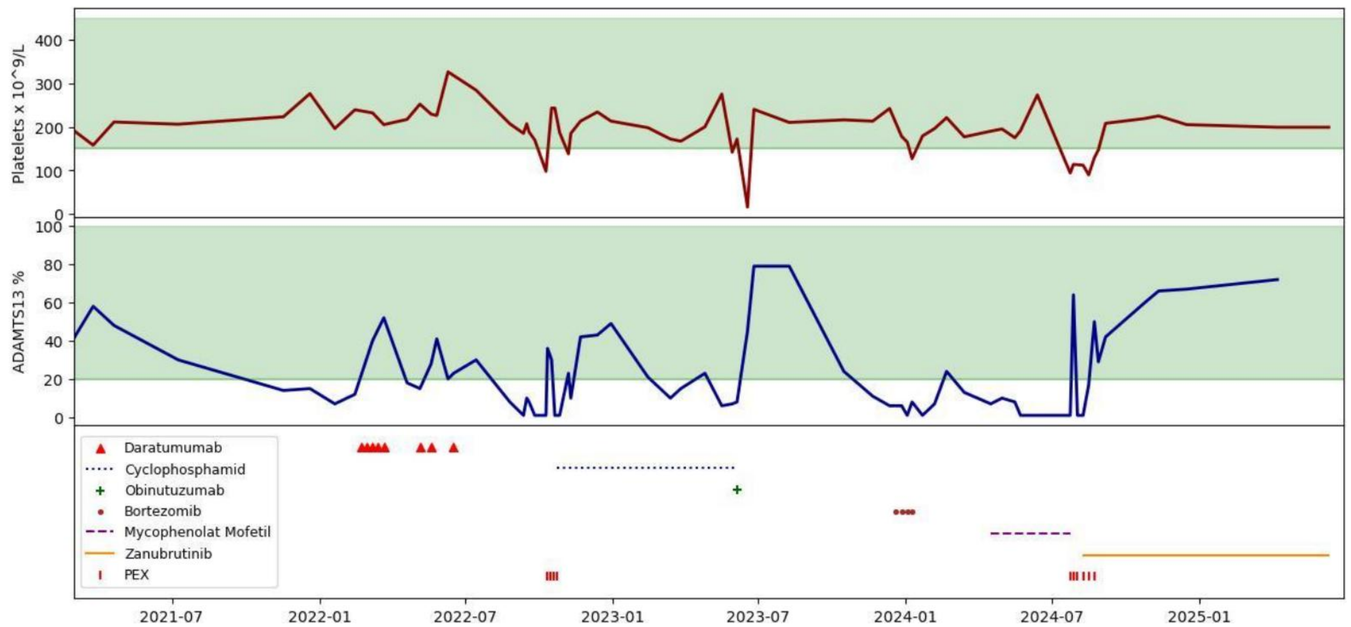
Immune-mediated thrombotic thrombocytopenic purpura (iTTP) is a life-threatening thrombotic microangiopathy characterized by severe ADAMTS13 deficiency, with relapses occurring in up to 30% within two years. Standard treatment includes plasma exchange, corticosteroids, rituximab, and caplacizumab, yet management of relapsed or refractory cases remains challenging. Bruton's tyrosine kinase (BTK) has emerged as a therapeutic target in autoimmune diseases. We report the first successful use of the second-generation BTK inhibitor zanubrutinib in a patient with multiply relapsed, treatment-refractory iTTP.

METHODS

We describe the clinical course of a 43-year-old male with iTTP who experienced seven relapses over 14 years. Multiple immunosuppressive agents (rituximab, obinutuzumab, daratumumab, cyclophosphamide, mycophenolate mofetil, bortezomib) were either ineffective or discontinued due to allergic reactions or intolerance. Plasma exchange and corticosteroids failed to restore ADAMTS13 activity during the latest relapse. In order to avoid complications related to the splenectomy, it was deferred in favor of off-label zanubrutinib.

RESULTS

Zanubrutinib was initiated at 320 mg daily. Within four days, ADAMTS13 activity became detectable and the inhibitor disappeared, allowing cessation of plasma exchange within two weeks. Platelet counts normalized after three weeks and ADAMTS13 activity after eleven weeks. Corticosteroids were tapered and discontinued by week seven. The patient remains in complete remission after 11 months of continuous zanubrutinib. During this time, the patient noticed increasing levels of blood sugar and blood pressure in the context of a preexisting metabolic syndrome, both requiring medical treatment. Otherwise zanabrutinib was well tolerated.



CONCLUSIONS

This case highlights the potential of BTK inhibition as a therapeutic strategy in refractory iTTP. The rapid and sustained hematologic and biochemical response to zanubrutinib, together with its favorable safety profile compared to first-generation BTKis, supports further evaluation of BTK inhibitors in autoimmune thrombotic microangiopathies. Systematic investigation in clinical trials is warranted to determine efficacy, safety, and optimal positioning of BTKi in the treatment algorithm of relapsed or refractory iTTP.

Presented at SOHC 2025 from 19 - 21 November 2025