ELSEVIER

Blood 142 (2023) 393–394

The 65th ASH Annual Meeting Abstracts

ORAL ABSTRACTS

311.DISORDERS OF PLATELET NUMBER OR FUNCTION: CLINICAL AND EPIDEMIOLOGICAL

Patient Outcomes after Initial High Dose Versus Low Dose Romiplostim for Inpatient Management of Immune Thrombocytopenia

Elizabeth King, PharmD[1], *Uzo Abajue, PharmD*[2], *Amanda Pawlenty, PharmD*[2], *Huong Lan Truong, PharmD*[2], *Sabrina Fischer, PharmD*[3], *Alexandra P. Wolanskyj-Spinner, MD*[4], *Rajiv K. Pruthi, M.B.B.S.*[5], *Carl C. Hook, MD*[6], *Animesh D. Pardanani, MBBS, PhD*[7], *Aneel Ashrani, MBBS,MSc*[8], *Ewa Wysokinska, MD*[9], *Surbhi Shah, MD*[10], *Ronald S. Go, MD*[11]

[1] Department of Pharmacy, Mayo Clinic - Rochester, Oronoco, MN
[2] Department of Pharmacy, Mayo Clinic - Rochester, Rochester, MN
[3] Department of Pharmacy, Mayo Clinic - Jacksonville, Jacksonville, FL
[4] Division of Hematology, Department of Internal Medicine, Mayo Clinic, Rochester, MN
[5] Comprehensive Hemophilia Center and Special Coagulation Laboratory, Division of Hematopathology, Mayo Clinic, Rochester, MN
[6] Mayo Clinic, Rochester, MN
[7] Division of Hematology, Mayo Clinic, Rochester, MN
[8] Mayo Clinic College of Medicine, Rochester, MN
[9] Mayo Clinic, Jacksonville, FL
[10] Arizona, Mayo Clinic, Scottsdale, AZ
[11] Mayo Clinic, Onalaska, WI

Introduction: Romiplostim is a thrombopoietin receptor agonist approved by the US FDA for chronic immune thrombocytopenia (ITP) in patients who have had an insufficient response to corticosteroids, immunoglobulins, or splenectomy. The recommended dose is 1 mcg/kg/week subcutaneously, escalated weekly by increments of 1 mcg/kg to achieve and maintain a platelet count of 50 x 10^9 /L g (*Kuter et al* 2021). It has been postulated that starting at the maximum recommended dose of 10 mcg/kg/week in patients with severe bleeding may swiftly increase platelets and minimize bleeding (*Roumier et al* 2021). However, this approach may also increase the risk of major thrombotic events (TE). It is unclear if the more aggressive dosing strategy results in more rapid, robust responses and a tolerable safety profile compared to the FDA approved approach.
Methods: This retrospective chart review included adult patients who initiated romiplostim while admitted for ITP at a Mayo Clinic Enterprise site from May 2018 to May 2022. Outcomes included rate of TE at 30 days and 90 days and time to first TE in patients receiving initial romiplostim doses of < 5 mcg/kg (low dose, LD) and > 5 mcg/kg (high dose, HD), median time to platelet response (defined as platelets > 30 x10^9/L and > 50 x10^9/L on 2 separate checks) in LD vs HD, and cost to the institution comparing LD to HD. Outcomes were summarized using descriptive statistics. Statistical analysis was done using BlueSky. Fischer's exact test and chi-squared were performed for categorical data, and Wilcoxon rank sum test were done for continuous variables.
Results: Forty-five patients met eligibility criteria: 33 (73%) received initial romiplostim doses < 5 mcg/kg and 12 (27%) received doses > 5 mcg/kg. The majority of patients (43/45 (96%)) presented with platelets < 50 x 10^9/L. The median age was 65 years (68 in LD vs 57 HD). There were 24 (73%) males in the LD group vs five (42%) in the HD group. At baseline, 64% (n = 21) of LD patients and 75% (n = 9) of HD patients presented with bleeding. Major bleeding (defined by 2019 ASH ITP guidelines) was present in 21% (n= 7) vs 17% (n = 2) of patients, LD versus HD, respectively (*Neunert* et al 2019).
The overall incidence of TE in this study was 24% (n = 11): LD 5 (15%) and HD 6 (50%) (p = 0.044) at 90 days. Median days to TE was 21 days, 12 days in LD group (range 5-21) vs 24.5 days (range 14-58) in HD group (p = 0.067). TE included deep vein thrombosis (DVT, n = 6), DVT with pulmonary embolism (n = 1), portal vein thrombus (n = 1), multiple brain infarcts (n = 1), splenic vein thrombus (n = 1), and left atrial appendage thrombus (n = 1). The median platelet count at the time of TE was 304 x 10^9/L, 415 x 10^9/L (range 58-900) in the LD group vs 323 x 10^8/L (range 33-1427) in the HD group (p = 0.79). Thirty-two (71%) out of 45 patients had a response to romiplostim: 22 in the LD group (71%) vs 10 (83.3%) in the HD group (p = 0.698).

Of the patients that responded, the median time to response was 6 days in the LD group vs 11.5 days in the HD group (p = 0.09) The median dose at time of initial response was 2 mcg/kg in the LD group and 6 mcg/kg in the HD group.
Wholesale Acquisition Cost (WAC) was used to determine the cost per dose, rounded to the nearest vial size. The average WAC for the initial dose in LD patients was $1806.80 compared to $6061.79 in HD patients.
Conclusion:There was a significantly increased incidence of thrombosis in patients admitted with ITP that received initial romiplostim doses > 5 mcg/kg, with no differences in the time to platelet response. Careful consideration of risks versus benefits should be given prior to initiating romiplostim at doses higher than recommended doses.

Disclosures Pruthi: *Instrumentation Laboratories (Werfen):* Consultancy, Honoraria; *Bayer Healthcare AG:* Consultancy, Honoraria; *Genentech Inc.:* Consultancy, Honoraria; *HEMA biologics:* Consultancy, Honoraria; *CSL Behring:* Consultancy, Honoraria.

OffLabel Disclosure: Romiplostim is a thrombopoietin receptor antagonist approved for the treatment of chronic immune thrombocytopenia that have not responded to corticosteroids, immune globulin, or splenectomy. It is started at a dose of 1 mcg/kg and escalated by 1 mcg/kg weekly.

Group Comparison Low Dose versus High Dose Romiplostim

	< 5 mcg/kg n = 33	≥ 5 mcg/kg n = 12	Total n = 45
Age, median years	68	57	65
Male gender, n (%)	24 (72.7)	5 (41.7)	29 (64.4)
Bleeding, n (%)	21 (63.6)	9 (75.0)	30 (66.7)
Major	7 (21.2)	2 (16.7)	9 (20)
Minor	14 (43.8)	7 (58.3)	21 (46.6)
Thrombotic Event, n (%)			
30-day	5 (15%)	4 (33%)	9 (20%)
90-day*	5 (15%)	6 (50%)	11 (24%)

*statistically significant

Ninety-day Thrombotic Event Free Survival

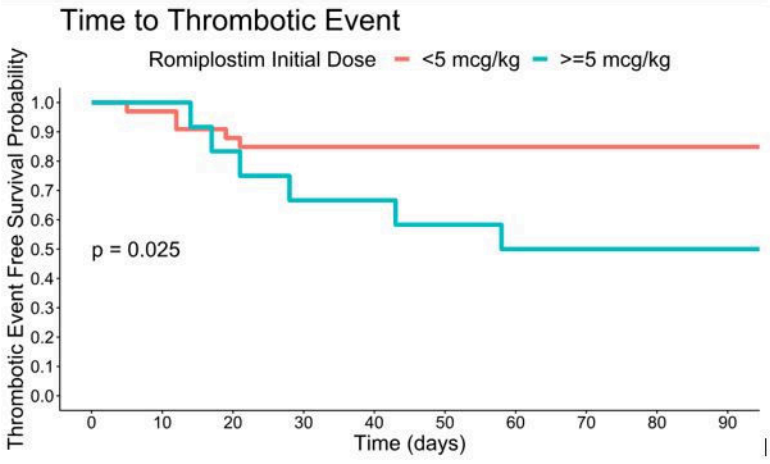

Figure 1

https://doi.org/10.1182/blood-2023-180279